ABSTRACTS OF THE

46th AAGL Global Congress on Minimally Invasive Gynecology

Scientific Program Chair
Sawsan As-Sanie, M.D.

Honorary Chair
Arnaud Wattiez, M.D.

President
Jon I. Einarsson, M.D., Ph.D., MPH

November 12-16, 2017
Gaylord National Resort and Convention Center
National Harbor (Greater Washington, D.C.)

2017 Award Winning Abstracts & Videos

Welcome Letter
Board of Directors
Scientific Program Committees

Oral Presentations
Virtual Posters
Index of Primary Authors

SUPPLEMENT TO
The Journal of Minimally Invasive Gynecology
November/December 2017 • Volume 24 Number 7, Supplement
SurgeryU has a completely new website that will be fully unveiled at the 46th AAGL Annual Global Congress in November.

Some of the exiting new features are:

- Enhanced compatibility with mobile devices
- Inclusion of full length, narrated videos
- Ability to share links with other AAGL members
- The addition of chapters in longer videos
- Ability to create playlists and have favorites

And much, much more – including an entirely new category of videos that you definitely will want to see! Join us for the launch of the new website and experience all that the premier educational website for MIGS has to offer.
Dear Colleagues and Friends,

The AAGL welcomes you to the Gaylord National Resort and Convention Center in National Harbor, Greater Washington, D.C. for the 46th AAGL Global Congress of Minimally Invasive Gynecology.

Early in 2017 the Call for Abstracts opened, inviting all AAGL members and non-members who specialize in minimally invasive gynecology worldwide to share their research, experience and knowledge with their colleagues at the 46th Global Congress. We had an exceptionally high number of submissions with 800 abstracts submitted in 15 different categories. The abstracts were submitted from 43 countries and 38 states in the U.S.

All of these abstracts were reviewed and graded by 457 reviewers, according to standard grading schemes. Each abstract was reviewed by 5 graders who read and/or viewed video abstracts and determined their merits on originality, clarity of writing, study design (if applicable), sample size (if applicable), analysis, conclusion, and pertinence to the meeting. Without the time these reviewers freely gave to complete this process for the 800 abstracts submitted, the task would not have been completed.

After grading, the Scientific Program Committee undertook the task of reviewing the grades and assigning the abstracts to the sessions of the Global Congress. This year we have 8 Plenary Sessions, 17 Open Communications and 11 Video Sessions, plus 4 Scientific Virtual Posters Sessions.

Presented in this publication are the complete abstracts as they were submitted in the Call for Abstracts program. We invite you to read through them, determine which presentations you want to see, and seek out the author to ask further questions or express a compliment.

Abstracts are the first point of dialogue among colleagues about what is developing within our specialty of minimally invasive gynecology. It is the research, experience and knowledge gained on the front line by practitioners of our specialty.

The Call for Abstracts program will open in March 2018 for the 47th Global Congress of Minimally Invasive Gynecology, to be held November 11-15, 2018, at the MGM Grand Hotel in Las Vegas, Nevada. Plan now to submit your written or video abstract for consideration for that scientific program.

Sincerely,

Sawsan As-Sanie, M.D., MPH
Scientific Program Chair

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A partner is defined as "someone who shares an activity." The AAGL acknowledges the corporations who partner with the AAGL to keep open the doors to educating the next generation of minimally invasive gynecologists. With their support the AAGL can provide more programs that will educate physicians and provide better patient care.

The ways in which our Key Partners support the mission of the AAGL include:
- Committing year round support through our Corporate Sponsorship program.
- Funding our fellowship sites.
- Giving unrestricted educational grants to enhance our programs.
- Supporting our hands-on seminars with workstations.
- Providing support for scholarly activities.
- Funding unrestricted grants for MISforWomen.com.
- Advertising in The Journal of Minimally Invasive Gynecology, the official journal of the AAGL, and ordering reprints of articles to disseminate to physicians.

The support from our Key Partners is in accordance with ACCME guidelines for commercial support.

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Abstracts that were submitted for consideration for presentation and received as of May 1, 2017, are published as submitted and are provided to the members of the AAGL for use at the 46th AAGL Global Congress on Minimally Invasive Gynecology. The abstracts will be presented in oral, video and virtual poster sessions.

Published by: Elsevier on behalf of AAGL
# 2017 AAGL Global Congress on MIGS Block Program

## Sunday, November 12 - Postgraduate Day 1

**Registration Hours: 8:00 am - 5:30 pm**

<table>
<thead>
<tr>
<th>Room Number</th>
<th>National Harbor 3</th>
<th>National Harbor 4</th>
<th>National Harbor 5</th>
<th>National Harbor 10</th>
<th>National Harbor 11</th>
<th>National Harbor 12</th>
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<tr>
<th>Luncheon — Discussions with the Experts</th>
<th>(Additional charge; location: Eastern Shore)</th>
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<tbody>
<tr>
<td>Room Number</td>
<td>National Harbor 3</td>
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</table>

| 6:00 pm | FMIGS Graduation Ceremony and Reception (by invitation) |

## Monday, November 13 - Postgraduate Day 2

**Registration Hours: 8:00 am - 7:02 pm**

|-------------|-------------------|-------------------|-------------------|--------------------|------------------|-----------------|--------------------|

<table>
<thead>
<tr>
<th>Luncheon — Discussions with the Experts</th>
<th>(Additional charge; location: Eastern Shore)</th>
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<tbody>
<tr>
<td>12:30 pm — 4:30 pm</td>
<td><strong>FUSS-771</strong> Didactic: How to be the Most Successful in Your Specialty from the Starts</td>
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<tr>
<th>5:30 pm — 6:30 pm</th>
<th>General Session I — Opening Ceremony — Presidential Address (Location: Potomac A)</th>
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<tbody>
<tr>
<td>6:30 pm</td>
<td>Welcome Reception in Exhibit Hall</td>
</tr>
<tr>
<td>8:00 pm</td>
<td>Congressional Crawl (Additional charge)</td>
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How About Some FUNdraising?

The Foundation of the AAGL is excited to offer several unique, fun, and fulfilling opportunities to support the efforts of The Foundation through multiple fundraising events during the 46th Annual Global Congress.

**CONGRESSIONAL CRAWL**
Monday, November 13, 2017 (8:30 pm - 12:30 am)

No trip to the greater Washington, D.C. area is complete without touring our national monuments. This evening tour lets you visit them without the usual daytime crowds, allowing you to take in the history and beauty as they’re bathed in bright lights against the dark sky - a truly unique and memorable experience! Transportation is included.

**PUB CRAWL**
Tuesday, November 14, 2017 (7:30 pm - 12:30 am)

Hip and trendy bars + extraordinary restaurants = great night life in D.C. Join us as we visit some of DC’s trendiest locales for delicious hors d’oeuvres and creative craft cocktails. Your local hosts will ensure that you have a great and safe time. Networking and fundraising like you’ve never done before! Transportation is included.

**BARRE3 FITNESS CLASS**
Wednesday, November 15, 2017 (6:00 am - 7:00 am)

Invigorate your muscles and your mind with a sunrise Barre3 class with Alicia Sokol, owner of Barre3 in Washington, D.C.’s thriving U District (and wife of our own Dr. Andy Sokol). Barre3 delivers a full body workout using only low-impact movements from 3 disciplines: ballet barre, pilates, and yoga. No experience is required.

**AUCTION**
Wednesday, November 15, 2017 (7:00 pm - 9:00 pm)

Our final evening at the Global Congress will begin with this exciting event prior to the Presidential Gala. Enjoy cocktails and hors d’oeuvres as you peruse and bid on an original piece of art; an incredible trip of a lifetime; a championship sports event; a surgical observership with a high-profile expert surgeon; and more.
# 2017 AAGL Global Congress on MIGS Block Program

## Tuesday, November 14 - Congress

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:00 am - 7:45 am</td>
<td>Industry Sponsored Breakfasts (6:00 am - 7:45 am)</td>
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<tr>
<td>7:30 am - 9:30 am</td>
<td>Surgeon's Breakfast: &quot;Highlighting Women in Medicine&quot; (6:00 am - 7:45 am, Additional charge)</td>
</tr>
<tr>
<td>9:30 am - 11:00 am</td>
<td>General Session II - Live Interactive Cadaveric Demonstration: Anatomy/Jordan M. Phillips, M.D. Keynote Address</td>
</tr>
<tr>
<td>11:00 am - 12:00 pm</td>
<td>Exhibit Hall Open/Refreshment Break</td>
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<tr>
<td>12:10 pm - 1:00 pm</td>
<td>General Session III - Stump the Professor</td>
</tr>
<tr>
<td>1:10 pm - 3:30 pm</td>
<td>Exhibit Hall/Open/Box Luncheon</td>
</tr>
<tr>
<td>2:05 pm - 3:15 pm</td>
<td>Open Comm. 5 Research &amp; Science</td>
</tr>
<tr>
<td>3:25 pm - 5:05 pm</td>
<td>Surgical Tutorial 2: Laparoscopic Surgery: Port Placement and Docking</td>
</tr>
<tr>
<td>5:10 pm - 6:10 pm</td>
<td>General Session III - Stump the Professor</td>
</tr>
<tr>
<td>6:10 pm - 8:10 pm</td>
<td>Industry Sponsored Symposia</td>
</tr>
<tr>
<td>8:15 pm - 12:00 am</td>
<td>Urban Pub Crawl (Additional charge)</td>
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## Wednesday, November 15 - Congress

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:00 am - 7:45 am</td>
<td>Barre3 Fitness Class (6:00 am - 7:00 am, Additional Charge)</td>
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<tr>
<td>7:45 am - 9:30 am</td>
<td>General Session IV - Chopped/Business Meeting</td>
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<tr>
<td>9:30 am - 11:00 am</td>
<td>Exhibit Hall Open/Refreshment Break</td>
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<tr>
<td>11:00 am - 12:00 pm</td>
<td>General Session IV - Chopped/Business Meeting</td>
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<tr>
<td>12:10 pm - 1:00 pm</td>
<td>Exhibit Hall/Open/Box Luncheon</td>
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<tr>
<td>2:05 pm - 3:15 pm</td>
<td>Open Comm. 14 Pelvic Pain</td>
</tr>
<tr>
<td>3:25 pm - 5:05 pm</td>
<td>Surgical Tutorial 6: Tips and Tricks for Managing Fibroids</td>
</tr>
<tr>
<td>5:10 pm - 7:10 pm</td>
<td>Industry Sponsored Symposia</td>
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<tr>
<td>7:00 pm - 12:00 am</td>
<td>Silent Auction (7:00 pm - 9:00 pm)</td>
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## Thursday, November 16 - Congress

<table>
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<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:10 am - 12:30 pm</td>
<td>General Session V - Telesurgery Session</td>
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JMIG’s IMPACT FACTOR IS UP!
Now Is The Time To Get Involved!

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What’s New in JMIG?
In an effort to advance our industry presence, we now feature a monthly JMIG Twitter Journal Club #JMIGJC - get published and get noticed on Twitter! And take JMIG with you by downloading the JMIG app, available to AAGL members free on Apple, Android and Kindle Devices.

JMIG is Your Publication
We invite you to experience and be a part of JMIG’s future!

This year, the JMIG Impact Factor went from 2.390 to 3.061 and we are now ranked 16th amongst all Ob/Gyn journals.

This is a key indicator demonstrating how minimally invasive gynecology has evolved - from a novel route of surgical access in the late 1990’s, to the current standard of care for most of our patients today. AAGL’s members are not simply practicing medicine... they are defining the future of patient care through the research and innovations chronicled in JMIG. We encourage you to be part of the movement. Submit your manuscripts and videos for consideration for publication.
Listed below are the winning abstracts and videos for the 46th AAGL Global Congress on Minimally Invasive Gynecology. The award winners will be recognized during the Opening Ceremony on Monday, November 13, 2017 at 5:30 p.m. Please note that the award-winning abstracts will be presented at their regularly scheduled times, except for the Robert B. Hunt award, which will be presented during the JMIG Breakfast.

**Golden Hysteroscope Award**  
**Best Paper on Hysteroscopy**

**Anatomy of Cesarian-Induced Isthmoeles:**

**Clinical Implications**


**Study Objective:** Evaluate the anatomy of Cesarian section healing.

**Setting:** Prospective single investigational site study.

**Design:** International university medical center.

**Patients:** 204 premenopausal women who underwent a benign hysterectomy.

**Intervention:** Subjects underwent a hysterectomy due to uterine bleeding, fibroids and/or adenomyosis. Uteri were midline sagittally sectioned to pathologically evaluate the lower segment/endocervix. The Cesarian section region’s anatomy was documented including the presence of inner and outer nonunion healing.

**Measurements and Main Results:** The uteri weighed $136 \pm 51.8$ g and sounded $6$ cm to $12$ cm. Within these uteri, $134$ (66% of subjects) had a grossly identifiable C-section scar(s). Of these, two (1.5% of identifiable C-section scars) had transmural incisional healing with minimal wall narrowing (complete union healing). One hundred and eleven (82.8%) had isolated inner nonunion healing with the formation of variably prominent Cesarian-induced isthmoeles. Five (3.7%) had isolated outer nonunion healing without isthmoele formation. Fourteen (10.5%) C-section scars had both inner and outer nonunion healing. Two (1.5%) had complete transmural nonunion healing with localized loss of anterior lower segment wall integrity. The inner and outer nonunion healing, when present, involved on average $39 \pm 23\%$ (range: 5-90%) and $27 \pm 17\%$ (range: 10-60%) of the wall thickness, respectively. Due to the nonunion healing, the resultant wall thickness at the C-section site was $5.6 \pm 2.60$ mm (range: 0.0 - 14.2 mm). When compared to the adjacent uterine wall, the nonunion healing resulted in an approximately $70 \pm 16\%$ thinner wall.

**Conclusion:** Following a Cesarian section, a high-incidence of architectural healing-related changes was identified, including notable regional wall thinning (3.6 \pm 2.60 mm) that resulted from inner (82.8%), outer (3.7%), combined (10.5%) or complete (1.5%) nonunion healing. While inner nonunion healing can be hysteroscopically visualized (Cesarian-induced isthmoele), the presence of outer nonunion healing cannot and may clinically result in an unexpectedly thinner wall during procedures in this region.

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**Golden Laparoscope Award**  
**Best Surgical Video**

**Anterior Discoid Resection for Rectosigmoid Endometriosis**

Spuarich MA, Lee TTM, Obstetrics, Gynecology, and Reproductive Sciences, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania

Rectosigmoid endometriosis may present as a full-thickness nodule. Both nodule size and depth of invasion affect how it is resected. Anterior discoid resection is feasible in many cases and avoids the need for a complete bowel reanastomosis. We use various laparoscopic instruments and techniques to assess and resect the nodule. A “squeeze” technique is utilized in which the advanced bipolar device bounces off the nodule because it will avoid cutting through the thick endometriotic tissue. We use barbed suture for the repair for its ease of use. Chansy et al (2015) found that barbed suture does not increase in the incidence of major complications when used for bowel repair. A V-shaped closure increases the upper limit of the defect size that can be repaired in this manner. An air-leak test must be performed to assess the integrity of the repair.
Jay M. Cooper Award
Best Paper on Minimally Invasive Gynecology by a Fellow
Open Communications 9 – Laparoscopy
(3:25 PM – 5:05 PM)

124
3:46 PM – GROUP A

Intravenous Acetaminophen versus Saline in Postoperative Analgesia After Laparoscopic Hysterectomy: A Randomized, Double Blind, Placebo Controlled Trial

Rudin NB, 1Manaswini SM, 1Ecker A, 1Staparich MA, 1King CR. 1Department of Obstetrics and Gynecology and Reproductive Sciences, Division of Gynecologic Specialties, University of Pittsburgh School of Medicine, Magee-Womens Hospital, Pittsburgh, Pennsylvania; 1Department of Obstetrics and Gynecology, Oregon Health and Science University, Portland, Oregon; 1Department of Obstetrics and Gynecology, Southern California Permanente Medical Group, Downey Medical Center, Downey, California; 1Department of Obstetrics and Gynecology, Division of Gynecology and Gynecologic Subspecialties, University of Wisconsin Madison Hospital and Clinics, Madison, Wisconsin

Study Objective: To compare intravenous acetaminophen with placebo and evaluate post-surgical pain control and patient satisfaction after laparoscopic hysterectomy.

Design: Prospective double blind randomized study with patients randomly assigned (1:1) to receive IV acetaminophen or placebo.

Setting: Tertiary-care, academic hospitals.

Patients: From February 2015 to August 2016, 183 patients underwent a total laparoscopic hysterectomy and were enrolled in the study.

Intervention: 91 patients received a preoperative dose of 1000mg of IV acetaminophen (ACET) and 92 received a placebo of IV saline (PLAC), followed by a repeat dose 6 hours later. The induction of anesthesia and remaining postoperative pain regimen was uniform between groups. Both groups were asked to report their pain and nausea levels preoperatively as well as 2, 4, 6 12 and 24 hours after surgery. Surgical satisfaction scores were recorded at 24 hours. Pain, nausea and satisfaction were recorded using a Visual Analog Scale (VAS), a validated data collection tool where patients make a mark along a 10cm line, which is then measured and a score is calculated.

Measurements and Main Results: VAS scores are reported as mean ± standard deviation; comparisons between treatment groups are performed using t-tests. There were no significant differences in generalized abdominal pain at 2 hours (PLAC 3.6±2.5 vs. ACET 4.4±2.5, p=0.07), 4 hours (PLAC 3.5±2.2 vs. ACET 3.9±2.5, p=0.31), 6 hours (PLAC 3.6±2.3 vs. ACET 3.8±2.4, p=0.15), 12 hours (PLAC 3.3±2.1 vs. ACET 3.7±2.6, p=0.27), or at 24 hours (PLAC 3.3±2.4 vs. ACET 3.6±2.5, p=0.28). Similar results were observed for questions regarding pain in the upper abdomen, lower abdomen, and nausea. Conclusion: There were no differences demonstrated between the acetaminophen and placebo groups in their postoperative pain or satisfaction. Given the relatively high cost ($23.20 per dose in our study), lack of benefit and available oral alternatives, our results do not support routine use during hysterectomy.
Jerome J. Hoffman Award

Best Abstract by a Resident or Fellow

Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

439 1:21 PM – STATION E

Post-Operative Belladonna and Opium Suppositories for Pain Management Following Laparoscopic Hysterectomy: A Randomized Controlled Trial

Reiner AE, Murphy L, Wong A, Morozov V, Audlin KM. 1Department of Obstetrics, Gynecology, and Reproductive Sciences, University of Maryland Medical Center, Baltimore, Maryland; 2The Gynecology Center, Mercy Medical Center, Baltimore, Maryland; 3Yoyodyne General Services, New York, New York

Study Objective: To assess the use of a single Belladonna and Opium (B&O) suppository placed at the conclusion of laparoscopic or robotic hysterectomy for postoperative pain.

Design: Single-center, double-blinded, randomized, placebo-controlled trial.

Setting: Academic affiliated community hospital.

Patients: Women undergoing total laparoscopic or robot-assisted hysterec- tomy, recruited from a gynecology practice with five fellowship-trained sur- geons.

Intervention: Belladonna and Opium 16A (16.2/60 mg) or placebo Glycerin suppository placed rectally at the conclusion of surgery, prior to reversal of general anesthesia.

Measurements and Main Results: 47 women were randomly assigned to treatment groups. Demographics did not differ significantly among the groups. Patient-reported pain data were collected with the use of a visual analog scale per PACU protocol. Opiate use was measured and converted into oral morphine equivalents (OMEs). The primary outcome was pain; secondary outcomes included antiemetic and pain medications received in the PACU, and time to discharge from PACU Phase I. The B&O group used a mean of 20.3mg OMEs compared with 20.2mg OMEs for placebo (P<0.49). Average pain did not vary significantly between the two groups at any time point examined. Use of a preoperative scopolamine patch was significantly higher among the placebo group (P=0.014). Use of antiemetic medications was similar between the two groups, including when the scopolamine patch subgroup was excluded from analysis. Average time to discharge from PACU Phase I was 87 minutes for the B&O group, vs. 105 minutes for the placebo group (P=0.08). For patients who received Toradol (n=41), time to discharge from PACU Phase I was 82 minutes for the B&O group, vs. 104 minutes for the placebo group (P=0.05).

Conclusion: B&O suppositories did not significantly lower pain or narcotic use during PACU recovery, but did reduce time to discharge from PACU phase I. Subgroup analysis suggests that specific patient populations may benefit from B&O use.

Robert B. Hunt Award

Best Paper Published in JMIG (September 2016 – August 2017)

JMIG Editorial/Advisory Board Breakfast
(6:30 AM – 7:30 AM)

7:10 AM

Cervical Priming by Vaginal or Oral Misoprostol Before Operative Hysteroscopy: A Double-Blind, Randomized Controlled Trial

Nada AM, Elsayat AR, Awad MH, Metwally AA, Taha AM, Ogila AI, Askalyany AN, Moksen RA, Mustafa M, Abdelaal H. Department of Obstetrics and Gynecology, Faculty of Medicine, Cairo University, Egypt

Study Objective: To evaluate whether misoprostol oral is as effective as vaginal tablets for cervical ripening.

Design: Randomized controlled trial involving a parallel, double-blinded study (Canadian Task Force Classification I).

Setting: Department of Obstetrics and Gynecology, Cairo University Hospital, between January 2014 and January 2016.

Patients: Patients undergoing operative hysteroscopy for various indications.

Intervention: At 12 hours before hysteroscopy, the oral group received a 400-µg misoprostol tablet and 2 vaginal starch tablets. The vaginal group received 400 µg of misoprostol and 2 oral starch tablets. The control group received 2 oral starch and 2 vaginal starch tablets as placebo. Preoperative preparation was the same in all patients.

Measurements and Main Results: The main outcome measures were width of the endocervical canal, ease of dilatation, time to dilatation, and adverse effects. All subjects eligible for operative hysteroscopy (n=430) were invited to participate. Twenty subjects refused, and 20 subjects were excluded. The enrolled subjects (n=390) were randomized to oral misoprostol, vaginal misoprostol, or placebo. The differences in mean width of the endocervical canal between the oral and the control groups (4.79 ± 1.07 mm vs 3.92 ± 0.92 mm), and also between the vaginal and the control groups (4.25 ± 0.71 mm vs 3.92 ± 0.92 mm) were significant (p<.001 for both). Moreover, the difference in mean width of the endocervical canal between the oral and the vaginal groups was significant (4.79 ± 1.07 mm vs 4.25 ± 0.71 mm; p=.009). Cervical entry was easier in the oral and vaginal groups compared with the control group (mean Likert score, 4.25 ± 0.64 vs 4.22 ± 0.74 vs 2.55 ± 0.87; p<.001). In addition, the ease of cervical entry did not differ significantly between the oral and vaginal groups (p=.998). The mean time to dilation was shorter in the oral group and the vaginal group compared with the control group (48.98 ± 12.6 seconds vs 46.55 ± 15.32 seconds vs 178.05 ± 74.18 seconds; p<.001), but the difference between the oral and vaginal groups was not significant (p=.987). Adverse effects were comparable between groups (p>.05).

Conclusion: We found no statistically significant difference in the efficacy of cervical priming between oral misoprostol and vaginal misoprostol.
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Oral Presentations

TUESDAY, NOVEMBER 14, 2017

1 Plenary 1 – Hysteroscopy

(11:00 AM - 12:00 PM)

Final Results of a Randomized Controlled Trial of the Cardea™ GEA System Versus Transcervical Resection of the Endometrium (TCRE) Combined with Roller-Ball Ablation for the Treatment of Abnormal Uterine Bleeding

Feng L,1 Zang Z,2 Liang Q,3 Chen Q,4 Liang Z,2 Xue F,5 Shi H,1 Ob/Gyn, Beijing Tiantan Hospital-The Capital Medical University, Beijing, China; 1Ob/Gyn, Chaoyang Hospital-The Capital Medical University, Beijing, China; 1Ob/Gyn, Shengjing Hospital-China Medical University, Shenyang, Liaoning, China; 1Ob/Gyn, San Yat-sen Memorial Hospital-San Yat-sen University, Guangzhou, Guangdong, China; 1Ob/Gyn, Southwest Hospital-Third Military Medical University, Chongqing, China; 1Ob/Gyn, Tianjin Medical University General Hospital-Tianjin Medical University, Tianjin, China; 1Ob/Gyn, The First Affiliated Hospital of Zhengzhou University-Zhengzhou University, Zhengzhou, Henan, China

Study Objective: To evaluate the safety and effectiveness of the Cardea™ GEA System (a bipolar RF with 5.5 mm probe diameter) as compared to the control (TCRE - Trans Cervical Resection of the Endometrium) combined with roller-ball ablation for the treatment of abnormal uterine bleeding.

Design: Prospective, randomized clinical trial.

Setting: Seven university teaching hospitals.

Patients: The trial size is 161 pre-menopausal patients with abnormal uterine bleeding from benign causes who have completed child birth. 161 patients were 1:1 randomized into the test (82 patients) and control (79 patients) sub-groups, respectively.

Intervention: Ablation performed with Cardea™ bipolar RF or TCRE combined with roller-ball ablation.

Measurements and Main Results: Patient success [PBLAC score ≤ 75 at 1 year] was achieved in 89.19% of test (Cardea-treated) and 86.11% of control (TCRE-treated) sub-groups (at 6 months, 89.61% and 90.79%, respectively; with no statistically significance (P > 0.05) compared to the one year data). One year after treatment, amenorrhea (PBLAC = 0) was reported by 36.49% and 29.58%, respectively. Mean procedure time was 4.81 minutes for Cardea and 29.58%, respectively. Mean procedure time was 4.81 minutes for Cardea and 25.28 minutes for TCRE treated patients. Adverse events that were associated with both Cardea and TCRE instruments occurred in 2.60% and 2.63% of patients, respectively, with no statically significance (P > 0.05).

Conclusion: The novel Cardea™ GEA system for the treatment of AUB is safe and effective. The fast delivery of bipolar RF energy by the system reduces much of the procedure time. The small profile of 5.5 mm in probe diameter requires less, or in most cases, no cervical dilation, potentially more suitable for office procedures.

2 Plenary 1 – Hysteroscopy

(11:00 AM - 12:00 PM)

Results of Hysteroscopic Treatment of Symptomatic Isthmoceles in Patients with Abnormal Uterine Bleeding and Abdominal Pain

Vegas A,1 Martín C,1 López I,1 Moratalla E,3 Miró M,1 Salvaro A,3 Montero N,2 Cano ML2,1 HM Hospitales, Madrid, Spain; 3HM Hospitales, Gine 4 SL, Madrid, Spain

Study Objective: To assess the effectiveness of hysteroscopic treatment in patients with symptomatic isthmoceles with abdominal pain and abnormal uterine bleeding (AUB).

Design: Descriptive, retrospective study.

Setting: University tertiary Hospital.

Patients: Patients with symptomatic isthmoceles that underwent hysterectomy between June 2014 and March 2017.

Intervention: Anterior and posterior fibrotic arch of the isthmocele were identified by hysteroscopy. The anterior arch was resected with the resectoscope bipolar loop. In some cases of small defects it was performed with 5Fr bipolar electrode.

Measurements and Main Results: 32 women underwent surgical hysteroscopy to correct symptomatic isthmoceles. The mean age at the intervention was 39.3. 100% of the patients presented AUB, 41% associated abdominal pain and 25% secondary infertility. All patients had at least one cesarean section (CS), 7 two CS and 5 three CS.

Number

<table>
<thead>
<tr>
<th>N</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>39.3 years</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
</tr>
<tr>
<td>AUB</td>
<td>100% (32)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>40.6% (13)</td>
</tr>
<tr>
<td>Infertility</td>
<td>25% (8)</td>
</tr>
<tr>
<td>Number of cesarean sections</td>
<td></td>
</tr>
<tr>
<td>1 CS</td>
<td>62.5% (20)</td>
</tr>
<tr>
<td>2 CS</td>
<td>21.8% (7)</td>
</tr>
<tr>
<td>3 CS</td>
<td>15.62% (5)</td>
</tr>
<tr>
<td>Uterine position</td>
<td></td>
</tr>
<tr>
<td>Antverted</td>
<td>65.6% (21)</td>
</tr>
<tr>
<td>Retroverted</td>
<td>34.3% (11)</td>
</tr>
</tbody>
</table>

For the diagnosis 2D ultrasound was performed.
For the detection of endometrial disease in reproductive-aged women, ultrasound had a sensitivity of 96%, specificity of 58%, PPV of 94.4%, NPV of 66.6% and accuracy of 91.5%, while hysteroscopy had a sensitivity of 91.8%, specificity of 76.6%, PPV of 96%, NPV of 60.5% and accuracy of 89.7%. In postmenopausal women, ultrasound had a sensitivity of 99%, specificity of 99.1%, NPV of 50% and accuracy of 93.3% and hysteroscopy had a sensitivity of 96.7%, specificity of 86.9%, PPV of 99.2%, NPV of 58.8% and accuracy of 96.2%.

Conclusion: Ultrasound is an effective method for the diagnosis of endometrial disease especially in postmenopausal women.

**Symptoms**

<table>
<thead>
<tr>
<th>Symptoms before surgery</th>
<th>1 month after surgery</th>
<th>2 month after surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUB</td>
<td>100% (32)</td>
<td>12.5% (4)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>40.6% (13)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Conclusion:** Hysteroscopic correction of symptomatic isthmoceles seems to be a safe and effective technique for those patients who present AUB and pelvic pain due to the cesarean scar defect.

### 3 Plenary 1 – Hysteroscopy (11:00 AM - 12:00 PM)

#### 11:20 AM – GROUP A

**Comparison between Transvaginal Ultrasound and Hysteroscopy for Endometrial Assessment**

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**Oliveira Brito LG, Pini P, Benetti-Pinto CL, Yela DA. Gynecology and Obstetrics, State University of Campinas, Campinas, SP, Brazil**

**Study Objective:** To determine if pain, as an indication for second generation endometrial ablation, is an independent risk factor for failure.

**Design:** Retrospective cohort study.

**Setting:** Academic affiliated community hospital.

**Patients:** Women undergoing second-generation endometrial ablation for benign indications.

**Intervention:** Women who underwent Radiofrequency Ablation (RFA), Hydrothermablation (HTA), or Uterine Balloon Ablation (UBA) performed between January 2003 and December 2015.

**Measurements and Main Results:** 5,906 women were identified who underwent endometrial ablation at a single institution. Device distribution was as follows: 3,740 RFA (63.3%), 1,838 HTA (31.1%), and 328 balloon ablations (5.6%). Failure was defined as the need for hysterectomy following ablation. The primary outcome of interest was the incidence of failed second generation endometrial ablation when the original indication was related to pain. Of the 5,906 ablations, 439 (7.4%) were done for an indication related to pain (pelvic pain, dysmenorrhea, dyspareunia, lower abdominal pain, endometriosis, and adenomyosis). Pain as an indication for endometrial ablation, compared with all other indications, was a significant risk factor for failed ablation (20.1% failure rate vs. 15.4%, p = 0.01). Consistent with previous studies, women who underwent ablation at an older age were less likely to fail, which holds true even when the indication for ablation is related to pain (OR 0.96, 95% CI 0.95-0.97). Women who underwent ablation for pain with RFA were more likely to fail than women who underwent ablation for pain with HTA or UBA (OR 1.4, 95% CI 1.0-2.0).

**Conclusion:** Pain as an indication for second generation endometrial ablation is an independent risk factor for failure. Consistent with previous studies younger age was a significant risk factor for hysterectomy following endometrial ablation. RFA used for indication of pain was also a significant risk factor for failure.

### 4 Plenary 1 – Hysteroscopy (11:00 AM - 12:00 PM)

#### 11:30 AM – GROUP B

**Pain as an Independent Risk Factor for Failed Second Generation Endometrial Ablation**

**Cramer MS, Klebanoff JS, Hoffman M. Obstetrics, and Gynecology, Christiana Care Health System, Newark, Delaware**

**Study Objective:** To determine if pain, as an indication for second generation endometrial ablation, is an independent risk factor for failure.

**Design:** Retrospective cohort study.

**Setting:** Academic affiliated community hospital.

**Patients:** Women undergoing second-generation endometrial ablation for benign indications.

**Intervention:** Women who underwent Radiofrequency Ablation (RFA), Hydrothermablation (HTA), or Uterine Balloon Ablation (UBA) performed between January 2003 and December 2015.

**Measurements and Main Results:** 5,906 women were identified who underwent endometrial ablation at a single institution. Device distribution was as follows: 3,740 RFA (63.3%), 1,838 HTA (31.1%), and 328 balloon ablations (5.6%). Failure was defined as the need for hysterectomy following ablation. The primary outcome of interest was the incidence of failed second generation endometrial ablation when the original indication was related to pain. Of the 5,906 ablations, 439 (7.4%) were done for an indication related to pain (pelvic pain, dysmenorrhea, dyspareunia, lower abdominal pain, endometriosis, and adenomyosis). Pain as an indication for endometrial ablation, compared with all other indications, was a significant risk factor for failed ablation (20.1% failure rate vs. 15.4%, p = 0.01). Consistent with previous studies, women who underwent ablation at an older age were less likely to fail, which holds true even when the indication for ablation is related to pain (OR 0.96, 95% CI 0.95-0.97). Women who underwent ablation for pain with RFA were more likely to fail than women who underwent ablation for pain with HTA or UBA (OR 1.4, 95% CI 1.0-2.0).

**Conclusion:** Pain as an indication for second generation endometrial ablation is an independent risk factor for failure. Consistent with previous studies younger age was a significant risk factor for hysterectomy following endometrial ablation. RFA used for indication of pain was also a significant risk factor for failure.
null when viewed laparoscopically. This dual set up allowed for immediate laparoscopic treatment of possible complications including uterine perforation or hemorrhage. This technique allowed the patient a shorter recovery time than the traditional wedge resection, as well as allowed her the opportunity to be a candidate for vaginal delivery in future pregnancies. With the use of still images and labels, the purpose of the video is to guide the viewer through an alternate possible management of an interstitial ectopic pregnancy and the anatomical knowledge required to surgically complete a similar case.

6  Plenary 1 – Hysteroscopy  
(11:00 AM - 12:00 PM)  

11:50 AM – GROUP B  
Operative Hysteroscopy with an IUD in Place  
Wright KN, Vogell A. Gynecology, Lahey Hospital and Medical Center, Burlington, Massachusetts  

We present two cases of operative hysteroscopy where an intrauterine device (IUD) was left in place. In the first case, a patient undergoing hysteroscopic sterilization by Essure presented with a Paragard IUD in place for 5 years. We opted to leave the IUD in place for the coil placement so that she would not have a break in contraception while waiting for her three-month hysterosalpingogram to confirm tubal occlusion. In the second case, a patient undergoing hysteroscopic myomectomy presented with a Mirena IUD in place for one year. We decided to leave the IUD in place to provide endometrial suppression to optimize visualization for the procedure. Afterwards, the IUD will continue to provide menstrual control. Leaving an IUD in place during operative hysteroscopy is feasible and cost-effective in these two situations.

TUESDAY, NOVEMBER 14, 2017

7  Plenary 2 – Oncology  
(12:10 PM - 1:10 PM)  

12:10 PM – GROUP A  
A Prospective Study on the Risk of Occult Malignancies and 30-Day Morbidity in Women Undergoing Minimally Invasive Risk-Reducing Surgery  
Rogani G, Martinelli F, Dito A, Signorelli M, Chiappa V, Leone Roberti Maggiore U, Lorusso D, Raspagliesi F. National Cancer Institute, Milan, Italy  

Setting: Gynecologic oncology referral center.  
Patients: BRCA mutation carriers and BRCAAX patients (those with strong family history of breast and ovarian cancer).  
Intervention: Minimally invasive risk-reduction surgery (including bilateral salpingo-oophorectomy with or without hysterectomy).  
Measurements and Main Results: Overall, 85 women had risk-reducing surgery: 30 (35%) and 55 (75%) women had hysterectomy plus bilateral salpingo-oophorectomy (BSO) and BSO alone, respectively. Overall, 6 (7%) patients were diagnosed with undiagnosed cancers: three early stage ovarian / fallopian tube cancer, two advanced stage ovarian cancer (stage IIIA and IIIB) and one serous endometrial carcinoma. Additionally, 3 (3.6%) patients had incidental diagnosis of serous tubal intraepithelial carcinoma (STIC). A nomogram of predicting factors for the risk of having occult malignancies was built.

Regarding 30-day morbidity, we observed 4 postoperative complications that were managed conservatively, including fever (n = 3) and postoperative ileus (n = 1). No severe (grade 3 or more) complication occurred among patients having risk-reduction surgery. Only presence of occult cancer correlated with an increased risk of developing postoperative complications (p = 0.02); basically, due to the adjunctive staging procedures needed.  
Conclusion: Minimally invasive risk-reducing surgery is a safe and effective strategy to manage BRCA mutation carriers. Patients should have to be counseled about the high prevalence of undiagnosed cancers observed at the time of surgery.

8  Plenary 2 – Oncology  
(12:10 PM - 1:10 PM)  

12:20 PM – GROUP A  
Do Fibroids Reduce the Likelihood of Unanticipated Malignancy?  
Alvi FA, Glaser LM, Tolentino J, Chaudhari A, Milad M, Tsai S. Obstetrics and Gynecology, Northwestern University Feinberg School of Medicine, Chicago, Illinois  

Study Objective: To compare the likelihood of unanticipated malignancy for patients with and without leiomyomatous undergoing hysterectomy or myomectomy for benign indications.  
Design: Retrospective case-control study.  
Setting: Urban, academic tertiary care center.  
Patients: All patients undergoing hysterectomy or myomectomy for benign indications between January 1, 2010 and December 31, 2014.  
Intervention: Charts were reviewed for relevant demographic, clinical, and pathologic data.  
Measurements and Main Results: A total of 1,569 hysterectomies or myomectomies were included after excluding patients with a known malignant or pre-malignant preoperative condition. Patients with adnexal masses were also included if a separate indication for hysterectomy or myomectomy was reported. We found a total of 30 patients with a confirmed gynecologic malignancy or “borderline” tumor, defined as those not meeting criteria for benign or malignant, including 10 versus 20 patients with and without leiomyoma, respectively. Malignant and borderline tumors in the leiomyoma group included 3 leiomyosarcomas (LMS), 2 endometrial adenocarcinomas, 2 smooth muscle tumors of uncertain malignant potential (STUMP), 1 endometrial stromal sarcoma (ESS), 1 granulosa tumor, and 1 atypical leiomyoma. None of these specimens were morcellated. The rate of leiomyosarcoma with a preoperative indication of benign symptomatic leiomyoma was 0.26%. A surgical indication of symptomatic leiomyoma was less likely to be associated with a diagnosis of malignancy (OR 0.35, 95% CI, 0.16-0.75; p < .05). When pre-operative uterine size was 15 to 20 weeks, the odds of malignancy were reduced in patients with leiomyoma (OR 0.21; 95% CI, 0.44-5.68; p < .05).
Conclusion: A surgical indication of symptomatic leiomyoma is associated with a lower probability of unsuspected malignancy than other indications for benign hysterectomy or myomectomy. Enlarged uterine size was paradoxically protective of borderline and malignant conditions. Further prospective studies are needed to better counsel patients about minimally invasive options prior to benign gynecologic surgery.

A Comparative Study of Video Endoscopic Inguinal Lymphadenectomy and Conventional Open Inguinal Lymphadenectomy in Treating Vulvar Cancer
Zhang M, Ding J, Chen L, Zhang X, Hua K. The Department of Gynecology, The Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China

Study Objective: To compare the complications, oncological outcomes, cosmetic satisfaction and quality of life between video endoscopic inguinal lymphadenectomy (VEIL) and conventional open inguinal lymphadenectomy (COIL) in women with vulvar cancer.

Design: Retrospective cohort study.

Setting: Academic hospital.

Patients: Forty-eight consecutive patients with vulvar cancer who underwent COIL (n = 27) or VEIL (n = 21) in the Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China between 2003 and 2016 were included in this study.

Intervention: The perioperative data, postoperative complications, oncological outcomes, cosmetic satisfaction and quality of life between COIL and VEIL groups were compared.

Measurements and Main Results: Twenty patients (74.1%) in COIL group and nineteen patients (90.5%) in VEIL group returned for their follow-up after the operation. The median follow-up time was 73 months (8-162 months) for the COIL group and 28 months (8-58 months) for the VEIL group. The lymph node yield in the VEIL group was comparable with that in the COIL group (15 ± 5 vs. 18 ± 6, P = 0.058). The VEIL group had higher body image scores (16.27 ± 6.0, P = 0.0001) and cosmetic scores (20.13 ± 9.8 vs. 16.92 ± 7.2, P < 0.0001) than the COIL group. The patients in the VEIL group had a higher life quality scores by the FACT-V questionnaire than those in the COIL group (165.9 ± 63 vs. 160.5 ± 60, P = 0.026).

Conclusion: Comparing with conventional open inguinal lymphadenectomy, video endoscopic inguinal lymphadenectomy can effectively reduce the postoperative wound complications, improve patients’ cosmetic satisfaction and quality of life without compromising the therapeutic efficacy. Hence, we believe that VEIL could be a good alternative to COIL for vulvar cancer patients when surgical expertise is available.

Avoiding Occult Uterine Sarcoma Morcellation? Yes We Can!
Fazel A,1 Place V,2 Cornelis F,3 Sroussi J,3 Mezzadri M,1 Le Dreff O,2 Benjila JL1,3 Obstetrics and Gynecology, APHP Hospital Lariboisiere, Paris, France; 2Radiology, APHP Hospital Lariboisiere, Paris, France; 3Pathology, APHP Hospital Lariboisiere, Paris, France

Study Objective: We present the largest series of uterine sarcomas diagnosed among a continuous cohort of 3416 patients referred for fibroid treatment by MIS and discuss the strategy to avoid uterine sarcoma morcellation while there has been a dramatic increase of the incidence over fifteen years.

Design: Prospective study (Canadian Task Force classification II-3).

Setting: University Hospital, Tertiary Center.

Patients: 3416 Referred patients for treatment of fibroids between 01.01.2002 and 01.01.2017.

Intervention: All patients had a clinical examination, endometrial sampling, pelvic ultrasound, MRI. Patients were treated by laparoscopy, hysterectomy, vaginal procedure, Uterine Artery Embolization (UAE) or a combined procedure of UAE and MIS, both first described in our department in 1997 and 2002 respectively, or by laparotomy. Every diagnosis of sarcoma was reviewed by a panel of pathologists.

Measurements and Main Results: 3416 patients were referred for treatment of uterine fibroids during a 15 years period. 70% of the patients were treated by laparoscopy, hysterectomy, with a vaginal procedure, or by UAE. 27 patients had a final diagnosis of sarcoma, all of them being suspected of hypercellular fibroid or sarcoma prior to surgery. No occult morcellation was reported while the incidence rose from 1/500 symptomatic fibroids.
in 2002, to 1/217 in 2016, with no changes in our pre-operative diagnosis method nor further specific referral.

**Conclusion:** The rising incidence of uterine sarcomas is a major concern and while the epidemiology has changed over the last 15 years we report the largest series of sarcomas diagnosed among fibroids with no occult mor-cellation, emphasizing the role of MRI and Endometrial Sampling as key investigations prior to surgery.

11 Plenary 2 – Oncology
(12:10 PM - 1:10 PM)

12:50 PM – GROUP B

**Para-Aortic Sentinel Lymph Nodes in Endometrial Cancer**

El-Neemany D, Pursell N, Curcio E, Giglio A, ElSalwi K, Oh/Gyn, Jersey Shore University Medical Center, Neptune, New Jersey

The aim of this video is to demonstrate the lymphatic pathways and the locations of sentinel lymph nodes detected in endometrial cancer staging performed using the da Vinci robotic platform. Firefly technology using near infra red light after cervical injection of Indocyanine green dye is utilized for this purpose. Lymphatics commonly cross over the obliterated umbilical artery to sentinel lymph nodes in the external iliac, internal iliac or obturator nodes. Alternatively lymphatics may go straight up the course of the IP ligament towards the para-aortic lymph nodes. It this this latter pathway that we demonstrate in 2 different cases. This video hopefully contributes to our appreciation and practice of lymph node dissection in endometrial cancer.

12 Plenary 2 – Oncology
(12:10 PM - 1:10 PM)

1:00 PM – GROUP B

**Robotic-Assisted Laparoscopic Upper Vaginectomy and Rectosigmoid Resection with Primary Reanastamosis**

Vargas R, Costales A, Mahdi H, Gynecologic Oncology, Cleveland Clinic Foundation, Cleveland, Ohio

Recurrent endometrial cancer is commonly treated with radiotherapy and/or chemotherapy. In certain situations, surgical resection would reduce toxicity of treatment with radiotherapy and possibly improves outcomes. In this video we present a radical resection of a recurrent endometrial cancer involving the upper vagina and recto-sigmoid colon.

509 Plenary 2 – Oncology
(12:10 PM - 1:10 PM)

1:10 PM – GROUP B

**A Robotic-Assisted Nerve, Uterine Artery and Fertility Sparing Radical Trachelectomy**

Lim PC, Kang EY. Gynecologic Oncology Robotics Surgery, Center of Hope Renown Regional Medical Center, Reno, Nevada

The intent of the video is to describe the technique of performing robotic-assisted nerve and uterine artery sparing radical trachelectomy for fertility sparing in treatment for cervical cancer stage IB. The video will describe a detail steps wise approach for both pelvic lymph node dissection and also the identification and technique of sparing the hypogastric nerve plexuses in conjunction with uterine artery when performing a robotic-assisted radical trachelectomy.

The minor changes in brain oxygenation were associated with an inverse correlation of HR (a “mirror shape” form).
Changes in heart rate, blood pressure, end tidal CO2, cerebral O2 saturation, systemic O2 saturation and autonomic variables during surgery.

<table>
<thead>
<tr>
<th>Body position</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3a</th>
<th>Phase 3b</th>
<th>Phase 3c</th>
<th>Phase 4</th>
<th>Phase 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supine</td>
<td>Supine</td>
<td>Trendelenburg</td>
<td>Trendelenburg</td>
<td>Trendelenburg</td>
<td>Trendelenburg</td>
<td>Supine</td>
</tr>
<tr>
<td>Intra-abdominal pressure</td>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Low frequency power (log) (msec2/Hz)</td>
<td>2.8 ± 0.8*</td>
<td>3.1 ± 0.9*</td>
<td>3.3 ± 0.9*</td>
<td>2.9 ± 0.9</td>
<td>2.9 ± 0.8</td>
<td>2.8 ± 0.7</td>
<td>3.1 ± 1.0</td>
</tr>
<tr>
<td>High frequency power (log) (msec2/Hz)</td>
<td>2.5 ± 1.2*</td>
<td>3.0 ± 1.0</td>
<td>3.2±0.9*†</td>
<td>2.9±1.0</td>
<td>2.9±0.9</td>
<td>2.8±0.7</td>
<td>3.2±1.0*†</td>
</tr>
<tr>
<td>Total power (log) (msec2/Hz)</td>
<td>3.8 ± 0.8</td>
<td>4.0 ± 0.9</td>
<td>4.3 ± 0.8</td>
<td>3.9 ± 0.7</td>
<td>4.0 ± 0.7</td>
<td>3.8 ± 0.7</td>
<td>4.1 ± 1.0</td>
</tr>
<tr>
<td>Heart rate (b.p.m)</td>
<td>66 ± 10*</td>
<td>64 ± 11</td>
<td>55 ± 6*+§</td>
<td>57 ± 7*+</td>
<td>61 ± 5</td>
<td>66 ± 13†</td>
<td>63 ± 12†</td>
</tr>
<tr>
<td>Systolic blood pressure (mmHg)</td>
<td>118 ± 20</td>
<td>125 ± 26</td>
<td>130 ± 25</td>
<td>126 ± 18</td>
<td>120 ± 18</td>
<td>126 ± 16</td>
<td>127 ± 21</td>
</tr>
<tr>
<td>Diastolic blood pressure (mm Hg)</td>
<td>73 ± 17</td>
<td>78 ± 17</td>
<td>88 ± 12</td>
<td>79 ± 8</td>
<td>75 ± 12</td>
<td>77±11</td>
<td>78±12</td>
</tr>
<tr>
<td>End tidal CO2 (mmHg)</td>
<td>32±4*</td>
<td>36±4*†</td>
<td>36±4*</td>
<td>35±2</td>
<td>35±3</td>
<td>37±3*§</td>
<td>34±4†‡</td>
</tr>
<tr>
<td>Cerebral O2 saturation (%)</td>
<td>73±9</td>
<td>72±8</td>
<td>76±9</td>
<td>75±10</td>
<td>75±9</td>
<td>77±9</td>
<td>75±9</td>
</tr>
<tr>
<td>Systemic O2 saturation (%)</td>
<td>99±0.7</td>
<td>99±0.8</td>
<td>98±1</td>
<td>99±0.9</td>
<td>98±1.1</td>
<td>98±0.9</td>
<td>99±0.9</td>
</tr>
</tbody>
</table>

*p < 0.05.
†p < 0.05.
‡p < 0.05.
§p < 0.05.

All these effects occurred without any significant shifts in systolic or diastolic blood pressure or in systemic oxygenation.

**Conclusion:** This study supports the safety of robotic sacrocolpopexy performed with steep Trendelenburg positioning with pneumoperitoneum. Only minor alterations were observed in cerebral oxygenation and autonomic perturbations, which did not cause clinically significant alterations in heart rate and heart rate variability.

**14 Plenary 3 – Robotics**

(2:15 PM - 3:15 PM)

2:25 PM – GROUP A

**Direct Cost of Hysterectomy When Performed by Different Routes**

Kauki B. Unitypoint Health, Waterloo, Iowa

**Study Objective:** We will be studying the direct cost of hysterectomy when performed by 4 different routes: abdominal, vaginal, laparoscopic and robotic.

**Design:** Data of all patients who underwent hysterectomy from January 2014 until September 2016 were retrospectively collected and analyzed. Our primary outcome was the direct cost of hysterectomy. The secondary outcome was length of stay.

**Setting:** Patients presented to a medium size teaching community hospital to have a hysterectomy.

**Patients:** All patients presenting for a hysterectomy performed by any route from January 2014 until September 2016 were included.

**Measurements and Main Results:** 371 patients underwent a hysterectomy from January 2014 until September 2016. Four routes of hysterectomy identified with the following frequency: abdominal 17 (4.5%), laparoscopic 52 (14%), Vaginal 72 (19.5%), and Robotic 270 (62%). The average direct costs were: $3,822 abdominal, $3,821 laparoscopic, $3,110 vaginal, and $5,450 for the robotic. Once we broke down the direct costs per year, we found a significant decrease in the cost for the robotic route ($8,560 in 2014, $3,723 in 2015, $4,040 in 2016).

The costs for the other routes were not significantly different throughout the years; (abdominal $3,333 in 2014, $3,823 in 2015, $4,169 in 2016), (laparoscopic $3,251 in 2014, $3,957 in 2015, $3,916 in 2016), (vaginal $3,465 in 2014, $2,725 in 2015, $2,884 in 2016).

**Table 1.**

The average length of stay was the shortest for robotics 13 hours, followed by laparoscopic 18 hours, then vaginal 26 hours and longest for abdominal 51 hours.

<table>
<thead>
<tr>
<th>Route</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total/Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>Abdominal</td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Vaginal</td>
<td>34</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Laparoscopic</td>
<td>9</td>
<td>26</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Robotic</td>
<td>78</td>
<td>89</td>
<td>64</td>
</tr>
<tr>
<td>LOS (hrs)</td>
<td>Abdominal</td>
<td>51</td>
<td>57</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Vaginal</td>
<td>29</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Laparoscopic</td>
<td>26</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Robotic</td>
<td>17</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Direct Cost ($)</td>
<td>Abdominal</td>
<td>3,333</td>
<td>3,823</td>
<td>4,169</td>
</tr>
<tr>
<td></td>
<td>Vaginal</td>
<td>3,465</td>
<td>2,725</td>
<td>2,884</td>
</tr>
<tr>
<td></td>
<td>Laparoscopic</td>
<td>3,251</td>
<td>3,957</td>
<td>3,916</td>
</tr>
<tr>
<td></td>
<td>Robotic</td>
<td>8,560</td>
<td>3,723</td>
<td>4,040</td>
</tr>
</tbody>
</table>

|  | 8,560  | 3,723  | 4,040  | 5,450  |

**Table 1.**
Conclusion: Vaginal hysterectomy continued to have the lowest direct cost. Robotic hysterectomy initially had the highest direct cost, and then dropped to become equivalent to the laparoscopic and abdominal route. Robotic hysterectomy had the shortest hospital stay, whereas the abdominal route had the longest. Multicenter study is recommended to confirm if this data can be replicated in other institutions.

15   Plenary 3 – Robotics  
      (2:15 PM - 3:15 PM)

2:35 PM – GROUP A
Use of Administrative Inpatient and Outpatient Databases to Determine Routes of Hysterectomy: the Different Stories They Tell in Florida
Espinal M,1 Guha P,1 Dinh TA,1 Robertson MW,1 Spaulding AC,2 Colibassaneu DT,2 DeStephano CC,1 Medical and Surgical Gynecology, Mayo Clinic Florida, Jacksonville, Florida; 3Mayo Clinic Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery, Jacksonville, Florida

Study Objective: To determine whether differences exist in the routes of hysterectomy reported by two publicly available state databases.

Design: Retrospective cross-sectional study (Canadian Task force classification II-3).

Setting: Purchased data on routes of hysterectomy from Florida’s State Inpatient Database (SID) and State Ambulatory Surgery and Services Databases (SASD) were compared to data from HCUPnet (https://hcupnet.ahrq.gov). HCUPnet provides a free, on-line query system based on data from the Healthcare Cost and Utilization Project (HCUP).

Patients: Adult females who underwent inpatient and outpatient hysterectomies in Florida in 2013-2014.

Intervention: Using HCUPnet, identify the number of each type of inpatient hysterectomy reported by two publicly available state databases.

Measurements and Main Results: HCUPnet provides health care data on inpatient procedures and allow combining the robotic modifier with hysterectomy procedural codes. HCUPnet and databases that only include inpatient data do not provide accurate representations of the hysterectomy route prevalence.

Table 1. Number and percentage of each type of hysterectomy performed in Florida using HCUPnet, SID, and SASD in 2013

<table>
<thead>
<tr>
<th>Hysterectomy route</th>
<th>HCUPnet inpatient database</th>
<th>Florida SID</th>
<th>Florida SID and SASD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Laparoscopic abdominal</td>
<td>3,131</td>
<td>19.27</td>
<td>1,078</td>
</tr>
<tr>
<td>Laparoscopic vaginal</td>
<td>1,806</td>
<td>11.12</td>
<td>1,133</td>
</tr>
<tr>
<td>Vaginal</td>
<td>1,939</td>
<td>11.93</td>
<td>1,872</td>
</tr>
<tr>
<td>Robotic</td>
<td>Not available</td>
<td>Not available</td>
<td>2,555</td>
</tr>
<tr>
<td>Open abdominal</td>
<td>9,373</td>
<td>57.68</td>
<td>7,685</td>
</tr>
<tr>
<td>Total</td>
<td>16,249</td>
<td>100</td>
<td>14,323</td>
</tr>
</tbody>
</table>

Table 2. Number and percentage of each type of hysterectomy performed in Florida using HCUPnet, SID, and SASD in 2014

<table>
<thead>
<tr>
<th>Hysterectomy route</th>
<th>HCUPnet inpatient database</th>
<th>Florida SID</th>
<th>Florida SID and SASD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Laparoscopic abdominal</td>
<td>2,594</td>
<td>16.63</td>
<td>849</td>
</tr>
<tr>
<td>Laparoscopic vaginal</td>
<td>1,391</td>
<td>8.92</td>
<td>910</td>
</tr>
<tr>
<td>Vaginal</td>
<td>1,581</td>
<td>10.13</td>
<td>1,487</td>
</tr>
<tr>
<td>Robotic</td>
<td>Not available</td>
<td>Not available</td>
<td>2,052</td>
</tr>
<tr>
<td>Open abdominal</td>
<td>10,036</td>
<td>64.32</td>
<td>8,323</td>
</tr>
<tr>
<td>Total</td>
<td>15,602</td>
<td>100</td>
<td>13,621</td>
</tr>
</tbody>
</table>
p = 0.72). The average amount of opioid usage post-operatively was 2.6 and 3.5 in the liposomal bupivacaine and non-liposomal bupivacaine group, respectively (p = 0.10). Forty-eight percent of the liposomal bupivacaine group requested opioids and 60% of patients who did not receive liposomal bupivacaine did (p = 0.23). Ninety percent of patients in the liposomal bupivacaine group were discharged on post-op day 0 versus 75% in the non-liposomal bupivacaine group (p = 0.044).

Conclusion: Laparoscopy-guided TAP block using liposomal bupivacaine did not significantly reduce post-op pain scores. There was a trend towards decrease in opioid usage that did not reach a statistical significance. However, the study did note a significantly shorter hospital stay in the liposomal bupivacaine group.

17 Plenary 3 – Robotics
(2:15 PM - 3:15 PM)

2:55 PM – GROUP B

Robotic Resection of Symptomatic Parasitic Leiomyoma From the Obturator Fossa
Mendes G, Nhamda B, Levy K, Silasi D-A. Obstetrics, Gynecology, and Reproductive Sciences, Yale University School of Medicine, New Haven, Connecticut

Patient is a 48-year old with history of total hysterectomy secondary to symptomatic leiomyomas. She was referred to our clinic with groin and right leg pain. She also had burning sensation on the medial aspect of the inner thigh. Pelvic MRI was obtained to further evaluate the etiology of her complaints which revealed a 3.3 cm mass in the obturator fossa. She was taken to the OR for robotic resection of the mass. Once retro-peritoneum was explored and obturator fossa was accessed, the mass was visualized compressing on the obturator nerve. Ureterolysis had to be performed and the external iliac vessels had to be mobilized medially in order to fully expose the mass. Once obturator nerve was identified, the mass was resected without any complications. Patient was discharged home on the day of surgery. Pathology revealed leiomyoma and patient was symptom-free at her post-operative evaluation in 4 weeks.

18 Plenary 3 – Robotics
(2:15 PM - 3:15 PM)

3:05 PM – GROUP B

Robotic Trans-Abdominal Cerclage: Tips and Tricks!
Mourad J. Division of Minimally Invasive Gynecology, University of Arizona, College of Medicine Banner University Medical Center-Phoenix, Phoenix, Arizona

Cervical insufficiency often leads to painless, progressive cervical dilation and eventual delivery of a non viable pregnancy or an extremely premature infant. This has a tremendous negative physical, social and economic impact on the women and families afflicted by this disorder. Robotic trans-abdominal placement of a cerclage tape at the level of the cervico-uterine isthmus can be accomplished pre-conceptually or during gestation in a minimally invasive manner with much reduced morbidity compared to the traditional approach via laparotomy. This video demonstrates information regarding instrumentation, surgical technique, tips and tricks to facilitate performance of the procedure in a safe, efficient and reproducible manner. Utilization of a cervical cup manipulator that can be used in a pregnant uterus, and the utilization of mini-laparoscopy instruments is highlighted to facilitate and overcome technical difficulties that can be encountered in a pregnant patient or in a more advanced gestational age pregnancy.
### Table 1. Analysis of Minimally Invasive vs. Exploratory Laparotomy Cases

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimally Invasive N = 21</th>
<th>Converted to Exploratory Laparotomy N = 15</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34.6 ± 4.4</td>
<td>33.3 ± 7.0</td>
<td>0.760</td>
</tr>
<tr>
<td>Gravidity</td>
<td>3.5 ± 1.9</td>
<td>2.5 ± 1.6</td>
<td>0.172</td>
</tr>
<tr>
<td>Gestational Age (week, days)</td>
<td>7.0 ± 1.4</td>
<td>7.5 ± 0.6</td>
<td>0.070</td>
</tr>
<tr>
<td>BHCG &gt;5000 (n)*</td>
<td>14 (66.7%)</td>
<td>8 (66.7%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Ectopic Status (n)*</td>
<td></td>
<td></td>
<td>0.443</td>
</tr>
<tr>
<td>Ruptured</td>
<td>4 (19.05%)</td>
<td>5 (33.3%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Intact</td>
<td>17 (80.95%)</td>
<td>10 (66.7%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Prior Abdominal Surgery (Pelvic or Adnexal) (n)*</td>
<td>5 (25.0%)</td>
<td>5 (35.7%)</td>
<td>0.704</td>
</tr>
<tr>
<td>EBL (ml)</td>
<td>291.9 ± 666.5</td>
<td>610.0 ± 711.4</td>
<td>0.049</td>
</tr>
<tr>
<td>Intraoperative Time (mins)</td>
<td>143.0 ± 33.1</td>
<td>154.9 ± 29.0</td>
<td>0.248</td>
</tr>
<tr>
<td>Operative Time (mins)</td>
<td>0 (0%)</td>
<td>4 (26.67%)</td>
<td>0.023</td>
</tr>
<tr>
<td>Operative Adhesions Present (n)*</td>
<td>2 (9.5%)</td>
<td>2 (13.3%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Length of Stay (days)</td>
<td>1.2 ± 0.4</td>
<td>2.2 ± 1.0</td>
<td>0.001</td>
</tr>
<tr>
<td>Subsequent Pregnancy (n)*</td>
<td>7 (58.3%)</td>
<td>5 (41.7%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Re-Admission within 30 days (n)*</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Re-Admission within 90 days (n)*</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>n/a</td>
</tr>
</tbody>
</table>

All data reported as the mean unless otherwise indicated by asterisk * = Count with percentages.

### Table 2. Analysis of Ruptured vs. Intact Interstitial Ectopic Status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intact N = 27</th>
<th>Ruptured N = 9</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34.2 ± 6.2</td>
<td>33.6 ± 3.4</td>
<td>0.475</td>
</tr>
<tr>
<td>Gravidity</td>
<td>3.1 ± 2.0</td>
<td>3.2 ± 1.2</td>
<td>0.611</td>
</tr>
<tr>
<td>Gestational Age (week, days)</td>
<td>7.1 ± 1.2</td>
<td>7.6 ± 1.4</td>
<td>0.169</td>
</tr>
<tr>
<td>BHCG &gt;5000 (n)*</td>
<td>16 (64.0%)</td>
<td>6 (75.0%)</td>
<td>0.687</td>
</tr>
<tr>
<td>Prior Abdominal Surgery (Pelvic or Adnexal) (n)*</td>
<td>7 (25.9%)</td>
<td>3 (42.9%)</td>
<td>0.394</td>
</tr>
<tr>
<td>Abdominopelvic Pain</td>
<td>7 (25.9%)</td>
<td>8 (88.9%)</td>
<td>&lt;0.002</td>
</tr>
<tr>
<td>EBL (ml)</td>
<td>113.7 ± 158.3</td>
<td>1356.7 ± 849.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Intraoperative Bleeding Occurred (n)*</td>
<td>1 (3.70%)</td>
<td>3 (33.3%)</td>
<td>&lt;0.041</td>
</tr>
<tr>
<td>Conversion to Ex-lap (n)*</td>
<td>10 (37.0%)</td>
<td>5 (55.6%)</td>
<td>0.443</td>
</tr>
</tbody>
</table>

All data reported as the mean unless otherwise indicated by asterisk * = Count with percentages.

**Setting:** Two academic hospitals within one health system.

**Patients:** Women who underwent attempted laparoscopy for management of interstitial ectopic pregnancy between 2008 and 2017.

**Intervention:** N/A.

**Measurements and Main Results:** A total of 36 cases were analyzed. 15 cases (41.7%) were converted from minimally invasive to open, with bleeding (N = 6), adhesions (N = 1), difficult visualization (N = 6) and diagnosis of interstitial pregnancy (N = 6) as reasons for conversion. Patients who underwent minimally invasive surgery had significantly lower EBL, a lower rate of surgeon reported intra-operative bleeding and a shorter hospital length of stay compared to the patients whose surgery was converted to open. Ectopic status (ruptured vs intact) was not significantly associated with conversion open surgery. Additionally, history of myomectomy, cesarean and adnexal surgeries were not associated with conversion to open surgery. There were no hospital re-admissions within 30 or 90 days for any of the cases. 12 women in this case series went on to have reported subsequent pregnancies.

**Conclusion:** This is the largest review and analysis of cases of interstitial ectopic pregnancy at the uterine cornua. As obstetrician-gynecologists, it is important to become skilled in operative laparoscopy, namely laparoscopic suturing or consult minimally invasive fellowship trained surgeons to afford patients the benefit of minimally invasive surgery in the event of this rare occurrence.

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**21 Plenary 4 – Laparoscopy (3:25 PM - 5:05 PM)**

**3:45 PM – GROUP A**

**Rate and Factors Predictive of Ureterolysis during Laparoscopic Surgery Involving Endometriosis**

*Liu L, Biest SW, Winner BA. Obstetrics and Gynecology, Washington University School of Medicine, Saint Louis, Missouri*

**Study Objective:** To identify the frequency of and clinical factors predictive for laparoscopic ureterolysis in patients with endometriosis.

**Design:** Prospectively collected clinical database, analyzed as a retrospective cohort.

**Setting:** Academic tertiary care center and affiliated community hospital.

**Patients:** All women who underwent laparoscopic surgery between July 2012 and February 2017 within the Division of Minimally Invasive Surgery.

**Intervention:** The frequency of ureterolysis at the time of laparoscopic surgery for patients with and without endometriosis were reviewed. For patients with a pre-operative diagnosis of endometriosis, age, body mass index, number of prior open surgeries, number of prior gynecologic surgeries, abnormal imaging and abnormal physical exam were analyzed as clinical risk factors for ureterolysis.

**Measurements and Main Results:** Of 1544 patients, 270 had either a pre-operative diagnosis of endometriosis. 24.4% (66/270) of patients with endometriosis required ureterolysis, as compared to 3.2% (41/1274) of patients without endometriosis (p < 0.0001). For patients with a pre-operative...
Plenary 4 – Laparoscopy
(3:25 PM - 5:05 PM)

Adnexal Torsion during Pregnancy – Perinatal and Neonatal Outcomes after Surgical Treatment
Dayan Y,1,2 Bugyn R,1,2 Klein Z,1,2 Josephy D,1,2 Pomerantz M,1,2 Sharvit M,1,2 Arbib N,1,2 Biron-Shental T,1,2 Schomman R,1,2 Obstetrics and Gynecology, Meir Medical Center, Kfar Saba, Israel; 2Sackler School of Medicine, Tel Aviv University, Kfar Saba, Israel

Study Objective: To investigate the perinatal and neonatal outcome of ovarian torsion during pregnancy.

Design: A retrospective case control study.

Setting: Tertiary care medical center.

Patients: All women who were diagnosed with ovarian or adnexal torsion during pregnancy between January 2005 and December 2014 were included in the study group.

Intervention: We compared the perinatal and neonatal outcome after laparoscopic surgery during pregnancy.

Measurements and Main Results: 82 patients were admitted with suspected ovarian torsion. A total of 72 (89.9%) had surgery for ovarian detorsion, of which 65 patients had laparoscopy (90.2%) with one conversion to laparotomy and 7 (1.3%) underwent laparotomy. The matched control group included 158 pregnant women. Torsion was diagnosed in 71 patients (98.7%) in the study group. The mean gestational age at laparoscopy was 11.2 ± 6 weeks (range 4-34 weeks). Average operative time was 40.2 ± 22 min. Surgical complications occurred in 2 (2.7%) patients, one needed blood transfusion and another underwent conversion to laparotomy. In the post-operative follow up, 3 (4.1%) patients had first trimester miscarriage. Pregnancy complications (defined as intrauterine growth restriction, pre-eclampsia, pregnancy induced hypertension, gestational diabetes, cervical shortening, oligo/polyhydramnios, premature contractions) occurred in 15 (18.3%) patients in the study group and 27 (17%) in the control group and were not significantly different between the groups (P = 0.799). There was no significant difference between the study and control groups in pregnancy and neonatal outcomes, including Apgar scores, mean cord blood pH (7.25 ± 0.1 and 7.26 ± 0.08) and birth weight (3008 ± 473 and 3068 ± 584), respectively. Multiple pregnancies and previous cesarean deliveries were found as risk factors for developing ovarian torsion during pregnancy (P = 0.041 and P = 0.023, respectively).

Conclusion: Laparoscopic management of ovarian torsion during pregnancy did not influence perinatal and neonatal outcomes and seems to be a safe procedure during pregnancy. Multiple pregnancies and previous cesarean delivery are risk factors for ovarian torsion during pregnancy.

Preoperative and intraoperative manifestations in pregnant women with suspect ovarian torsion

| Manifestation                                      | N (%)
|---------------------------------------------------|------
| Suspected ovarian torsion                         | 28   |
| Women treated surgically                         | 72 (89.9) |
| Torsion found at surgery                         | 71 (98.6) |
| Laparoscopic approach                             | 65 (91.5) |
| Conversion to laparotomy                         | 1 (1.5)% |
| Laparotomy approach                               | 7 (9.8%) |
| Surgical complication                             | 2 (2.7%) |
| Side of torsion (right)                           | 44 (61.9%) |
| Detorsion, N (%)                                  | 56 (78.8%) |
| Detorsion + Fixation, N (%)                       | 1 (1.4%) |
| Detorsion + Oophorectomy, N (%)                   | 1 (1.4%) |
| Detorsion + Cystectomy, N (%)                     | 13 (18.3%) |
| Average operative time, mean ±SD (range)          | 40.2 ± 22 min. (7-130) |
| Gestational age at surgery, mean ±SD (range)      | 11.2 ± 26 weeks. (4-34) |
| Hospitalization days, mean (days)                 | 3.8   |

* % of the laparoscopic surgeries
Risk of Occult Endometrial Cancer during Hysterectomy for Benign Indications
Palavalli Parsn LH, Pedersen R, Richardson DL, Kho KA. The University of Texas Southwestern Medical Center, Dallas, Texas

Study Objective: Recent attention regarding the use of power morcellation highlighted concerns regarding occult uterine sarcomas. However, sarcomas comprise only 3% of uterine cancers. The vast majority of malignancies are endometrial in origin and are more reliably diagnosed preoperatively than sarcomas. We sought to estimate the frequency of occult endometrial cancer in women undergoing benign hysterectomies.

Design: Retrospective chart review.
Setting: Large single academic institution.
Patients: All patients undergoing hysterectomies for benign indications by general obstetrician gynecologists from 2006—2014.
Intervention: A retrospective database was used to identify all hysterectomies performed, and institutional tumor registry was used to identify cases of endometrial carcinoma. Occult carcinomas were defined as cases with no suspicion preoperatively and histopathologic diagnosis of endometrial cancer postoperatively.

Measurements and Main Results: A total of 6,981 hysterectomies were performed. Thirteen patients (0.19%) were found to have occult endometrial cancer, with an overall rate of 1 in 537 patients (95% confidence interval 1:314—1:1,008). Twelve patients had stage IA and one had stage IB disease. Median age of women with endometrial cancer was 50 years (range 35-72 years). The mean Body Mass Index was 32.6 9.2 kg/m2. Most common indication for hysterectomy were abnormal bleeding (47%), then postmenopausal bleeding (15%). Cases included nine abdominal hysterectomies, two laparoscopic hysterectomies, and two vaginal hysterectomies. One specimen was manually morcellated during vaginal hysterectomy.

Conclusion: This is one of the largest single institution cohorts to examine occult malignancy. Occult endometrial carcinomas are more common than occult uterine sarcomas, and were found to occur in 1:537 (0.19%) hysterectomies for benign indications in our population.

Effectiveness of the Transversus Abdominis Plane (TAP) Block in Laparoscopic and Robotic Gynecologic Surgery
Wang A, Shin JH. Montefiore Medical Center, Bronx, New York

Study Objective: To review the analgesic effect TAP and its impact on the quality of recovery for patients undergoing laparoscopic and robotic gynecologic surgery.

Design: Systematic review.
Setting: Multiple academic and private centers.

Patients: Literature search performed using PubMed for all publications related to TAP, laparoscopy or robotic gynecologic surgery, in English, and randomized controlled trials (RCTs).

Measurements and Main Results: Seven RCTs with a control comparison were identified with a total of 661 patients included in the analyses of these independent studies. Four studies found no significant differences in postoperative narcotic use or pain score measures in patients who received TAP blocks. One study did not find a clinical difference between TAP versus trocar site infiltration. Two studies found significant improvements in opioid consumption and pain scores in the TAP cohorts. There was no standardized methodology to measuring the effectiveness of TAP as studies differed by block medication, volume, dose, laterality, and placement. Measurement of patient—reported pain was done by various scales which included the Prince Henry Pain Scale (PHS), Brief Pain Inventory (BPI), Visual Analog Scales (VAS), and QoR-40.

Conclusion: The use of TAP in laparoscopic and robotic gynecologic procedures is relatively recent, and there is no consensus if it provides a significant clinically benefit. There is data to show that it has potential to decrease reliance on other pain management modalities. Additional prospective studies with a standardized approach would allow us to better understand the effect on postoperative pain management and role in multimodal analgesia.
mobilization, infiltration of surrounding myometrium with vasopressin, excision of the uterine mass, and repair of the uterine defect. This approach preserves the patient’s reproductive options, and may allow subsequent intrauterine pregnancy.

### Plenary 4 – Laparoscopy

**4:55 PM – GROUP C**

**Laparoscopic Hysterectomy for Cervical Fibroid:**

**Surgical Tips**

Ramirez CI, Lee TTM. Obstetrics and Gynecology, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania

Cervical fibroids are rare but may result in bulk symptoms or heavy menstrual bleeding. Laparoscopic hysterectomies can be challenging in patients with cervical fibroids due to anatomical distortion of the uterine vessels and inability to place a uterine manipulator. In this video, we demonstrate surgical tips to perform a safe laparoscopic hysterectomy in a patient with a large cervical fibroid extending to the pelvic sidewall. Surgical techniques demonstrated include: utilization of a Breisky-Navratil retractor for uterine manipulation and colpotomy guide, ligation of the uterine arteries at their vascular origin via a pararectal space and medial umbilical ligament approach, and utilization of bipolar electrosurgery to complete the colpotomy without a uterine manipulator. By using these surgical tips, laparoscopic hysterectomy can be performed safely in patients with large cervical fibroids.

**WEDNESDAY, NOVEMBER 15, 2017**

**Plenary 5 – Urogynecology**

**11:00 AM – GROUP A**

**Outcomes for Laparoscopic Excision of Vaginal and Mid-Urethral Mesh**

Elkattah R,1 Mohling S,2 Garcia B,1 Yilmaz A,2 Farr R.3 Obstetrics and Gynecology - Division of Minimally Invasive Gynecology, University of Illinois College of Medicine - Peoria, Peoria, Illinois; 2Obstetrics and Gynecology - Division of Minimally Invasive Gynecology, University of Tennessee College of Medicine - Chattanooga, Chattanooga, Tennessee

**Study Objective:** To describe the outcomes of patients who underwent endoscopic excision of vaginal mesh for pelvic pain indications.

**Design:** Retrospective chart review.

**Setting:** Tertiary Hospital.

**Patients:** Thirteen patients with a history of vaginal and/or mid-urethral mesh placement who presented with a primary complaint of mesh-related pelvic pain. The following data was collected: age, gravidity, parity, body mass index, prior surgical/medical history, concomitant hormone replacement, tobacco use, clinical presentation, duration of symptoms, physical exam findings, surgical intervention, operative time, estimated blood loss, intraoperative complications, length of hospital stay, surgical and pathology reports, and 6 week post-operative follow-up.

**Intervention:** Endoscopic excision of vaginal and mid-urethral mesh using the following techniques: utilizing rectal probes, digital vaginal manipulation, traction/counter-traction, back-filling of the bladder, “cold-cutting”, blunt dissection, utility of surgical gauze, and combined vaginal-laparoscopic approach.

**Measurements and Main Results:** Average age, gravidity, and parity was 56.4 ± 10.9 years, 3 ± 1.7 and 2 ± 0.9, respectively. Average BMI was 28.7 ± 3.1 kg/m². Four of thirteen (30.7%) patients were tobacco users. All patients had a prior hysterectomy. Seven of thirteen patients (53.8%) had retroperitoneal mid-urethral slings. All patients presented with vaginal and pelvic pain. 12/13 had dyspareunia, and one had urinary retention. There was one bladder serosal injury (7.6%) and an incidental colpotomy. The average blood loss was 62.3 ± 48.5 mL. The overall surgical time for all mesh excisions was 194.6 ± 35.4 minutes. Encountered mesh was entirely excised with the exception of one case. On the six week follow-up, subjective pelvic pain perception by patients was significantly diminished with most showing at least 70% improvement.

**Conclusion:** Laparoscopic mesh excision is both safe and feasible. In experienced hands, a multi-modal surgical approach for mesh handling makes this excision possible. These techniques and tips are crucial when vaginal excision of symptomatic mesh is not successful.

**Plenary 5 – Urogynecology**

**11:00 AM – GROUP A**

**Assessing Improved Methods for Clinic-Based Sacral Neurmodulation Lead Placement**

Eugenio-Colon JD,1 Malone CA,1 Díaz-Sylvester P.2 Groesch KA,1 Zuta VJ,1 Siddique SA.1 1Department of Obstetrics and Gynecology, Southern Illinois University, St. John’s Hospital, Springfield, Illinois; 2Cardiothoracic Imaging, St. John’s Hospital, Springfield, Illinois

**Study Objective:** To characterize variations in the location of the 3rd sacral (S3) foramen using computer tomography (CT) images.

**Design:** Retrospective review of multimodal CT scans.

**Setting:** Academic affiliated community hospital.

**Patients:** Patients undergoing prone abdominopelvic CT scans in 2015.

**Intervention:** N/A.

**Measurements and Main Results:** 52 patients were analyzed (25 males/27 females). Left and right sacral measurements were obtained, as well as height and weight. Measurements of anatomical landmarks, pelvic conjugates and estimated angle of lead insertion were performed. Mean distance from the tip of coccyx to the inferior edge of S3 was 73.1 +/− 11.1 mm. Mean distance of S3 to point of optimal angle of insertion was 37.4 +/− 16.1 mm. Mean angle of lead insertion was 64.5° +/− 7.2°. Mean distance from mid-sacral line to S3 was 16.1 +/− 14.8 mm.
Conclusion: Our results suggest that the optimal angle for insertion for the lead remains at 60°. The distance from the origin of S3 to the optimal entry point for the probe is 37 mm with a mean depth of 55 mm. There is a moderate correlation between Body Mass Index (BMI) and the distance from the tip of coccyx to S3, between BMI and distance from the midline to S3, or BMI and the optimal angle of insertion. We also noted that the mean distance from the tip of coccyx to S3 did not align itself with the recommended 90-100 mm; our mean distance was 70 mm. We believe that using the measurements from our study (70 mm midline, 15 mm lateral to midline and 30 mm above) to localize the S3 foramen entry point during clinic-based InterStim placement procedures would result in a higher success rate for in-office lead placement.

Table 1. Perioperative data of the three groups

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Shears (n=26)</th>
<th>Vaginoplasty using SIS graft (n=44)</th>
<th>Laparoscopic Davydov(n=47)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating time(minutes)</td>
<td>48.9±15.8</td>
<td>32.0±5.5 (20-45)</td>
<td>116.6±40.9 (55-215)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Estimated blood loss (ml)</td>
<td>64.2±66.2</td>
<td>23.5±14.4 (5-60)</td>
<td>52.2±25.7 (10-125)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Haemoglobin change(g/l)</td>
<td>15.0±7.9</td>
<td>6.1±5.5 (0-22)</td>
<td>8.7±8.5 (0-40)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Return of bowel activity(hours)</td>
<td>16.5±4.1</td>
<td>21.0±3.1 (15-27)</td>
<td>26.0±4.1 (16-38)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Return to work (weeks)</td>
<td>2.7±0.8</td>
<td>1.9±0.3 (1.5-6)</td>
<td>3.4±0.7 (2-10)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hospital stay post-surgery(days)</td>
<td>11.1±3.1</td>
<td>10.5±2.1 (6-16)</td>
<td>11.8±3.0 (6-21)</td>
<td>0.046</td>
</tr>
<tr>
<td>Complications</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Transfusion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Operation cost ($)</td>
<td>502±20 (488-560)</td>
<td>834±166 (545-1185)</td>
<td>864±220 (481-1250)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Total cost ($)</td>
<td>3918±1492 (1603-5462)</td>
<td>5253±844 (4426-7737)</td>
<td>1850±268 (1374-2795)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Data are mean ± SD (range) or n.
The mean length of the neovagina was the shortest in the SIS group.

Table 2. The anatomical outcomes in patients with MRKHS through the three vaginoplasty methods

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Shears (n=24)</th>
<th>Vaginoplasty using SIS graft (n=37)</th>
<th>Laparoscopic Davydov (n=42)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of the neovagina (cm)</td>
<td>7.9±1.2 (5-10)</td>
<td>6.8±0.8 (5-8.5)</td>
<td>7.4±1.1 (5-9.5)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Data are mean ± SD (range) or n.
was the shortest and the total cost was the highest due to the cost of SIS graft.

32  
**Plenary 5 – Urogynecology**  
(11:00 AM - 12:00 PM)

**Clinical Observation of Modified Vaginal Closure of Vaginal Mucosa (Vaginal Mediastinoplasty) in the Treatment of Severe Pelvic Organ Prolapse**  
Jia N, Feng L. ObGyn, Beijing Tiantan Hospital, The Capital Medical University, Dongcheng District, Beijing, China

**Study Objective:** To evaluate the safety, efficacy and clinical evaluation of the modified LeFort colpoploceis with vaginal epithelium kept (vaginal mediastinum-plasty) for the improvement of symptoms and quality of life, postoperative satisfaction, regret rate and complications in older women.  
**Design:** Randomized, single-arm study.  
**Setting:** One university teaching hospital.  
**Patients:** 30 patients be compared before and after modified mediastinoplasty operations, due to pelvic organ prolapse.  
**Intervention:** Modified vaginal closure of vaginal mucosa (vaginal mediastinoplasty).  

**Measurements and Main Results:** After a median 18 months (range 7-35 months) follow-up period, no woman had experienced prolapse recurrence required a second surgery. No woman regretted for having had the surgery. The satisfaction rate was 93.3%, with postoperative urinary incontinence requiring a second surgery. No woman regretted for having had the surgery.  
**Conclusion:** Modified LeFort colpocleisis with epithelium kept (vaginal mediastinum-plasty) has a relatively high satisfaction rate, a low regret rate, and a positive impact on pelvic symptoms. The operation can significantly improve the quality of life of patients.

33  
**Plenary 5 – Urogynecology**  
(11:00 AM - 12:00 PM)

**Entry Into the Peritoneal Cavity in Post-Hysterectomy Prolapse**  
Bretschneider CE,1 Jialaud K,1 Lange PM,2 Karram MM,3 Walters MD4.  
1Cleveland Clinic, Cleveland, Ohio; 2The Christ Hospital, Cincinnati, Ohio

Entry into the peritoneal cavity can be challenging in post-hysterectomy patients with prolapse; however, it is important for vaginal surgeons to be able to enter the peritoneal cavity using a variety of techniques in order to perform intra-peritoneal vaginal vault suspensions. In this video, we present surgical footage of various methods of accessing the peritoneal cavity in post-hysterectomy prolapse from posterior, anterior and apical approaches. This video also highlights surgical techniques that can be used to gain entry into the peritoneal cavity in post-hysterectomy prolapse in a safe and reliable manner. Using the featured techniques, surgeons should be able to safely and confidently identify and enter the peritoneal cavity from various approaches to perform an intra-peritoneal vaginal vault suspension.
Setting: Department of Obstetrics and Gynecology, Gynecologic Oncology, and Minimally-Invasive Pelvic Surgery, International School of Surgical Anatomy, Sacred Heart Hospital, Negrar, Verona - Italy.

Patients: Seventy-three women with symptomatic nodular adenomyosis, who had no plans for pregnancy but declined hysterectomy.

Intervention: Radiofrequency thermal ablation (100°C, median time of treatment 7 mins). All the procedures were carried out by laparoscopic access in order to perform a concomitant eradication of the deep infiltrating endometriosis (78% of the cases) if found.

Ultrasoundography was performed at baseline and at postoperative follow-ups at 3, 6, 9, and 12 months. The impact of uterine adenomyosis-related symptoms was assessed according to the visual analog scale (VAS).

Measurements and Main Results: The median number of nodular lesions treated per patient was 1 (range, 1-2). The median baseline volume of the adenomyosis area was 60 cm³ (range, 18-128). Follow-up period ranged from 6 to 44 months. The median reduction in volume was 32, 49.4, 59.6, and 65.4% at 3, 6, 9, and 12 months, respectively. A significant progressive improvement in the symptoms score was observed at the 4 follow-ups.

Conclusion: In this study, laparoscopic radiofrequency thermal ablation reduced uterine adenomyosis-related symptoms and volume, with significant improvement on quality of life in the treated patients.


36 Plenary 6 – Endometriosis and Adenomyosis (12:10 PM - 1:10 PM)

12:20 PM – GROUP A

Long-Term Effect of Elagolix on the Endometrium: Results from Two Phase 3 Extension Studies in Women with Endometriosis-Associated Pain

Lessey RA,1 Diamond MP,2 Agarwal SK,3 Dnkowski P,4 Duan WR,4 Thomas JW,1 Chwalisz K,1 Obstetrics & Gynecology, Reproductive Endocrinology & Infertility, Greenville Health System, Greenville, South Carolina;2 Augustana University, Augustana, Georgia;3 Center for Endometriosis Research and Treatment, UC San Diego, La Jolla, California;4 Institute for the Study and Treatment of Endometriosis, Oakbrook, Illinois; AbbVie Inc., North Chicago, Illinois

Study Objective: To evaluate the long-term effect of elagolix, an oral, non-peptide gonadotropin-releasing hormone agonist, on endometrial morphology and thickness in women with endometriosis-associated pain.

Design: Elaris EM-III and Elaris EM-IV were two, extension studies of the 6-month (M) pivotal, phase 3 studies.

Setting: Outpatient setting in clinic/office.

Patients: Elagolix/elagolix participants (randomized and treated: Elaris EM-III, n = 287; Elaris EM-IV, n = 282) were premenopausal, 18-49 year-old women with surgically diagnosed endometriosis. Some women received more than 12M of treatment due to the timing of their enrollment in the extension studies.

Intervention: The extension studies evaluated two elagolix doses (150 mg once daily [QD] and 200 mg twice daily [BID]) for an additional 6M (overall treatment period of 12M). The data presented are from women who received elagolix in both the pivotal and extension studies (elagolix/elagolix participants).

Measurements and Main Results: Endometrial thickness was measured via trans-vaginal ultrasound (day 4-8 menstrual cycle) at baseline and M6 in both studies and endometrial biopsies were performed at M6 (Elaris EM-III only). Baseline biopsies (in Elaris EM-III only) and trans-vaginal ultrasound (TVU) endometrial thickness measurements were assessed prior to dosing in the pivotal studies. The reductions in proliferative and secretory patterns and increase in quiescent/minimally stimulated endometrial biopsy patterns observed in the pivotal study were maintained over 12M of treatment (Elaris EM-III only). There were no adverse endometrial findings. Following 12M of treatment, the mean (SD) change in endometrial thickness, as measured by TVU, was 0.6 (3.8) mm at 150 mg QD and -0.8 (3.4) mm at 200 mg BID for Elaris EM-III and 1.3 (3.5) mm at 150 mg QD and -0.5 (4.0) mm at 200 mg BID for Elaris EM-IV.

Conclusion: Consistent with the mechanism of action and data from the pivotal studies, long-term elagolix treatment led to a dose-dependent suppression of endometrial proliferation as evidenced by endometrial biopsy results and TVU endometrial thickness measurements.

37 Plenary 6 – Endometriosis and Adenomyosis (12:10 PM - 1:10 PM)

12:30 PM – GROUP A

Endometriosis: An 8-Year Retrospective Analysis on the Surgical Outcomes and Complications in a Large Multicentre Unit in Melbourne

Barel O, Rainer R, Harris A, Najjar H, Jim T. Gynecological Endoscopy Unit, Monash Health and Monash University, Bentleigh East, Victoria, Australia

Study Objective: The objective of this study was to assess the surgical outcomes and complication rates of endometriosis related surgery over an 8-year period.

Design: This was a retrospective study following women who underwent endometriosis surgery at Monash Health in Melbourne, Australia between the years of 2009 and 2016. Follow up data was collected to evaluate success of surgery based on reporting of pain and repeat surgeries.

Setting: This Study was conducted in a Multicenter study conducted in a large tertiary health network in Melbourne Australia.

Patients: 3034 patients presented with endometriosis to Monash Health during this time period. Of these 2150 patients underwent surgical treatment, 974 patients had sufficient data in their computerised records and were included in the analysis.

Intervention: Laparoscopic Surgery for diagnosis and treatment of endometriosis.

Measurements and Main Results: 658 (67.4%) of patients had stage 1 or 2 endometriosis and 316 (32.4%) had stage 3 or 4 endometriosis. In regards to surgical outcomes, conversion to laparotomy (14 vs 6 p = 0.001), complication rate (25 vs 11 p < 0.001), average time to discharge (1.9 vs 1.3 days p < 0.001) and average operating time for operative laparoscopies (126.1 vs 76.5 minutes p < 0.0001) were all significantly higher in the Stage 3 and 4 endometriosis group. Patients with Stage 3 and 4 endometriosis had significantly more symptom resolution or improvement following surgical treatment (141/186 vs 160/294 p = 0.0001).

Conclusion: The findings from this study reinforces that surgical treatment is effective for patients with severe endometriosis. Complication rates, operating time and length of stay in this series of patients were related to the severity of the endometriosis.

38 Plenary 6 – Endometriosis and Adenomyosis (12:10 PM - 1:10 PM)

12:40 PM – GROUP B

The Similarity of the Eutopic and Ectopic Endometrium in Transcriptomic Profiles

Aznarova Y R,1 Garazha A V2 Adamyan L V3 Bazlin A A2

Stepanian A A,1 Department of Reproductive Medicine and Surgery, A.I. Evodkinov Moscow State Medical & Dental University, Moscow, Russia;2 OmicsWay Corp., Walnut, California;3 Academy of Women’s Health and Endoscopic Surgery, Atlanta, Georgia

Study Objective: To identify all transcriptomic changes and changes of intracellular signaling-pathway activity in eutopic and ectopic endometrium and the correlation between molecular abnormalities in these locations.

Design: Retrospective cohort study. Design classification: II-1 Evidence obtained from a well-designed controlled trial without randomization.

Setting: University-affiliated community hospital.

Patients: 50 women (average age 32 years) with different forms of endometriosis, who were not treated with hormonal medicines before...
surgery. We have analyzed 50 eutopic, 50 ectopic, and 5 normal endometrial samples.

**Intervention:** Laparoscopic excision of ectopic foci and hysteroscopy with endometrial sampling. RNA was isolated from the tissue samples.

Transcriptome (2200 genes) has been investigated by microchip hybridization (CustomArray B3 Synthesizer). The profiles of activation/repression of intracellular signaling pathways in the studied samples were calculated using the bioinformatics method Oncofinder.

We normalized all pathway activation profiles of the normal endometrium samples and proceeded with the identification of strongly differentiating signaling pathways in endometriotic foci. We then carried out multiple comparisons between e- and ectopic endometria of women with endometriosis.

**Measurements and Main Results:** Statistically significant differences between eutopic endometria of women with and without endometriosis were found. Evaluation of eutopic and ectopic endometrium in each patient took place and indicated a high degree of correlation (85%-98%) in signaling pathway activation profiles between eutopic and ectopic endometrial samples in each individual patient. The top-30 most strongly differentiating up- and down-activated signaling pathways were identified.

**Conclusion:** Our findings suggest that easily accessible eutopic endometrium can be used as a marker of the presence of endometriotic foci outside the uterus. It, therefore, may create a basis for early reliable diagnosis of endometriosis via utilization of endometrial sampling/biopsy.

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**41 Plenary 7 – Reproduction**

(2:15 PM - 3:15 PM)

**Risk Factors and Human Chorionic Gonadotropin**

**Trends in Patients with Ruptured Tubal Ectopic Pregnancies Despite Methotrexate Treatment**

Hutchinson AP,1 Pereira N,2 Chung ER,2 Lekovich JP,2 Chung PH,3 Rosenwaks Z.1 Department of Obstetrics and Gynecology, Weill Cornell Medical College, New York, New York; The Ronald O. Perelman and Claudia Cohen Center for Reproductive Medicine, Weill Cornell Medical College, New York, New York.

**Study Objective:** To investigate the risk factors and human chorionic gonadotropin (hCG) trends in patients with ruptured tubal ectopic pregnancies (EPs) despite methotrexate (MTX) treatment.

**Design:** Case-control study.

**Setting:** Academic center.

**Patients:** Patients receiving MTX for sonographically-confirmed tubal EPs after IVF between 2004-2014. Baseline demographics and hCG trends of patients with EP rupture after MTX (cases) were compared to patients with resolved EPs after MTX (controls).

**Intervention:** Intramuscular MTX.

**Measurements and Main Results:** Baseline demographics recorded were age, body mass index (BMI), parity, smoking status, presenting symptoms, and gestational age at diagnosis. hCG levels were measured on the day of MTX, as well as day-4 and day-7 after MTX. Odds ratios (OR) with 95% confidence intervals (CI) for EP rupture vs. EP resolution were estimated. 137 patients were diagnosed with EPs during the study duration: 27 cases and 110 controls. There was no difference in the baseline demographics of the two groups; however, patients with ruptured EPs after MTX were more likely to have vaginal spotting (OR 3.19; 95% CI 1.3-7.7) compared to those with resolved EPs. There was no difference in hCG levels on the day of MTX (1285.6 ± 233.6 vs. 1326.6 ± 307.3 IU/mL) between cases and controls. However, patients with ruptured EPs after MTX had higher hCG levels on day-4 (1223.9 ± 243.5 vs. 1111.2 ± 179.7 IU/mL; P < 0.001) and day-7 (1156.9 ± 206.2 vs. 872.4 ± 690.2 IU/mL; P < 0.001).

**Comparison of clinical parameters in patients with ruptured and resolved EPs after MTX treatment**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Ruptured EP (n = 27)</th>
<th>Resolved EP (n = 110)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational Age at Diagnosis i.e., 1st MTX Dose (Cycle Days)</td>
<td>37.9 (2.79)</td>
<td>38.2 (2.42)</td>
<td>NS</td>
</tr>
<tr>
<td>hCG Level at 1st MTX (IU/mL)</td>
<td>1326.6 (307.3)</td>
<td>1285.6 (233.6)</td>
<td>NS</td>
</tr>
<tr>
<td>Day 4 hCG Level (IU/mL)</td>
<td>1223.9 (243.5)</td>
<td>1111.2 (179.7)</td>
<td>0.001</td>
</tr>
<tr>
<td>Day 7 hCG Level (IU/mL)</td>
<td>1156.9 (206.2)</td>
<td>872.4 (690.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% hCG change: Day 7 vs. 1st MTX</td>
<td>-10.9%</td>
<td>-39.1%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MTX</td>
<td>% hCG change: Day 7 vs. Day 4</td>
<td>-4.93%</td>
<td>-27.3%</td>
</tr>
<tr>
<td>% hCG change: Day 4 vs. 1st MTX</td>
<td>-6.26%</td>
<td>-12.5%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Data represented as mean (standard deviation).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The odds of EP rupture compared to EP resolution were 6.2 (95% CI 2.1-19.1), 13.7 (95% CI 4.84-38.9), and 3.0 (95% CI 1.2-7.2) times higher when
Fig. 1. hCG Trend in Patients with Rupture of Ectopic Pregnancy after MTX Therapy (n = 27)

Fig. 2. hCG Trend in Patients with Resolution of Ectopic Pregnancy after MTX Therapy (n = 110)

the change in hCG levels was <5% between day-7 vs. day of MTX, day-7 vs. day-4, and day-4 vs. day of MTX, respectively.

Conclusion: Patient with ruptured tubal EPs despite MTX present more frequently with vaginal spotting and have <5% change in hCG levels between the day of MTX and day-4 or day-7 after MTX.

42 Plenary 7 – Reproduction (2:15 PM - 3:15 PM)

2:25 PM – GROUP A

Cesarean Scar Pregnancies: A Systematic Review of Treatment Options
Mahieux-Lacroix S.1 Li F.1 Byjou E.2 Nesbitt-Hawes E.1 Deans R.1 Abbott J.1 Royal Hospital for Women, University of New South Wales, Sydney, NSW, Australia; 2CHU de Quebec, Université Laval, Quebec, Canada

Study Objective: To assess the efficacy and safety of treatment options of cesarean scar pregnancies (CSP).

Design: We performed a systematic review and searched Medline, Embase, and Cochrane Library as well as reference lists, to June 2016. We included English publications reporting treatment outcomes of at least 10 cases of CSP. Two authors screened for eligibility, extracted data and assessed the quality of included studies.

Setting: Royal Hospital for Women (tertiary university hospital), Sydney, Australia.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Of the 1,257 citations identified, 62 studies were eligible. Treatment was considered successful if no subsequent inter-vention was required following index treatment. The overall success rate of systemic methotrexate (MTX) and/or local injection of MTX or potassium chloride was 62%. Dilatation and curettage (D&C) was associated with a 28% risk of haemorrhage that dropped to 4% when combined with uterine artery embolization (UAE). Hysteroscopic resection of CSP was unsuccessful in 12% of cases and inadequate hCG decay was the primary indication for additional intervention. Laparoscopic, vaginal and open excision and repair of the defect were associated with high success rate (≥96%) and low risk of haemorrhage (≤4%). Expectant management resulted in a 57% live birth rate, but 63% of women required hysterectomy due to placental implantation abnormalities or second-trimester uterine rupture. Most studies were of low methodological quality and given the heterogeneity in the way results were reported, statistical comparison of treatment options could not be performed.

Conclusion: The decision to allow progression of CSP exposes women to a high risk of life-threatening haemorrhage and hysterectomy. Medical treatment options alone are often insufficient, however D&C is a reasonable option in well-selected women or when combined with UAE. Potential benefits of excision and repair of scar defect on further pregnancy outcomes need to be further assessed.

43 Plenary 7 – Reproduction (2:15 PM - 3:15 PM)

2:35 PM – GROUP A

Long-Term Ultrasound Follow-Up in Pre- and Post-Menarchal Girls with Adnexal Torsion: What Is the Impact on the Ovaries?
Smorgick N.1, Nir O.2 Pekar M.1 Maymon S.3 Pansky M.1 Maymon R.2
1Department of Obstetrics and Gynecology, Assaf Harofe Medical Center, affiliated with the Sackler Faculty of Medicine, Tel Aviv University, Beer- Sheva, Israel; 2Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

Study Objective: Although conservative surgical management of adnexal torsion in pre- and post-menarchal girls is the current standard of care, the adnexal ischemia associated with torsion may cause adnexal damage. The aim of this study is to investigate the long term effects of adnexal torsion in this population on ovarian volume.

Design: Retrospective cohort study.

Setting: University affiliated department of Obstetrics and Gynecology.

Patients: All patients operated for adnexal torsion between 2000-2016 who were <18-years-old at time of surgery.

Intervention: Ultrasound evaluation of the ovarian volumes, and comparison of the ovarian volume for the affected and non-affected ovaries. Information regarding torsion characteristics was retrospectively abstracted from the medical records.

Measurements and Main Results: 84 cases of torsion in this population were identified, and of those 37 patients were included in the study. A significant difference was detected in the mean ovarian volume between the affected and the non-affected ovaries (4.7 ± 3.6 cm3 versus 6.7 ± 3.8 cm3, p = 0.008). Ovarian atrophy (i.e., the affected ovary could not be demonstrated on ultrasound) was diagnosed in 6 (16.2%) cases, while diminished ovarian size (defined as a difference of >2 cm3 in the ovarian volume between the affected and non-affected ovaries) was diagnosed in 12 (32.4%) cases. The presence of fever on presentation and longer time duration from admission to surgery were significantly associated with ovarian atrophy and diminished ovarian size. None of the other clinical parameters (including age at time of torsion, and menarchal status at time of torsion) and none of the other surgical parameters (including cystectomy procedure, torsion side, number of adnexal twists and number of torsion episodes) were significantly associated with ovarian atrophy or with diminished ovarian size.

Conclusion: Adnexal torsion in pre- and post-menarchal girls may adversely affect ovarian volume, with possible impact on future fertility. Referral for fertility preservation may be considered in cases of unilateral atrophy.
Successful Twin Pregnancy in a Patient with Hemi-Uterus Corrected by Laparoscopic Strassman’s Metroplasty

Yi X.1 Wang Z.1 Chang K.1 Xu H.1 Hua K.1 1Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China; 2Obstetrics and Gynecology of Shanghai Medical School, Fudan University, Shanghai, China; 3Shanghai Key Laboratory of Female Reproductive Endocrine Related Diseases, Shanghai, China

Study Objective: To describe a successful twin pregnancy in a patient with hemi-uterus (with a rudimentary cavity) underwent laparoscopic metroplastic surgery via modified Strassman’s procedure.

Design: Case report with 3-year follow-up.

Setting: A university-based tertiary obstetrics and gynecology hospital.

Patients: A 27-year-old nulliparous woman with a hemi-uterus, presenting with dysmenorrhea for 13 years, a previous abdominal left ovarian chocolate cystectomy and right tubal ligation were done in community hospital and failed to relieve severe pain, which was also ineffective to analgesic agents or gestrinone.

Intervention: A laparoscopic metroplasty was performed via modified Strassman’s method, 2-year contraception was suggested.

Measurements and Main Results: Asymmetric obstructed noncommunicating unicornuate uterus (Class U4a, according to 2013 ESHRE/ESGE classification) was identified by MRI and confirmed during laparoscopic surgery, with left rudimentary uterus filled with blood clots and a 1-cm polyp, right uterine horn was smaller than normal, the right fallopian tube was found ligated by previous mistake, a 3-cm vaginal cyst located in the left-upper vagina. Assisted by hysteroscopy and ultrasound, a new uterus was reconstructed and endometrial polyp was removed laparoscopically, while vaginal cystectomy was performed (a 3-minute video was presented here with key steps described).

Menstruation was restored without pain. Two years later, in vitro fertilization and embryo transfer was done, resulting in twin pregnancy. Cesarean section was performed at 34 weeks’ gestation. Two healthy neonates were born. Uneventful menstruation was restored 4 months after giving birth. Both babies were doing well.

Conclusion: Laparoscopy combined with hysteroscopy is golden standard to confirm müllerian anomalies. Resection of rudimentary uterus with functional endometrium should not be regarded as the only method to relieve cyclic pain. Detailed ultrasound during surgery is necessary for a comprehensive evaluation and precise reconstruction. Successful twin development might occur following metroplasty, as described in our case report.
Fig. 1. Difference of > 5 tablets between used and prescribed considered a significant difference.

pregnant, have moved addresses more than 3 times in past six months, or report allergy to all opioid pain medications.

Intervention: Patients receive follow-up telephone surveys 7 days post-operatively, and possibly 14 and 28 days post-op depending on their answers. The survey includes questions regarding pain levels, satisfaction with pain control, and number of tablets of opioid pain medication left-over.

Measurements and Main Results: Enrollment is ongoing. Currently 113 patients have been enrolled and data is available for 90 patients thus far. Of those, 15.6% underwent laparotomies, 61.1% underwent major minimally invasive surgeries, and 23.3% underwent minor laparoscopic surgeries. On average, patients were prescribed 29.6 (SD 9.3) opioid tablets and had a significant amount left-over: 19.1 tablets (SD 12.6). While minor laparoscopic surgery patients received prescriptions for smaller amounts of opioids compared to the major minimally invasive surgery and laparotomy groups (p = 0.04, 25.1 tablets vs 30.9 and 31.3 tablets respectively), there was no difference in the amount of medication left-over between the different surgery sub-groups (p = 0.67). Figure 1 depicts the amount of medication used versus prescribed in each surgery sub-type. Only three patients were told what to do with their left-over opioid tablets.

Conclusion: Preliminary data shows that gynecologists are over-prescribing post-operative prescription opioids in all levels of gynecologic surgery and neither physicians nor pharmacists are providing adequate information regarding disposal of leftover medications.

48 Plenary 8 – Education, Research & Science (3:25 PM - 5:05 PM)

3:35 PM – GROUP A

A Systematic Review of Uterine Fibroid Volume Reduction after Uterine-Sparing Non-Resective Treatment

Taheeri M S F,1 Sakheh K,2 Quinn SD,3 1Department of Obstetrics and Gynaecology, St. Mary’s Hospital, London, UK; 2Department of Obstetrics and Gynaecology, Inova Fairfax Hospital, Falls Church, Virginia

Study Objective: To systematically review and compare reductions in fibroid volume after uterine artery embolization (UAE), MR-guided focused ultrasound (MRgFUS) and radiofrequency ablation (RFA). 3 uterine-sparing, non-resective treatments at different time points after intervention.

Design: PubMed and MedlinePlus databases were searched from 1956 to 2016. The keywords used were “radiofrequency ablation,” “magnetic resonance guided focused ultrasound,” “uterine artery embolization,” “leiomyoma,” and “fibroid”. English-language publications with at least 20 patients were included.

Setting: Data from all healthcare settings were considered.

Patients: Patients undergoing treatment for fibroids with UAE, MRgFUS or RFA.

Intervention: N/A.

Measurements and Main Results: 70 relevant papers were identified: 46 related to UAE, 8 to RFA, 14 to MRgFUS; 1 additional study compared UAE with MRgFUS. Patients were followed from 1-36 months post-treatment, depending on the study. The pooled mean percentage fibroid volume reduction at 6 months was greatest for RFA (70.4% +/- 5.1%); for UAE, this was 53.7% +/- 10% and 28.7% +/- 10% for MRgFUS. The greatest mean percentage reductions in fibroid volume in any study were noted at 12 months after RFA (90.3%) and UAE at 12 months (91%) with a lesser maximal reduction with MRgFUS at 6 months (41.6%). The minimum fibroid volume reductions in each group followed a similar trend (16.9% for RFA; 14.8% for UAE, 9% for MRgFUS). There appeared to be continued fibroid volume reduction beyond 3 months after RFA and UAE. In contrast, fibroid volume reduction did not improve, after initial reductions at 3 months, following MRgFUS.

Conclusion: This is the first systematic review comparing fibroid volume reduction after RFA, UAE and MRgFUS. All 3 types of non-resective treatment result in fibroid volume reduction. However, this seems to be most marked with RFA followed by UAE. Additional larger cohort studies, including those that are randomized and comparative, would enable definitive conclusions.
or reoperations, or either short or long term hospital or clinic representa-
tions or readmissions.

Main Outcome: Length of Stay

<table>
<thead>
<tr>
<th>ERAS</th>
<th>Baseline</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average LOS (Days)</td>
<td>0.65 Days</td>
<td>1.30 Days</td>
</tr>
<tr>
<td>Average LOS (Hours)</td>
<td>22.38 Hours</td>
<td>35.17 Hours</td>
</tr>
</tbody>
</table>

Secondary Outcomes: Perioperative Representations, Readmissions, and Reoperations

<table>
<thead>
<tr>
<th>ERAS</th>
<th>Baseline</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU Admissions</td>
<td>0.0064</td>
<td>0.0105</td>
</tr>
<tr>
<td>30 Day ED</td>
<td>0.1657</td>
<td>0.1368</td>
</tr>
<tr>
<td>Presentations</td>
<td>0.0064</td>
<td>0.0053</td>
</tr>
<tr>
<td>7 Day Readmissions</td>
<td>0.0128</td>
<td>0.0053</td>
</tr>
<tr>
<td>Readmissions</td>
<td>0.0956</td>
<td>0.0684</td>
</tr>
<tr>
<td>Unplanned Clinic Visits</td>
<td>0.0764</td>
<td>0.2158</td>
</tr>
<tr>
<td>Reoperations</td>
<td>12</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 1. Incidence of VTE among hysterectomies and myomectomies by mode of incision.

<table>
<thead>
<tr>
<th>Mode of Incision</th>
<th>VTE Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal</td>
<td>1.0% (46/4782)</td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>0.3% (4/1561)</td>
</tr>
<tr>
<td>Robotic</td>
<td>0.2% (2/871)</td>
</tr>
<tr>
<td>Vaginal</td>
<td>0.1% (1/773)</td>
</tr>
<tr>
<td>Combined</td>
<td>0.5% (2/424)</td>
</tr>
<tr>
<td>Total</td>
<td>0.7% (55/8411)</td>
</tr>
</tbody>
</table>

Table 2. Incidence of VTE among cancer vs benign cases by mode of incision.

Design: This was a retrospective cohort study of women who underwent gynecologic surgery between July 2006 and September 2015. Outcomes were compared using Fisher’s exact test.

Setting: Two academic medical centers in Massachusetts, Beth Israel Deaconess Medical Center (BIDMC) and University of Massachusetts Medical Hospital (UMMH).

Patients: All women who underwent hysterectomy or myomectomy gynecologic surgery during the study period were included (n = 11311).

Intervention: Incidence of VTE during the 3-month postoperative period was analyzed by type of surgery and mode of incision.

Measurements and Main Results: There were 8411 hysterectomies (1471 cancer, 6940 benign) and 2949 myomectomies (23 cancer, 2926 benign). The overall incidence of VTE was 0.7% for all hysterectomies, and 0.2% for myomectomies. VTE incidence by mode of incision and type of surgery is shown in Table 1.

Cancer patients undergoing abdominal hysterectomy had the greatest risk of VTE (2.2%). None of the myomectomies with cancer had a VTE, but the number of cancers (n = 23) and VTE’s (n = 5) among the myomyec-
tomy patients was small. A breakdown of the incidence of VTE for cancer versus benign hysterectomies and myomectomies by mode of incision is shown in Table 2. 87.4% of hysterectomy patients and 66.1% myomectomy pa-
tients received VTE prophylaxis. When comparing hysterectomy patients with and without VTE, VTE patients had a higher incidence of cancer (47.3% vs 17.3%), ASA score >3 (36.4% vs 16.1%), age >60 years (49.1% vs 27.9%), and longer length of surgery (189.5 min, SD105.6) vs 159.6 min, SD69.7.

Conclusion: We observed that VTE risk may vary by mode of surgery, with the highest incidence among laparotomies and cancer patients. We propose that mode of incision be considered when assessing VTE risk and planning VTE prophylaxis for patients undergoing hysterectomy or myomectomy.
Predicators of Post-Operative Admission for Minimally Invasive Hysterectomies


Study Objective: To identify predictors of post-operative admission after minimally invasive hysterectomies.
Design: Single-center, retrospective cohort study including patients receiving minimally invasive hysterectomy from January 2014 to December 2016.
Setting: Urban, university hospital.
Patients: Retrospective identification of all hysterectomies for benign indications (N = 396).
Intervention: Pre-operative and operative characteristics, as well as intra-operative and post-operative complications were collected.
Measurements and Main Results: T-test was used to compare characteristics of cases with overnight stay versus cases with same day discharge. Logistic regression analysis was performed to ascertain further clinical predictors of overnight stay.
396 minimally invasive hysterectomies were collected. 84 (21%) were admitted for at least one overnight stay while 312 (79%) were discharged the same day. Overnight stay compared to same day discharge was associated significantly with older age (47 vs. 43 years), lower pre-op hematocrit (36% vs. 37%), history of prior appendectomy (11% vs. 2%) or laparotomy (31% vs. 14%), prolonged operative time (191 vs. 115 min), EBL >1000 ml (4% vs. 0%), organ injury (17% vs. 3%) and concomitant procedures including lysis of adhesions (27% vs. 13%), excision of endometriosis (12% vs. 4%), organ injury (17% vs. 3%) and concomitant procedures including lysis of adhesions (27% vs. 13%), excision of endometriosis (12% vs. 4%), organ injury (17% vs. 3%) and concomitant procedures including lysis of adhesions (27% vs. 13%), excision of endometriosis (12% vs. 4%), organ injury (17% vs. 3%). Logistic regression analysis showed that 5-year increase in age, 5% decrease in hematocrit, prior laparotomy, and 30 min increase in operative time are significantly predictive of overnight stay.
Conclusion: Perioperative factors such as age, hematocrit and surgical history as well as intraoperative factors such as prolonged operative time are predictive of overnight hospital stay.

Vessel Harvesting in Preparation for Uterine Transplant
Puntambekar S, Puntambekar S, Parikh K, Parikh H, Mehta M. Galaxy Care Laparoscopy Institute-Pune, Pune, Maharashtra, India

In preparation for Uterine Transplant Surgery for Absolute Uterine Factor Infertility, laparoscopic harvesting of the main iliac vessels has an excellent advantage over open surgery. Understanding the anatomical relations of Internal Iliac Artery and Vein with its branches and tributaries in the deep pelvis along with dissection of the full length of the iliac vessels has been neatly demonstrated in this video. Intraoperative vessels pose a challenge to harvest as compared to Internal Iliac Artery. Better understanding and representation of the principles of the surgical procedure has been thoroughly explained by dissection of the pararectal spaces. Bench Surgery is done to check for vascular leaks and repair contributing to the ischaemia time. Laparoscopic harvesting and retrieval of iliac vessels for Uterine Transplant will be groundbreaking as there is minimal handling of tissues and vessels aided by benefits of magnification of deep pelvic structures provided by laparoscopy.
Goals of pathology excision must be for complete removal with minimal damaging effect or loss of surrounding healthy tissue. Damage to surrounding tissues can often be apparent, but sometimes are quite subtle to those without a trained eye. This damage can affect fertility and other components of women’s health. This video seeks to present visual cues to assist surgeons in identifying proper planes of dissection for pathology removal, using myomectomy and ovarian endometrioma cystectomy footage as examples. By identifying adherent tissue on pathology, avascular planes, using “overcut” on leiomyoma, and being aware of endometrium and ovarian follicle appearance, the surgeon can avoid unintentional healthy tissue trauma. Maneuvers to successfully complete the dissection are also demonstrated on film including serial rolling, sweeping and gentle wiping, curved motions, selective use of energy, careful millimeter-by-millimeter progression, pushing with spreading, and traction with counter-traction.

56 Plenary 8 – Education, Research & Science
(3:25 PM – 5:05 PM)
4:55 PM – GROUP C

Surgical Management of Adenomyoma with Uterine Wall Dissection Post-Myomectomy: A Case Report
Ely LK, 1 Truong M, 1 Avinaña A, 1 Obstetrics and Gynecology, Virginia Commonwealth University Health System, Richmond, Virginia; 2Obstetrics and Gynecology, Columbus University Medical Center, New York, New York

The purpose of this video is to review the diagnosis and treatment of uterine adenomyosis and adenomyoma, and to describe the surgical management of an atypical adenomyoma case. The video presents the case of a 37yo G1P1011 who underwent a robotic myomectomy for symptomatic uterine fibroids but subsequently re-presented with worsening symptoms and was found to have an adenomyoma with complete uterine wall dissection. The video reviews pre-operative imaging and demonstrates the surgical management of this case.

TUESDAY, NOVEMBER 14, 2017

57 Open Communications 1 – Endometriosis & Adenomyosis
(11:00 AM–12:00 PM)

11:00 AM – GROUP A

Total Laparoscopic Ureteroneocystostomy for Ureteral Endometriosis: A Single Center Experience on 160 Consecutive Cases
Clarizia R, 1 Caleffi G, 2 Cecuccirello M, 3 Scarperi S, 3 Bruni F, 1 Ceccuronni M, 1 Department of Obstetrics and Gynecology, Gynecologic Oncology and Minimally-Invasive Pelvic Surgery, International School of Surgical Anatomy, Sacred Heart Hospital, Negrar, Verona, Italy; 2Department of Urology, Sacred Heart Hospital, International School of Surgical Anatomy, Negrar, Verona, Italy

Study Objective: To investigate the efficacy of laparoscopic ureteroneocystostomy in patients with deep infiltrating endometriosis (DIE) with ureteral and parametrial involvement.

Design: Prospective observational study.

Setting: Department of Obstetrics and Gynecology, Gynecologic Oncology and Minimally-Invasive Pelvic Surgery, International School of Surgical Anatomy, Sacred Heart Hospital, Negrar, Verona – Italy.

Patients: 160 patients with DIE treated by laparoscopic radical excision and ureteroneocystostomy between January 2009 and December 2016 in a tertiary care referral center for endometriosis.

Intervention: In 58.7% of cases ureteroneocystostomy was performed with psaos hitch technique, with an average execution time of 92.3 min. Bowel resection was performed in 121 patients (75.6%) and 115 of them had a concomitant ileostomy (71.9%). Unilateral parametrectomy was performed in 61.9% of cases on the left side and 20.6% on the right side respectively, while bilateral parametrectomy was done in 33 patients (20.6%).

Measurements and Main Results: Post-operative complications were infrequent: 7 cases of re-intervention (4.4%), 8 case of fever (5%), 4 patients required blood transfusion (2.5%), 3 cases of intestinal fistulas (1.9%) and 24 patients experienced impaired bladder voiding (15%). The mean follow-up time was 20.5 months (1–60). The study reported good clinical and surgical results in the medium and long term, with a 1.2% of recurrent parametrical endometriosis needing opposite side ureteroneocystostomy and a statistically significant regression of symptoms.

Conclusion: The collected data show that in case of ureteral endometriosis, this technique is feasible, effective and safe, and provides good results in terms of relapses and control of symptoms. In endometriosis surgery, ureteral stricture itself cannot be considered the only factor conditioning the surgical decision for ureteroneocystostomy, which has to be tailored, taking into account the residual ureteral vascularization and its trophic aspects after ureterolysis and external endometriosis removal.

58 Open Communications 1 – Endometriosis & Adenomyosis
(11:00 AM–12:00 PM)

11:07 AM – GROUP A

DNA Testing to Predict Endometriosis: Implications for Referral for Minimally Invasive Surgery
Fogelson NS, 1 Chettier R, 2 Ward K, 3 Pearl Women’s Center, Portland, Oregon; 2Juneau Biosciences, Salt Lake City, Utah

Study Objective: A proprietary DNA marker test has been developed for non-invasive prediction of endometriosis in pre-laparoscopy patients. The purpose of this study was to test the performance of this DNA marker panel in a set of known diagnosis samples.

Design: DNA samples from 200 women with confirmed endometriosis and 200 women with no evidence of endometriosis were genotyped in a blinded fashion for 1067 low-frequency DNA variants associated with endometriosis. For this pilot study, risk of endometriosis was determined using an algorithm weighting each genotype results by the logarithm of the odds ratio as determined from a large training data set (1000 genotyped endometriosis patients and 33 000 published controls).

Setting: Samples collected from around the country as part of ongoing research of Juneau Biosciences, a Utah-based genetics company.

Patients: All patients voluntarily submitted DNA samples to Juneau Biosciences for research in the genetics of endometriosis. Patients provided access to medical records to confirm diagnoses and pathology.

Intervention: N/A.

Measurements and Main Results: 189 affected women (95%) with weighted score greater than 0.47 were correctly classified as having endometriosis while 176 of the unaffected women (88%) were classified as having low risk of endometriosis (weighted scores less than 0.47). The area under the receiver operator curve was 0.95.

Conclusion: The panel of DNA markers tested provides actionable predictions. Improvements in the test algorithm are likely as interaction terms or biologic pathway data are considered. Prospective clinical trials are planned. Many women with pelvic pain wait years before getting a correct diagnosis. Non-invasive DNA testing may help to direct symptomatic patients to specialists who can effectively treat the disease state. DNA markers might have better correlation to the subtypes and extent of disease than histology alone. A subset of infertility patients who may benefit from surgical treatment of previously unknown disease prior to infertility treatment may be identifiable.
59 Open Communications 1 – Endometriosis & Adenomyosis
(11:00 AM–12:00 PM)

11:14 AM – GROUP A
Anorectal Angle at Transperineal Ultrasound in Women with Rectal Endometriosis: Another Cause of Bowel Symptoms?
Arena A, Raimondo D, Del Forno S, Benfenati A, Baraffini F, Cocchi L, Malbran M, Seracchioli R. Gynecology and Human Reproduction, Physiopathology Unit, Department of Medical and Surgical Sciences, S. Orsola Hospital, University of Bologna, Bologna, Emilia – Romagna, Italy

Study Objective: To compare anorectal angle at transperineal 2D/3D ultrasound between patients with rectal endometriosis and asymptomatic healthy women and, secondly, to find any association between sonographic findings and bowel symptoms.

Design: Pilot, prospective study conducted between September 2015 and December 2016.

Setting: Tertiary level referral Center of Minimally Invasive Gynecologic Surgery.

Patients: 96 nulliparous patients with symptomatic rectal endometriosis scheduled for laparoscopic surgery (study group) were compared to 88 nulliparous asymptomatic healthy women (control group). Patients in the study group had never undergone surgery for endometriosis and had not assumed hormonal therapy before the enrollment.

Intervention: Transperineal 2D/3D ultrasound for evaluation of anorectal angle was performed in all patients at rest. Data were analyzed offline with a dedicated software (4DView 14.4; GE Healthcare) by an investigator blinded to clinical data. Bowel symptoms were collected using a validated questionnaire (Knowles-Eccersley-Scott-Symptom Questionnaire). Comparison of mean values between controls and cases was performed with Student’s t-test. Anorectal angle and KESS questionnaire’s items were analyzed using Spearman’s correlation. P values <0.05 were considered significant.

Measurements and Main Results: Major demographic and anthropometric data were homogeneous for the groups. Compared to the control group, patients with rectal endometriosis showed a significantly narrower anorectal angle (109.8 ± 10.8 grade versus 113.7 ± 13.0 grade, p = 0.03). Moreover, in the study group we found a significant association between severity of dyschezia at KESS questionnaire and dimension of anorectal angle (p < 0.01). No further associations were detected concerning the other items of the KESS questionnaire.

Conclusion: Women with rectal endometriosis had a significantly narrower anorectal angle than healthy controls, suggesting pelvic floor hypertone. Pelvic floor dysfunction could also contribute to bowel complaints, particularly dyschezia. Transperineal ultrasound may be a useful, inexpensive and non-invasive tool to detect pelvic floor dysfunction.

60 Open Communications 1 – Endometriosis & Adenomyosis
(11:00 AM–12:00 PM)

11:21 AM – GROUP A
Perioperative Outcomes and Predictors of Complications for Laparoscopic Treatment of Endometriosis
Clark NV, Dmello M, Griffith KC, Gu X, Ajao MO, Cohen SL, Einarsson JJ. Minimally Invasive Gynecologic Surgery, Brigham and Women’s Hospital, Boston, Massachusetts

Study Objective: To assess perioperative outcomes and identify predictors of complications for laparoscopic treatment of endometriosis.

Design: Retrospective cohort.

Setting: A large academic medical center.


Intervention: Laparoscopic treatment of endometriosis.

Measurements and Main Results: A total of 397 women underwent laparoscopic treatment of endometriosis including excision (80.4%), fulguration (38.3%), ovarian cystectomy (35.3%) hysterectomy (23.2%), salpingectomy (18.4%), oophorectomy (15.1%), and bowel surgery (10.6%). Patient characteristics including age, race, BMI, medical and surgical history, symptoms, exam findings and imaging were similar between women with and without complications. Sixteen women (4.0%) suffered a complication including transfusion, conversion to laparotomy, major infection, organ injury, venous thromboembolism, readmission and reoperation. Women with advanced endometriosis, including stage III or IV endometriosis, deep infiltrating endometriosis, or rectovaginal disease, were not more likely to suffer a complication (75.0% of women with a complication vs. 59.1% of women without a complication had advanced endometriosis, p = 0.203). Women who had a complication were more likely to have undergone adhesiolysis or ureterolysis (87.5% of women with a complication vs. 52.5% without a complication underwent adhesiolysis, and 56.3% of women with a complication vs. 28.9% without a complication underwent ureterolysis). Operating time was also longer for women who suffered a complication (117 ± 53 vs. 89 ± 53 min, p = 0.042). All other procedure characteristics were similar between women with and without complications. Upon logistic regression analysis, only adhesiolysis and ureterolysis were associated with a complication (OR 4.71, 95% CI 1.30–17.07, and OR 2.74, 95% CI 1.04–7.21, respectively).

Conclusion: Women undergoing laparoscopic treatment of endometriosis have a low complication rate of 4.0%. Adhesiolysis and ureterolysis may be predictive of perioperative complications.

61 Open Communications 1 – Endometriosis & Adenomyosis
(11:00 AM–12:00 PM)

11:32 AM – GROUP B
Long-Term Safety and Efficacy of Elagolix Treatment in Women with Endometriosis-Associated Pain:
Primary Results From Two Phase 3 Extension Studies
Surrey E, Taylor HS, Giudice LC, Singh SS, Abrao MS, Lessey BA, Duan WR, Peloso PM, Schwalbe K, Colorado for Reproductive Medicine, Lone Tree, Colorado; *Yale School of Medicine, New Haven, Connecticut; †Obstetrics, Gynecology & Reproductive Sciences, University of California San Francisco, San Francisco, California; ‡Department of Obstetrics, Gynecology & Newborn Care, University of Ottawa, Ottawa, Ontario, Canada; §Sao Paulo University, Sao Paulo, Brazil; ‡Obstetrics & Gynecology, Reproductive Endocrinology & Infertility, Greenville Health System, Greenville, South Carolina; †AbbVie Inc., North Chicago, Illinois

Study Objective: To evaluate the long-term safety and efficacy of elagolix, an oral, non-peptide gonadotropin-releasing hormone antagonist, for the management of endometriosis-associated pain.

Design: These were two, extension studies (Elaris EM-III and Elaris EM-IV) of the pivotal, 6-month (M), phase 3 studies.

Setting: Outpatient setting in clinic/office.

Patients: Elagolix/elagolix participants (treated: Elaris EM-III, n = 287; Elaris EM-IV, n = 282) were 18–49 year old women with surgically diagnosed endometriosis and moderate/severe endometriosis-associated pain.

Intervention: The extension studies evaluated an additional 6M of treatment (overall treatment period of 12M) with two elagolix doses (150 mg once daily [QD] and 200 mg twice daily [BID]). The data presented are from women who received elagolix in both the pivotal and extension studies (elagolix/elagolix participants).

Measurements and Main Results: Baseline was assessed prior to dosing in the pivotal studies. The co-primary efficacy endpoints were the proportion of responders (pain reduction and stable/decreased rescue analgesic use) based on the average monthly dysmenorrhea (DYS) and non-menstrual pelvic pain (NMPP) scores. Safety assessments included new incidences of adverse events (AE) during the extension study, clinical laboratory tests, and changes in bone mineral density (BMD).
The reductions in DYS and NMPP following 6M of elagolix treatment reported in the pivotal studies were maintained over 12M of treatment across both extension studies/dose groups. Over 50% of women were responders for DYS and NMPP following 12M of elagolix treatment at both doses (Table 1). The proportion of women with new incidences of hot flush ranged between 4–8%. A dose-dependent decrease from baseline in BMD was observed in the extension at M6 in both studies/dose groups.

**Conclusion:** Elagolix provided sustained reductions in DYS and NMPP in these two long-term extension studies. The safety/tolerability was consistent with hypoestrogenic effects and no new safety concerns were identified with long-term elagolix use.

### Table 1. Primary efficacy and safety of elagolix over 12-months of treatment

<table>
<thead>
<tr>
<th></th>
<th>Elagolix EM-III, ELX/ELX 150 mg</th>
<th>Elagolix EM-III, ELX/ELX 200 mg</th>
<th>Elagolix EM-IV, ELX/ELX 150 mg</th>
<th>Elagolix EM-IV, ELX/ELX 200 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>QD N = 149</td>
<td>QD N = 138</td>
<td>QD N = 142</td>
<td>QD N = 140</td>
</tr>
<tr>
<td><strong>Safety during the extension treatment period, n (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any hypoestrogenic-related AE a</td>
<td>60 (40%)</td>
<td>109 (80%)</td>
<td>72 (51%)</td>
<td>107 (76%)</td>
</tr>
<tr>
<td>Hot flush b</td>
<td>61 (52%)</td>
<td>86 (78%)</td>
<td>62 (51%)</td>
<td>88 (76%)</td>
</tr>
<tr>
<td>Depression b</td>
<td>74 (50%)</td>
<td>96 (71%)</td>
<td>82 (58%)</td>
<td>89 (64%)</td>
</tr>
<tr>
<td>Insomnia b</td>
<td>79 (68%)</td>
<td>76 (69%)</td>
<td>81 (66%)</td>
<td>78 (67%)</td>
</tr>
<tr>
<td><strong>New incidences of AEs during the extension treatment period</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AE = adverse event; ELX/ELX = women who were originally randomized to active treatment in the pivotal studies and continued to receive their assigned elagolix doses during the extension studies; DYS = dysmenorrhea; NMPP = non-menstrual pelvic pain.

aClinically meaningful response determined in the pivotal studies with a receiver operating characteristics analysis using the Patient Global Impression of Change and rescue analgesic use.

bPivotal data is from women that enrolled in the extension studies; percentages calculated from observed, non-missing data.

cTreatment length was ≤12M for select women who continued in pivotal study ≥6M to repeat procedures and ensure eligibility for extension study.

*Non-bone, hypoestrogenic-related AEs.

*New incidences of AEs during the extension treatment period.

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**62 Open Communications 1 – Endometriosis & Adenomyosis (11:00 AM–12:00 PM)**

**11:39 AM – GROUP B**

**Prevalence of Tubal Endometriosis**

**Zhang J, Zhang D. International Peace Maternity and Child Health Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, China**

**Study Objective:** To explore the prevalence of different kinds of tubal endometriosis (TEM).

**Design:** A prospective case-series study.

**Setting:** A university affiliated hospital.

**Patients:** Four hundred and fifty three patients who underwent salpingectomy were recruited in the present study. Among them, 85 post-menopausal patients and 105 patients with ectopic pregnancy were excluded. Finally, 263 patients were included in the present study.

**Intervention:** NA.

**Measurements and Main Results:** Fallopian tubes were collected from included patients and were fixed by formalin for further hematoxylin-eosin (HE) staining. Two skilled pathologists were responsible for diagnosing and classifying TEM according to HE staining results. Ectopic endometrium can be located in serosa, subserosa, muscular layer and mucosa of fallopian tube. The prevalence of TEM is 14.07% among pre-menopausal women, however no TEM was found among post-menopausal women due to decreased hormone level. 51.35% and 35.14% TEM were located in mucous layer and serous layer respectively. The prevalence of TEM is relatively higher among women with endometriosis diseases. TEM is more likely to occur in left fallopian tube than right one. The prevalence of TEM among women with combined gynecological diseases is significantly higher than that among women with adenomyosis alone. Among women with TEM, the prevalence of hydrosalpinx is 67.57%, which is significantly higher than that among women without TEM. Among those with TEM and hydrosalpinx, 78% patients suffer menstrual extension and ovulatory bleeding.

**Conclusion:** The prevalence of TEM in our study is obviously higher than previous studies. TEM located in tubal mucosa lead to bleeding in tubal lumen, which may cause tubal hematocoele, hydrosalpinx, menstrual extension and ovulatory bleeding. TEM located in tubal muscular layer lead to periodic hemorrhage, which may cause interstitial fibrosis, hydrosalpinx. All these pathological changes result in change in tubal functions. TEM located in serosa is similar to DIE and it grows into sub-serosa even muscular layer, which lead to fibrosis.

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**63 Open Communications 1 – Endometriosis & Adenomyosis (11:00 AM–12:00 PM)**

**11:46 AM – GROUP B**

**Identifying Clear Lesions of Endometriosis Using Indocyanine Green**

**Hanna MG, MecSorey AL, Tam T. Obstetrics and Gynecology, Presence Saint Francis Hospital, Evanston, Illinois**

**Study Objective:** Endometriosis is a common cause of nonspecific pelvic symptoms, including pelvic pain and dyspareunia. It is typically diagnosed through laparoscopic biopsies. An innovative technique utilizing indocyanine green (ICG), a dye that fluoresces in areas of increased vascularinity such as endometriotic lesions, is used to diagnose normal-appearing, “clear” lesions of endometriosis. These clear lesions would have otherwise been missed by conventional laparoscopy.

**Design:** A retrospective chart review and analysis. Preoperative symptoms and postoperative localization of lesions were analyzed using the Fisher exact test. Preoperative symptoms included abnormal uterine bleeding, pelvic pain, fibroids and dyspareunia. Postoperative localization included lesions in the ovary, cul-de-sac, vesicouterine peritoneum, pelvic peritoneum, uterosacral ligaments and uterine serosa.

**Setting:** Two community-based hospitals with surgery performed by a single robotic attending surgeon.
Patients: All patients on whom ICG was used to identify endometriosis from July 2014 to April 2017.

Intervention: Robotic resection of suspected clear endometriotic lesions using indocyanine green and the Firefly™ technology.

Measurements and Main Results: Of the 43 patients undergoing laparoscopic excision of endometriosis using ICG fluorescence, 29 had endometriosis confirmed on pathology with positive fluorescence. 10 patients had negative pathology results and no ICG fluorescence while 4 patients had fluorescence but no identifiable endometriosis, indicating a positive predictive value of 87% with a sensitivity of 100%. The preoperative symptoms analyzed were not statistically significant for endometriosis, but clear lesions present in vesicouterine peritoneum were statistically significant for endometriosis (p = .035).

Conclusion: Preoperative symptoms were not statistically significant for revealing endometriosis, but clear lesions present in the vesicouterine peritoneum were statistically significant for presence of endometriosis. ICG fluorescence had a positive predictive value of 87% when identifying endometriosis. Although ICG remains an effective method for diagnosing clear endometriotic lesions, future studies are indicated and would benefit from larger patient recruitment.

64 Open Communications 1 – Endometriosis & Adenomyosis

11:53 AM – GROUP B

Endometriosis of the Appendix: Prevalence and Correlation with Gross Pathological Findings at Time of Minimally Invasive Excision Surgery in Women with Chronic Pelvic Pain

Tenzel NS, Kappau C, Shi W, Orbach L, Orbach I, Obstetrics and Gynecology, Mount Sinai Beth Israel, New York City, New York

Study Objective: To determine the prevalence of endometriosis of the appendix in women with chronic pelvic pain undergoing diagnostic laparoscopy. To determine if intraoperative appearance of the appendix correlates with underlying histological disease.

Design: Retrospective chart review.

Setting: Academic affiliated community hospital.


Intervention: Postoperative pathology reports were reviewed for all patients with chronic pelvic pain undergoing diagnostic laparoscopy and appendectomy. Review of appendix histology from 117 cases revealed endometriosis (n = 16), fibrous obliteration (n = 19), inflammation (n = 6), malignancy (n = 3) and normal stroma (n = 73). Operative reports were reviewed to evaluate the appearance of the appendix intraoperatively. Abnormalities included appendix thickening, scarring and adhesions, nodularity, discoloration, and hypervascularity.

Measurements and Main Results: Prevalence was determined for appendix endometriosis (15%), fibrous obliteration (16%), malignancy (3%), inflammation (5%), and normal stroma (61%). Fisher exact tests evaluated the correlation between intraoperative appendix appearance and final pathology. When comparing appendix thickening (p = .68), scarring and adhesions (p = .82), nodularity (p = .65), discoloration (p = .86), and hypervascularity (p = .23), we found that no characteristic significantly correlated with appendix histology.

Conclusion: We now demonstrate that appendix appearance during diagnostic laparoscopy does not correlate with underlying appendix histology in women with chronic pelvic pain. This in combination with our appendiceal endometriosis prevalence of 15%, suggests that clinicians should consider routine appendectomy in all women with chronic pelvic pain at time of initial diagnostic laparoscopy. Preoperative patient counseling should include discussion of appendectomy due to lack of correlation between underlying disease and symptoms, physical exam findings, and intraoperative appendix appearance. Our data suggests the need for further studies to help guide clinicians in counseling and practice management.

TUESDAY, NOVEMBER 14, 2017

65 Open Communications 2 – Robotics

11:00 AM–12:00 PM

11:00 AM – GROUP A

Hysterectomy – Vaginal, Abdominal and Robotic Laparoscopic Study: Clinical Evaluation and Cost Analysis

Hanafi M. Gynecology Department, Emory St. Joseph’s Hospital, Atlanta, Georgia

Study Objective: To evaluate and compare the postoperative clinical outcome analysis of the hospital cost of Total Vaginal (TVH), Total Abdominal (TAH) and Robotic Laparoscopic (RLH) Hysterectomy.

Design: Retrospective single-center study. Clinical characteristics including operative time, length of hospital stay, estimated blood loss, postoperative pain level, days of analgesic use, days until self-care, days until return to work, days until first postoperative bowel movement, weeks until first intercourse postoperatively and cost analyses were compared in all patients who underwent hysterectomy from January 1st 2008–December 31st 2015.

Setting: Emory Saint Joseph’s Hospital, Atlanta.

Patients: 333 patients reviewed and 230 patient questionnaires completed (69.06%).

Intervention: Patients were grouped according to method of hysterectomy: Total Vaginal Hysterectomy, (TVH), Total Abdominal Hysterectomy (TAH) and Robotic Laparoscopic Hysterectomy (RLH). Postoperative clinical outcome was surveyed by questionnaire. Data were collected from office and hospital electronic medical records (EMR). Patient’s records were used to collect patient demographics, length of hospital stay, operative time, estimated blood loss (EBL) and total hospital charges.

Measurements and Main Results: TAH had significantly higher hospital stay of 2.8 days compared to TVH and RLH with 1.41 days. RLH had significantly higher operative time (194.11 min) than TVH (119.75 min) and TAH (181.66 min). EBL was significantly higher in TAH (194.16 mL) than RLH (105.67 mL) and TVH (97.11 mL). No significant differences in hospital charges between TAH and RLH but both TAH and RLH had significantly higher total charges than TVH. TAH had higher level of post-operative pain than RLH, but no significant difference in pain level between other methods.

Conclusion: RLH has comparable postoperative outcomes, possibly decreased blood loss, shorter length of hospital stay and higher operative time than other methods of hysterectomy surgeries. Study reveals TAH and RLH have significant difference in hospital charges versus TVH, while there was no significant difference between TAH and RLH hospital charges.
66 Open Communications 2 – Robotics
(11:00 AM–12:00 PM)

11:07 AM – GROUP A

Number of Lymph Nodes Removed in Early Stage Endometrial Cancer; Robot Versus Laparoscopy
Gunay G, Utkunz; O; Ozbasli E, Gundogun S, Nalik M, Kose F. Obstetrics and Gynecology; Acibadem University, Istanbul, Turkey

Study Objective: To compare robotic with laparoscopic staging surgery in terms of number of lymph nodes removed for the treatment of early endometrial carcinoma.

Design: Retrospective cohort study (Canadian Task Force Classification II-2).

Setting: University affiliated tertiary hospital.

Patients: Women underwent laparoscopic or robotic (da Vinci SiR and XiR platforms, Intuitive Surgical, Inc., Sunnyvale, CA) hysterectomy, bilateral salpingo-oophorectomy and pelvic lymphadenectomy for early stage (Stage I-II) endometrial adenocarcinoma between March 2013- August 2016.

Intervention: Number of lymph nodes harvested via laparoscopy versus robotic platform.

Measurements and Main Results: A total of 48 patients medical records were analyzed. 26 patients were undergone laparoscopic staging (Group1) and 22 patients were undergone robotic staging (Group2). Mean age, BMI, EBL and hospital stay between two groups were comparable. Mean operation time of robotic group was significantly longer than laparoscopic group (p < .01). Mean number of removed lymph nodes in laparoscopic group (19±8.8) was comparable with robotic group (20±8.2, p = .25). In sub-group analyzes, the difference for removed lymph nodes between robotic Si (n: 15) and Xi (n: 7) group was not statistically significant (21±8.7 vs 19±7.6, p = .68).

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Laparoscopic (n:26)</th>
<th>Robotic (n:22)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>59 ± 10</td>
<td>57 ± 11</td>
<td>.41</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>30 ± 2.3</td>
<td>31 ± 2</td>
<td>.24</td>
</tr>
<tr>
<td>Number of Lymph Nodes</td>
<td>19 ± 8.8</td>
<td>20 ± 8.2</td>
<td>.25</td>
</tr>
<tr>
<td>Op. Time(min)**</td>
<td>106 ± 15</td>
<td>137 ± 26</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Blood Loss(ml)</td>
<td>39 ± 18</td>
<td>35 ± 14</td>
<td>.65</td>
</tr>
<tr>
<td>Hospital Stay(day)</td>
<td>1.70 ± 0.7</td>
<td>1.77 ± 0.7</td>
<td>.11</td>
</tr>
</tbody>
</table>


Conclusion: Mean number of lymph nodes removed with robotic-assisted laparoscopy is comparable with laparoscopically removed for early stage endometrial cancer patients. Additionally, difference between the mean numbers of harvested lymph nodes between da Vinci Si and da Vinci Xi platforms is not significant.

68 Open Communications 2 – Robotics
(11:00 AM–12:00 PM)

11:21 AM – GROUP A

A Comparison between Laparoscopic and Robotic Hysterectomy in Obese Patients: Effect on Cost, Operating Time and Estimated Blood Loss
Tor J, Marfori C, Abi Khalil E, Moawad G. George Washington University, Washington, District of Columbia

Study Objective: To identify if there is a significant difference in perioperative outcomes and cost between robotic versus traditional laparoscopy with increasing BMI.

Design: Retrospective chart review of robotic and laparoscopic hysterectomies done over a 12–24 month period. Patients were separated by surgical approach (robotic or laparoscopic hysterectomy) and then further divided into two groups: BMI less than 30, and BMI greater than or equal to 30. We obtained data regarding direct cost of the procedure (includes instruments, physician labor, and additional hospital charges), estimated blood loss, and operating time.

Setting: A tertiary-care academic institution.

Patients: Women who underwent robotic or laparoscopic hysterectomy at our institution in the past two years.

Intervention: No new interventions.

Measurements and Main Results: For cost analysis, 222 patients were included (120 robotic, 101 laparoscopic). For EBL and OR time we had a total of 396 patients (248 robotic, 148 laparoscopic). We compared robotic vs. laparoscopic hysterectomy using simple t-tests to compare our variables. In the low BMI group there was no significant difference in cost of the two approaches (p = .09). However, in the high BMI group there was a significant decrease in cost with robotic compared to laparoscopic hysterectomy ($5701 vs. $6490, p = .004). There was also a significant decrease in EBL (122 ml vs. 211 ml, p = .002) and OR time (116 minutes vs. 166 minutes, p < .001) with the robotic approach.

Conclusion: In patients with a BMI of 30 or greater, we observed a significant decrease in cost, surgical time, and estimated blood loss with
robotic hysterectomy as compared to laparoscopic hysterectomy. This could be due to surgeon expertise, the efficiency of the surgical team, or the ergonomic advantage of robotic surgery in obese patients. More research is needed to further clarify the factors contributing to this significant advantage.

69 Open Communications 2 – Robotics
(11:00 AM–12:00 PM)

11:32 AM – GROUP B

One Institute Experience of Robotic Single-Site Surgery: 500 Cases in Benign Gynecology
Jeong K, Lee SR, Moon H-S. Obstetrics and Gynecology, College of Medicine, Ewha Womans University, Seoul, Republic of Korea

Study Objective: To report 500 cases of robotic single-site surgery (RSSS) and to evaluate feasibility and safety of RSSS in benign gynecology using the da Vinci Si system.

Design: Retrospective study.

Setting: Robot Surgery Center of Ewha Womans University Mokdong Hospital.

Patients: 500 patients with gynecologic disease.

Intervention: RSSSs by three surgeons from November 2014 to April 2017.

Measurements and Main Results: During two and a half years, 500 cases of RSSSs were performed. Three surgeons who were skilled robotic multi-site surgery, conducted mainly hysterectomy, myomectomy, and ovarian cystectomy. We analyzed patient’s characteristics and surgical variables including docking time. The mean age was 39.3 ± 10.2 years old.

The age distribution of patients according to type of RSSS.

<table>
<thead>
<tr>
<th>RSSS</th>
<th>Number of cases</th>
<th>Mean age</th>
<th>Range of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysterectomy</td>
<td>167</td>
<td>47.5 ± 7.1</td>
<td>30–75</td>
</tr>
<tr>
<td>Myomectomy</td>
<td>138</td>
<td>36.9 ± 6.0</td>
<td>20–51</td>
</tr>
<tr>
<td>Adnexal surgery</td>
<td>180</td>
<td>32.7 ± 8.8</td>
<td>18–70</td>
</tr>
<tr>
<td>Others</td>
<td>14</td>
<td>51.9 ± 13.4</td>
<td>32–70</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>39.3 ± 10.2</td>
<td>18–75</td>
</tr>
</tbody>
</table>

RSSS: robotic single-site surgery.

167 cases of robotic single-site hysterectomy, 138 cases of myomectomy, and 180 cases of adnexal surgery were performed. The other 14 cases were sacrocolpopexy for pelvic organ prolapse and neurogenic tumor resection. Dividing 500 cases into trisections, the first period was one year (November 2014-October 2015), the second time was 10 months (November 2015-August 2016), and it took just 8 months (September 2016-April 2017) to accomplish last one-third cases. The mean docking time was 4.6 ± 2.5 minute. According trisections of period, the docking time was decreased significantly (1st term: 5.8 ± 3.1 min, 2nd term: 4.6 ± 2.4 min, 3rd term: 3.7 ± 1.6 min, p < .001). In only three cases (0.6%), RSSS converted to a couple of explo-laparotomy and one of conventional laparoscopy due to unmanageable huge size of uterus or ovarian cysts. The complications occurred in four patients (0.8%). There were a bowel injury, a vault dehiscence, a pelvic infection after robotic single-site hysterectomy with adhesiolysis and one foot drop after neurogenic tumor resection.

Conclusion: In our experience, the cases of RSSS have been increased rapidly. The shorter docking times in process of time, fewer conversions and fewer complications support feasibility and safety of RSSS in gynecology.

Fig. 1. The change of docking time by trisections of period.

70 Open Communications 2 – Robotics
(11:00 AM–12:00 PM)

11:39 AM – GROUP B

Robotic-Assisted Radical Hysterectomy Results in Better Surgical Outcomes Compared to the Traditional Laparoscopic Radical Hysterectomy for the Treatment of Cervical Cancer
Nie J, Yan A, Liu X. Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China

Study Objective: The aim of this study was to compare the surgical outcomes of robotic-assisted radical hysterectomy (RRH) to traditional laparoscopic radical hysterectomy for the treatment of early-stage cervical cancer in a retrospective cohort of a total of 933 patients.

Design: Retrospective cohort study.

Setting: Academic affiliated community hospital.

Patients: We have enrolled 100 patients into the RRH and 833 patients into the TLRH group between July 2009 and June 2016 by a single surgeon.

Intervention: The surgical outcomes include operating time, blood loss, transfusion rate, pelvic lymph node yield, hospitalization days, duration of bowel function recovery, Catheter removal before and after three weeks, conversion to laparotomy and intra- and postoperative complications. Follow-up results were also analyzed for all patients.

Measurements and Main Results: Both groups have similar patient and tumor characteristics but patients with a larger lesion size were preferably enrolled in the TLRH treatment group. The treatment with RRH was generally superior to TLRH with respect to operating time, blood loss, length of hospitalization, duration of bowel function recovery and postoperative complications. On follow-up of patients, there were no relapses reported in the RRH group compared to 4% of relapse cases and 2.9% of deaths due to metastasis in the TLRH group. No conversion of laparotomy occurred in the RRH group. No significant difference was found with respect to intraoperative complications and blood transfusion between both groups.

Conclusion: The results from this study suggest that RRH is superior to TLRH with regard to surgical outcome and may pose a safe and feasible alternative to TLRH. The operating time and lymph node yield is acceptable. Our study is one of the largest single center studies of surgical outcomes comparing RRH and TLRH during cervical cancer treatment and our findings will significantly contribute to the safety of alternative treatment options for patients.
IS-001: Investigating a Novel Compound for Ureteral Identification during Robotic Hysterectomy;

**Preliminary Results**

**Arms RG,¹ Farnam RW⁴, Obstetrics and Gynecology, Texas Tech University Health Sciences Center, El Paso, Texas; Texas Urogynecology & Laser Surgery Center, PA, El Paso, Texas**

**Study Objective:** Evaluate the safety, tolerability, and pharmacokinetics of the investigational new drug, IS-001, in subjects undergoing robotic total laparoscopic hysterectomy (TLH) using the da Vinci surgical system with Firefly® imaging. Assess ureteral fluorescence and visualization following IS-001 administration.

**Design:** Phase I open label, single site, nonrandomized trial.

**Setting:** Community Medical Center.

**Patients:** Females age 18–65 years undergoing robotic TLH for benign indications.

**Intervention:** 10 mg of IS-001 (2 mg/mL) were administered intravenously upon induction of anesthesia. Vital signs, labs, ECG, and adverse events were monitored at subject enrollment, intraoperatively, through 24 hours postoperatively, and on post-op day 14 (±3). Pharmacokinetic data was collected at predefined intraoperative points and at 2, 4, and 6 hours post-op. Subjective surgeon assessment of ureteral fluorescence was compared to calculations of fluorescence intensity and duration.

**Measurements and Main Results:** Eight subjects were evaluated using IS-001 at the 10 mg dose. There were no adverse events and no vital sign, lab, or ECG aberrations beyond what would normally be expected in the setting of robotic TLH. Drug concentrations were at or below the limit of detection approximately six hours post-injection. Subjective surgeon assessment of ureteral fluorescence indicated moderate-to-strong fluorescence at 10 minutes post-drug administration (mean score 2.5 out of possible 3), falling to mild-to-moderate (mean score 1.5) at 30 minutes, and none-to-mild (mean score 0.6) at 60 minutes.

**Conclusion:** At the 10 mg dose, IS-001 appears safe in humans. Pharmacokinetic data show human elimination to be consistent with preclinical findings in animal subjects. Subjective surgeon assessment of ureteral fluorescence indicates rapid onset of ureteral fluorescence that persists to a clinically useful degree for 30+ minutes. Further study of the safety, pharmacokinetics, and ureteral fluorescence of IS-001 is ongoing with recruitment of two additional eight-subject cohorts, to be studied at 20 mg and 40 mg dose levels, respectively.

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**An Analysis of the Learning Curve: Robotic Surgical Staging for Ovarian Cancer**

**La B-J, Lan Y-P, Liu W-M, Department of Obstetrics and Gynecology, Taipei Medical University Hospital, Taipei City, Taiwan**

**Study Objective:** To define the learning curve for robotic surgical staging for ovarian cancer.

**Design:** Retrospective, comparative study.

**Setting:** University affiliated teaching hospital.

**Patients:** Women affected by apparent early-stage ovarian cancer and received robotic surgical staging by a single surgeon from August 2012 to July 2016.

**Intervention:** Robotic surgical staging (including fertility-sparing staging procedures).

**Measurements and Main Results:** 62 patients were arranged in order based on surgery date and divided into three groups (cases 1–20, 21–40, 41–62). Age, body weight, BMI, uterine length, the percentage of final International Federation of Gynecology and Obstetrics stage or histology of tumors, numbers of patients who received neoadjuvant therapy, previous abdominal surgery, or vaginal delivery did not differ between groups.

**Patient Demographics**

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>13 (20%)</td>
<td>11 (20%)</td>
</tr>
<tr>
<td>II</td>
<td>2 (20%)</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>III</td>
<td>4 (20%)</td>
<td>6 (20%)</td>
</tr>
<tr>
<td>IV</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Neoadjuvant</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Vaginal delivery</td>
<td>11 (55%)</td>
<td>11 (55%)</td>
</tr>
<tr>
<td>Uterine Length (cm)</td>
<td>6.68(2.61)</td>
<td>8.24(1.32)</td>
</tr>
<tr>
<td>Abdominal operation history</td>
<td>6 (30%)</td>
<td>7 (35%)</td>
</tr>
<tr>
<td>Pelvic adhesion</td>
<td>13 (20%)</td>
<td>11 (20%)</td>
</tr>
</tbody>
</table>

One way ANOVA, Chi-Square test. Statistically significant differences in operating times 262.5 minutes (standard deviation, SD = 62.9) and 183.9 minutes (SD = 59.1) and pain scores 3.35(SD = 1.39) and 2.55(SD = 0.61), respectively, were recorded between the second and the third group (p < .05). We found no differences in estimated blood loss, lymph node counts, time to full diet, hospital stay, rate of conversion or complications.
After we excluded 10 patients who received fertility-sparing staging procedures, locally weighted regression analysis showed that the operation time steadily decreased after the first 26 cases. Progression free survival and overall survival were similar between the three groups.

**Conclusion:** Surgical staging for ovarian cancer is safe and reproducible after training. Proficiency for robotic surgical staging is achieved after the first 26 cases and continues to improve over time.

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**TUESDAY, NOVEMBER 14, 2017**

## 73 Open Communications 3 – Emerging Technology and Techniques

**12:10 PM – GROUP A**

Longitudinal Outcome Study: What are the Factors That Impact Clinically Relevant Post-Operative Complications in Single-Port Laparoscopy

Can H.1 Huffman L.1 Neimi C.1 Medlin E.2 Uppal S.3 Spencer R.3 Al-Niaimi A.4,5 Obstetrics and Gynecology, University of Wisconsin, Madison, Wisconsin; 4Obstetrics and Gynecology, University of Louisville

**Abstract:** Single-port laparoscopy adoption is both feasible and safe. BMI was 33.9; 335/587 (57%) were obese/morbidly obese. Endometrial cancer was 252/587 (44%) of the preoperative indications. Hysterectomy/BSO without lymph nodes dissection was 221/587 (37.6%), and 178/587 (30.3%) of the procedures were with lymphadenectomy.

**Conclusion:** Single-port laparoscopy adoption is both feasible and safe. BMI and length of surgery are the only relevant factors contributing to higher complications. Ventral hernia rate is too small to study the constituting impacts.

**Methods and Main Results:** A total of 587 consecutive patients underwent single-port laparoscopy. The medians for age was 56 years and BMI was 33.9; 335/587 (57%) were obese/morbidly obese. Endometrial cancer was 252/587 (44%) of the preoperative indications. Hysterectomy/BSO without lymph nodes dissection was 221/587 (37.6%), and 178/587 (30.3%) of the procedures were with lymphadenectomy.

**Conclusion:** To investigate factors associated and leading to higher risk for clinically relevant post-surgical complications after single-port laparoscopy.

**Design:** Retrospective cohort study.

**Setting:** Single academic institution.

**Patients:** 587 consecutive patients underwent single-port laparoscopy (March, 2012–December, 2016).

**Intervention:** Single-incision laparoscopy. Clinically relevant postoperative complications: ICU admission, re-operation, end organ damage, organ space surgical site infection, readmission for surgical intervention, and blood transfusions. A multivariate analysis is used to study the clinical factors impacting those complications.

**Measures and Main Results:** To investigate factors associated and leading to higher risk for clinically relevant post-surgical complications after single-port laparoscopy. BMI and length of surgery are the only relevant factors contributing to higher complications. Ventral hernia rate is too small to study the constituting impacts.
Table 1. Continued

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Surgery duration (min)</th>
<th>Estimated intra operative Blood Loss (EBL) in ml</th>
<th>Hospital stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysterectomy/BS&amp;O, with Lymphadenectomy (Endometrial cancer full staging)</td>
<td>156 (45–323)</td>
<td>171 (0–3000)</td>
<td>1.1 (0–5)</td>
</tr>
<tr>
<td>Hysterectomy/BS&amp;O (Low risk cancer, benign pathology, risk reducing)</td>
<td>187 (158–323)</td>
<td>176 (50–3000)</td>
<td></td>
</tr>
<tr>
<td>Adnexal Mass/Diagnostic laparoscopy/others</td>
<td>104 (52–132)</td>
<td>50 (0–100)</td>
<td></td>
</tr>
<tr>
<td>Radical hysterectomy (Cervical cancer)</td>
<td>78 (45–128)</td>
<td>85 (50–500)</td>
<td></td>
</tr>
<tr>
<td>Estimated intra operative Blood Loss (EBL) in ml</td>
<td>171 (0–3000)</td>
<td>176 (50–3000)</td>
<td></td>
</tr>
<tr>
<td>Estimated intra operative Blood Loss (EBL) in ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>1.1 (0–5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Short term surgical outcome (Less than 6 weeks after surgery)

- **Intra operative Surgical**
  - Needing extra ports to perfume the surgery: 11 (1.8%)
  - Aborting laparoscopy and converting to laparotomy: 36 (6.1%)
  - Surgical reason: 18 (3%)
  - Medical reason (patient’s intolerance of the Trendelenburg position): 15 (2.5%)

- **Organ injury**
  - Inferior vena cava: 1
  - Ureter: 1
  - Small bowel: 1
  - Large bowel: 1
  - Small bowel mesentery: 1
  - Organ injury that necessitated extra unplanned surgery (bowel resection and/or Bowel diversion): 2
  - Prolonged hospitalization (Beyond 2 days): 14 (2.3%)

Post-operative complications

- Unplanned Transfer to intensive care unit: 3 (0.5%)
- Reoperation within the same hospitalization (Fascial Dehiscence): 1 (0.2%)
- Cardiovascular events (coronary artery disease): 2 (0.3%)
- Cerebrovascular event: 1 (0.2%)
- Acute Kidney/renal disease: 7 (1.2%)
- Infectious morbidity: 8 (1.4%)
- Deep/organ space surgical site infection (SSI): 3 (0.5%)
- Readmission within 6 weeks after surgery: 28 (4.4%)
- Readmission with surgical intervention: 3 (0.5%)

Clinically relevant complications (ICU, re-operate, organ damage, organ space SSI, surgical readmission, blood transfusions)

- Number of clinically relevant complications: 27
- Number of patients with relevant complications: 18 (3%)

The average operating time was 156 min (45–323), and EBL 171 ml (0–3000).

Clinically relevant postoperative complications were 27 events, occurring in 18/587 (3%) patients. This included ICU admission (0.5%), re-operation (0.2%), end organ damage (1.71%), organ space SSI (0.5%), and readmission (3.8%). Hernia formation was 7/587 (1.2%) (4 clinical and 3 radiological only).

A univariate/multivariate analysis.

Table 2. Multivariate (ODD ratio) analysis for developing the Clinically relevant complications (ICU, re-operate, organ damage, organ space SSI, surgical readmission, blood transfusions)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Univariate analysis OR (Range) p value</th>
<th>Multivariate analysis OR (Range) p value</th>
<th>Clinical relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (for each 1 year increase in age)</td>
<td>1.02 (1.01–1.05) .03</td>
<td>1.01 (0.87–1.03) NS</td>
<td>For every 5 units increase in BMI there is 5% higher chance of complications. Or For each unit increase in the patient’s BMI (after 30) there is a 1% increase risk of such complications</td>
</tr>
<tr>
<td>BMI (for each 5 unit increase)</td>
<td>1.04 (1.03–1.22) p value = .04</td>
<td>1.05 (1.03–1.24) p value = .032</td>
<td>For every 10 minutes longer surgery time there is a 2% higher chance of complications</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.2 (0.97–1.3) NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>1.3 (0.72–1.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>1.2 (0.9–1.7) NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of surgery (for each 10 minutes longer)</td>
<td>1.03 (1.01–1.312 p value = .008</td>
<td>1.02 (1.01–1.33) p value = .01</td>
<td>For every 10 minutes longer surgery time there is a 2% higher chance of complications</td>
</tr>
<tr>
<td>EBL (for every 100 ml increase in EBL)</td>
<td>0.97 (0.63–1.29) NS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 showed only BMI (OR = 1.05, p = .032) and a longer operative time (OR = 1.02, p value = .01) were associated with higher clinically relevant complications. For each unit increase in the patient’s BMI (after 30) there is a 1% increase risk of such complications. For each additional 10 minutes of surgical time greater than average for such procedure, there is a 2% increase risk for those complications.
Open Communications 3 – Emerging Technology and Techniques
(12:10 PM–1:10 PM)

12:17 PM – GROUP A

Modified Single-Site Laparoscopic Surgery Versus Conventional Laparoscopic Surgery for the Treatment of Benign Adnexal Masses
Wang S, Yin L. Obstetrics and Gynecology, Peking University First Hospital, Beijing, China

Study Objective: To investigate the feasibility and safety of modified single-site laparoscopic surgery compared to conventional laparoscopic surgery for the treatment of benign adnexal masses.

Design: Randomized controlled study.

Setting: A tertiary comprehensive hospital.


Intervention: A total of 200 patients were equally randomly assigned to modified single-site laparoscopic surgery group and conventional group.

Measurements and Main Results: No significant difference was observed between the two groups regarding preoperative baseline characteristics including age, BMI, size and pathological type of ovarian masses. The two groups had comparable surgical outcomes, including operation time (40[35,55] min vs. 45[31,67] min, p = .554), time of flatus pass (15 ± 6 h vs. 15 ± 7 h, p = .526), postoperative pain score at 4h/24h/48h (4 ± 2 vs. 4 ± 2, p = .659; 2[1,3] vs. 2[1,3], p = .484; 1[0,2] vs. 1[1,2], p = .540), duration of postoperative analgesia use (0[0,20] h vs. 0[0,19] h, p = .666) and duration of hospital stay (3[2,3] d vs. 3[2,3] d, p = .527). In modified single-site laparoscopic surgery group, the estimated blood loss and the decreased level of hemoglobin postoperatively were significantly less than those of the conventional group (5[2,5] mL vs. 5[2,10] mL, p = .015; 1[7,17] g/L vs. 15[8,20] g/L, p = .018).

Conclusion: Modified single-site laparoscopic surgery is a feasible and safe approach for the treatment of benign adnexal masses. Further study is required to better determine whether modified single-site laparoscopic surgery has significant benefits compared to conventional techniques.

Open Communications 3 – Emerging Technology and Techniques
(12:10 PM–1:10 PM)

12:24 PM – GROUP A

Single-Institutional Experience in Laparoendoscopic Single-Site Radical Hysterectomy with Pelvic Lymphadenectomy for Treatment of Cervical Cancer
Wang Y, Chen G, Xu J, Deng L, Liang Z. Obstetrics and Gynecology, Southwest Hospital of Third Military Medical University, Chongqing, China

Study Objective: To describe the feasibility, safety, and outcomes of women with cervical cancer treated with laparoendoscopic single-site surgery radical hysterectomy with pelvic lymphadenectomy (LESS-RH/PLND).

Design: Prospective study.

Setting: University hospital.

Patients: Women with early stage cervical cancer.

Intervention: LESS-RH/PLND as the primary therapy for cervical cancer performed by the gynecologic oncologist. Demographic data, clinicopathologic, and perioperative outcomes were analyzed.

Measurements and Main Results: Twenty-seven women were identified in whom a LESS-RH/PLND was attempted; 26(96%) successfully underwent the procedure. One patient with stage IV endometriosis was converted to 3-port laparoscopy. The median age and body mass index were 46 years and 22.1 kg/m2, respectively. The median operation time and intraoperative blood loss was 237 min and 186 ml, respectively. Two large veins lacerations and one bladder injury occurred and was sutured promptly during the operation. The median number of pelvic lymph nodes removed was 21. The margins of excision were negative. One patient with 2 positive pelvic nodes received adjuvant chemosensitized radiation, 7 patients received adjuvant radiation secondary to an intermediate risk for recurrence.

Conclusion: LESS-RH/PLND is feasible and safe for select patients with cervical cancer. Larger studies are needed to investigate the clinical significance of single-port laparoscopic surgery in the treatment of cervical cancer and its clinical value.
Measurements and Main Results: 81 patients responded to the survey. Sixty-eight percent were reproductive age, 43% were ethnic minorities, and 79% had a college degree or greater. Thirty-five percent worked in healthcare or healthcare related fields and 23% reported a history of minimally invasive gynecologic surgery personally or in a close friend/family member. Regarding surgical intervention, 86% expressed concern about the technique a surgeon uses with 82% reporting they are likely to pick or switch surgeons based on the technique used. When counselled regarding surgical technique, 90% felt that their surgeon completely or somewhat counseled them on risks and benefits of their proposed technique. An additional 88% completely or somewhat felt their surgeon allowed enough time to ask questions about the proposed technique. Only 12% of patients presenting for myomectomy consultation reported knowing what a morcellator was with 91% stating they were unsure of its safety profile. Sixty-one percent reported that the media’s portrayal of a medical device’s safety influenced their decision-making. However, only 46% reported that they would request their surgeon not use a specific medical device based on news media reports. This number increased to 63% based on a family member/friends advice or previous personal experience.

Conclusion: Despite media coverage and its influence on patient decision-making, the majority of patients with uterine fibroids are under informed of the risk profile of morcellation. Furthermore, given that almost half of patients would change surgeons based on technique, this represents an opportunity for physicians to further educate and counsel patients regarding surgical technique.

Prospective Comparison of Contained Tissue Extraction Techniques at Time of Laparoscopic Hysterectomy: Mini-Laparotomy Versus Vaginal
Cohen SL,1 Mashinski A,1 Ajoy B,1 Clark N,1 Anchan R,1 Gargiulo A,3 Srour J,1 Walsh B,1 Brown D,2 Einarsson J,1 Brigham and Women’s Hospital, Boston, Massachusetts;2 Massachusetts General Hospital, Boston, Massachusetts

Study Objective: To compare perioperative outcomes of patients undergoing hysterectomy with contained tissue extraction via a minilaparotomy incision or colpotomy.

Design: Multicenter, prospective study.

Setting: Two tertiary care academic hospitals in Boston.

Patients: Women undergoing laparoscopic or robot-assisted laparoscopic hysterectomy for benign indications.

Intervention: Completion of pain and recovery diaries; addition of blue dye (indigo carmine or methylene blue) to specimen extraction bag to aid in the identification of bag tears or leaks.

Measurements and Main Results: Of the patients enrolled in this study, 61.5% (n = 32) underwent uterine extraction via minilaparotomy incision, and 34.6% (n = 18) underwent transvaginal removal. Contained extraction was not necessary for the remaining 3.8% (n = 2) of patients as these patients’ uteri were able to be removed intact. Baseline characteristics were similar aside from higher mean parity in vaginal extraction group (1.7 ± 1.1 vs. 1 ± 1.1, p = .04). The mean procedure time was significantly longer in patients with minilaparotomy extraction than patients with transvaginal extraction (169.9 vs. 110 minutes, p = .002), although morcellation-specific time did not differ. Additionally, more vaginal extraction cases were found to have bag leaks than cases in the minilaparotomy group (38.9% vs. 9.4%, p = .024). No other intraoperative differences were found in terms of blood loss, specimen weight or complications. No significant differences in patient recovery, such as average pain, days of narcotic use, and days until able to return to work and physical activities, were found.

Conclusion: Although there were more cases of bag leakage in the vaginal contained extraction group, no differences were otherwise noted in terms of time required for morcellation, perioperative complications or pain/time associated with recovery.

Comparison of Transvaginal and Laparoscopic Routes of Morcellation Following Total Laparoscopic Hysterectomy (TLH) of Large Uterus
Mishra J, Lakhapal S. Obstetrics & Gynaecology, Jaypee Hospital, Noida, UP, India

Study Objective: Comparison of transvaginal and laparoscopic routes of morcellation following total laparoscopic hysterectomy (TLH) of large uterus.

Design: Prospective non randomized study.

Setting: A tertiary care hospital.

Patients: Fifty seven patients from July 2016 to March 2017, with uterine size ≥10 weeks of gestation. Patients with uterine myomas, endometriosis, adenomyosis, AUB unresponsive to medical treatment, were included.

Intervention: Based on patients’ preoperative clinical assessment & intra-operative findings during TLH, the route of morcellation was decided.

Measurements and Main Results: Patients were divided into morcellation group A (transvaginal) having 44 patients & group B (laparoscopic) having 45 patients. Fibroids & adenomyosis were the main indications for hysterectomy. Clinical results were studied in terms of time taken for morcellation, complications, postoperative patient discomfort, surgeon fatigue and cost of the chosen procedure. Secondary haemorrhage occurred in 1 patient in group A & in 2 patients in group B. Bowel injury was noted in one case in group B. Average uterine weight was 640gms in group A & 780gms in group B. Average duration of surgery was 146 minutes in group A & 165 minutes in group B. Average hospital stay was 4 days in group A & 5 days in group B. Morcellation time was 12 minutes in group A & 18 minutes in group B. Secondary haemorrhage occurred in 1 patient in group A & in 2 patients in group B. Bowel injury was noted in one case in group B. Average uterine weight was 640gms in group A & 780gms in group B. Average duration of surgery was 146 minutes in group A & 165 minutes in group B. Average hospital stay was 4 days in group A & 5 days in group B. Morcellation time was 12 minutes in group A & 18 minutes in group B.

In-Bag Morcellation as a Routine for Laparoscopic Hysterectomy
Rimbach S, Schempershoef M. Obstetrics and Gynecology, Agatharied Hospital, Hausham, Agatharied, Germany

Study Objective: Tissue morcellation during laparoscopic hysterectomy carries the risk of spreading cells from unsuspected malignancy. Contained morcellation inside a bag is supposed to minimize this risk. The present study evaluated routine use of in-bag morcellation during laparoscopic hysterectomy.

Design: Prospective application in a consecutive patient cohort (n = 49) and retrospective evaluation. The system used was MoreCellSafe (A.M.I. Austria).

Setting: German teaching hospital.

Patients: Median age was 47 (35 to 76) years and BMI 25.1 (18.8 to 39.8). Indications for hysterectomy were fibroids (71.4%), adenomyosis (16.3%), prolaps (8.2%) and bleeding disorders (4.1%).

Intervention: 48 (98%) patients underwent supracervical and 1 (2%) total hysterectomy. In all cases, contained morcellation was performed using MCS in a routine multipro approach.

Measurements and Main Results: No unsuspected malignancy occurred. Median weight of extracted tissue was 195 g (18 to 1110). Median time associated to the use of the bag was 10 min (5 to 28). Technical success rate for contained morcellation was 93.9%. Peritoneal washings after contained morcellation were all negative for malignant or smooth muscle cells.

Conclusion: Contained morcellation using the More Cell Safe-system appeared safe and effective for routine use during laparoscopic hysterectomy.
minutes in group B. Uterus removal time was 21 minutes in group A & 38 minutes in group B.

**Conclusion:** In our study the operation time and uterus removal time was significantly less in the transvaginal group along with reduced surgeon fatigue. With same surgeon performing all surgeries, a true comparison of two techniques was possible. We conclude that the vaginal route of morcellation is a safe, easy, cheap, time saving and morbidity reducing route for uterine removal after TLH. We need to rethink and return to the gynaecologists forte, the transvaginal route, to reduce patient morbidity and improve skills in transvaginal surgery, for the future generations.

**TUESDAY, NOVEMBER 14, 2017**

**81 Open Communications 4 – Endometriosis and Adenomyosis**

**(12:10 PM–1:10 PM)**

**Genitourinary Involvement in Deep Infiltrating Endometriosis**

Boagie O, Suen M, Arendas K, Singh SS. Ottawa Hospital Research Institute, University of Ottawa, Ottawa, Ontario, Canada

**Study Objective:** To analyze the prevalence of ureteric and bladder involvement in deep infiltrating endometriosis, and the associated complications and interventions required.

**Design:** Retrospective chart review was performed on patients that underwent surgical management of deep infiltrating endometriosis performed at the Ottawa Hospital between Jan 1, 2008–Jan 1, 2016. Pertinent patient and surgical features were recorded.

**Setting:** Academic tertiary level referral center.

**Patients:** Women that underwent surgical management of deep infiltrating endometriosis performed at the Ottawa Hospital between Jan 1, 2008–Jan 1, 2016. Pertinent patient and surgical features were recorded.

**Intervention:** Demographic, clinical history, operative and pathological findings were collected from each patient’s record. Descriptive statistics (mean, standard deviation and percentage) were used to describe the demographic characteristics of the patient populations, as well as the prevalence of genitourinary endometriosis. Chi-squared test was performed to examine potential associations between preoperative clinical patient factors and presence of genitourinary endometriosis.

**Measurements and Main Results:** 344 patients underwent surgical management of deep infiltrating endometriosis in the specified time period. Mean age was 37.6 years (range 20–54). 51.5% of patients were nulligravid and 43.2% of patients had previous surgery for endometriosis. 35.8% of patients underwent a hysterectomy concomitantly. Ureterolysis was performed in 57.8% of cases and cystoscopy in 49.4%. Overall, 83.1% of patients had either bladder or ureteric involvement. 60.5% of patients had superficial peritoneal endometriotic implants near the ureters, and 16.3% had superficial bladder involvement. 14.5% of patients had a ureteric nodule and 1.5% had a bladder nodule. Three urological injuries were reported.

**Conclusion:** Genitourinary involvement is common in cases of deep infiltrating endometriosis and should be anticipated preoperatively. The surgeon should be comfortable with ureteric dissection when planning surgery for advanced endometriosis and should consider imaging of the genitourinary system if there are preoperative features of deep endometriosis.

**82 Open Communications 4 – Endometriosis and Adenomyosis**

**(12:10 PM–1:10 PM)**

**Medical Treatment for Adenomyosis – A Systematic Review of Prospective Controlled Clinical Trials**

Oliveira Brito LG, Mira T, Yela-Gomes DA, Teatin-Juliao CR, Benetti-Pinto CL. Gynecology and Obstetrics, State University of Campinas, Campinas, SP, Brazil

**Study Objective:** To determine the efficacy of medical/surgical treatment for women with a clinical diagnosis or suggestive imaging of adenomyosis.

**Design:** Systematic review registered at PROSPERO – CRD42017057896.

**Setting:** Search was performed at the PUBMED database from inception to February 22nd 2017.

**Patients:** Four-hundred and twenty-five studies were retrieved from the literature; however, after filtration, only six studies (n = 348) remained in the final analysis; 4 of them were randomized (n = 264).

**Intervention:** Medical and/or surgical treatment versus placebo or comparator groups.

**Measurements and Main Results:** Main outcomes were: adenomyosis-related pain, bleeding, quality of life before and after treatment, uterine volume. One study (Shabban et al) compared levonorgestrel-releasing intrauterine system (LNG-IUS) with low-dose combined oral contraceptive to assess pain and bleeding; both treatments reduced pain and bleeding after 6 months of use, with a greater reduction in the LNG-IUS group. Another study compared the LNG-IUS with hysterectomy (Ozdegirmenci et al) and LNG-IUS increased hemoglobin levels similarly to hysterectomy and superior effects on QoL scores. A third study (Maia et al) compared LNG-IUS vs placebo after performing endometrial resection prior to the study in both groups and found that the rate of amenorrhea was higher in the LNG-IUS group. A fourth study (Zheng et al) found that TCRE combined with LNG-IUS were more effective to reduce menstrual bleeding when compared to LNG-IUS alone, with no difference in pain. In other two studies (Fawzy et al and Badawy et al) compared GnRH analogues vs dienogest or aromatase inhibitors, respectively. The former study found that dienogest was equivalent to triptorelin with regard to reducing pain and that letrozol was similar to goserelin in reducing uterine volumes.

**Conclusion:** LNG-IUS is the most investigated treatment in prospective studies involving women with adenomyosis-related bleeding and pain, displaying good results in terms of efficacy. However, no metaanalysis could be performed due to the lack of prospective studies.
Measurements and Main Results: There was a significant decrease in the level of four lipids in the blood and peritoneal fluid of patients with endometriosis in comparison to the myoma group, i.e., phosphatic lipid PE 36: 4, lysophosphadiylcholine LPC 16: 0, sphingomyelin SM 34: 1, phosphoethanolamine PE O-34: 1. Only the level of phosphoethanolamine PE O-20:0 was found increased in endometrioid tissues as well as in biological fluids of patients with endometriosis, thus indicating a possible diagnostic use of this particular lipid. The sensitivity of this method for plasma was 93%, specificity 95%; for peritoneal fluid sensitivity 90% and specificity 95%.

Conclusion: This study confirms the involvement of specific phospholipids and sphingolipids in the pathophysiology of endometriosis, and opens new possibilities for noninvasive diagnosis of endometriosis.

84 Open Communications 4 – Endometriosis and Adenomyosis (12:10 PM–1:10 PM)

12:31 PM – GROUP A
Temporarily Blocking the Uterine Artery to Dig Out a Diffused Adenomyosis Lesion Treated Laparoscopically
Yong L. Gynecology, Changzhou Maternal and Child Health Hospital, Changzhou, Jiangsu, China

Study Objective: To show the tips and tricks of a simpler technique for temporary blocking of the uterine artery in laparoscopic resection of a diffuse adenomyosis lesion to make the procedure more efficient and reproducible.

Design: This study is designed to be a step-by-step explanation of the technique using videos and pictures.

Setting: Changzhou Maternal and Child Health Hospital, Changzhou, China.

Patients: Three patients (age 39–42 years) were diagnosed with diffuse adenomyosis with severe secondary dysmenorrhea willing to reserve the uterus and a poor response to medical management. Gynecologic examination revealed that the lesion sizes were 9 to 14 weeks. Transvaginal ultrasonography revealed that the lesions were 4 to 7 cm in size.

Intervention: Laparoscopic resection of the diffuse adenomyosis lesion was conducted after temporary blocking of the uterine artery with a rubber belt.

Measurements and Main Results: Many adenomyosis patients with severe dysmenorrhea and menometrorrhagia have a large lesion; thus, the operating time is longer. We made an incision of the broad ligament of the avascular area near the uterine artery and pulled the rubber pressure pulse ligation tightly through to temporarily block the uterine artery without vasopressin completely through the laparoscopic resection of the diffuse adenomyosis lesion. Intraoperative blood loss was only 120 to 230 mL. Mirena was placed in the uterus from the vagina immediately after surgery. At the 3–25 month follow-up, visual analog scale scores were obviously reduced, and the menstrual quantity and amenorrhea dramatically declined after the surgery. All patients had no recurrence and Mirena loss as assessed by vaginal ultrasonography and the visual analog scale. Estrogen was maintained at the normal level after 3 months.

Conclusion: Using the rubber belt to temporarily block the uterine artery in laparoscopic resection of the diffuse adenomyosis lesion offers the possibility of the rubber belt being effective, safe, and reproducible.

85 Open Communications 4 – Endometriosis and Adenomyosis (12:10 PM–1:10 PM)

12:42 PM – GROUP B
The Impact of Concurrent Chronic Pain Conditions on the Development of Chronic Pelvic Pain in Women with Endometriosis
Wagner CA, Ijison AJ. Minimally Invasive Gynecologic Division, Mercy Hospital, St. Louis, Missouri

Study Objective: Determine non-gynecologic conditions associated with Chronic Pelvic Pain (CPP) in women with endometriosis.

Design: Retrospective Chart Review.

Setting: Residency-affiliated community hospital.

Patients: All patients referred to pelvic pain clinic from 2015 to May 2016, with biopsy confirmed endometriosis.

Intervention: Subjects with CPP were compared with subjects without CPP.

Measurements and Main Results: Of the 64 total subjects, 31 (48.40%) had Chronic Pelvic Pain (CPP) and 33 (51.6%) did not. CPP subjects were more likely to be obese, with 12/31 (38.8%) having BMI >30, compared to 3/33 (9.1%) of non-CPP subjects (p = .007). CPP subjects underwent more previous surgical procedures (mean 1.5, SD 1.9) than non-CPP subjects (mean 0.44, SD 0.6; p = .002). 17/33 (51.5%) CPP subjects experienced pain persistence after endometriosis treatment vs 6/33 (18.1%) of non-CPP subjects (p = .049). Severity of endometriosis and number of lesions removed were not associated with CPP. Irritable Bowel Syndrome (IBS) was present in 12/31 (38.8%) of CPP subjects compared to 5/33 (15.1%) of non-CPP subjects (p = .047). Interstitial Cystitis (IC) was present in 8/31 (25.8%) of CPP subjects compared to 2/33 (6.1%) non-CPP subjects (p = .049). 15/31 (48.4%) of subjects in the CPP group had IBS, IC of both, compared with 7/33 (21.1%) of subjects in the non-CPP group (Odds Ratio 3.48, 95% CI 1.16–10.38).

Conclusion: Our findings suggest that factors in addition to endometriosis contribute to development of CPP. Women with endometriosis should be screened for CPP, and when present should also be screened for IBS and IC. When surgically evaluating CPP, cystoscopy should be considered as part of the evaluation for IC.

86 Open Communications 4 – Endometriosis and Adenomyosis (12:10 PM–1:10 PM)

12:49 PM – GROUP B
The Impact on Ovarian Reserve of Ovarian Cystectomy Versus Laser Vaporization in the Treatment of Ovarian Endometrioma: A Randomized Clinical Trial
Ottolini J¹, Posadzka E², Ferrari S¹, Tandoli I¹, Castellano LM¹, Komenda J², Jach R³, Candiani M⁴, San Raffaele Scientific Institute, Milan, Italy; ¹Jagiellonian University, Collegium Medicum, Krakow, Poland

Conclusion: Up was not different from baseline in either group.

Measurement and Main Results: Age and the mean size of endometriomas were similar between the two groups (Group 1 = 30.1 years, Group 2 = 31.9 years, p = .901; Group 1 = 4.9 cm, Group 2 = 4.5 cm, p = .141). AFC at 3-month follow-up was significantly higher compared to baseline in Group 2 (from 9.6 to 16.1, p = .010); AFC of the operated ovary was also found to be significantly higher after treatment in Group 2 (from 4.1 to 8.1, p = .011). In Group 1, AFC at 3-month follow-up and the AFC of the operated ovary did not differ from baseline (p = .121, p = .248). AMH at 3-month follow-up was not different from baseline in either group.

Conclusion: CO2 laser vaporization for endometrioma yields an higher function ovarian tissue, as determined by higher AFC count and no change in AMH, in comparison with cystectomy. These are preliminary data of an ongoing study, and the results need to be confirmed on a larger sample.

87 Open Communications 4 – Endometriosis and Adenomyosis (12:10 PM–1:10 PM)

12:56 PM – GROUP B

2D and 3D Sonographic Features of Deep Endometriosis after Laparoscopic Bowel Resection and Correlation with Symptoms

Zapi E, Martire F, Morosetti G, Pietropaoli A, Piccione E, Exacoustos C. Department of Biomedicine and Prevention Obstetrics and Gynecological Clinic, University of Tor Vergata, Rome, Italy

Study Objective: To evaluate the presence or absence of residual postoperative disease and adhesions by 2D and 3D transvaginal sonography in patients who underwent segmental bowel resection for Deep Infiltrating Endometriosis (DIE). Furthermore the presence of residual pelvic endometriosis, adhesions and adenomyosis were correlated to symptoms and infertility.

Design: Retrospective study.

Setting: University Hospital.

Patients: 50 premenopausal women (mean age 37.4 ± 5.2 yrs) with bowel DIE who underwent segmental bowel resection.

Intervention: All patients underwent an accurate 2D, 3D and power Doppler transvaginal examination and mapping of the pelvic disease before and after surgery. All patients are assessed for pelvic pain by visual analog scale (VAS). The sonographic features of adenomyosis, adhesions, presence of ovarian, peritoneal and deep endometriosis were evaluated. A previous published mapping system to evaluate pelvic endometriosis was always performed.

Measurements and Main Results: At the TVS scan performed within 6 months after surgery we found 14 patients (28%) with residual DIE, 38 patients (76%) with adhesions in the posterior compartment, 32 patients (64%) with segmental bowel resection and 6 patients (12%) with deep endometriosis. Out of 25 women desiring pregnancy, 21 (84%) had dyspareunia (VAS > 5) and 19 patients underwent ART.

Conclusion: Aberrant Musashi-1 expression of stem cells markers in nodular and diffuse adenomyosis cells and comparison with eutopic endometrium. The spontaneous pregnancy rate in our study is not improved by surgery.
Clinical features from EOC patients.

Patients (p < 0.05) were markedly associated with low 5-year survival of EOC. Expression was strongly associated with high CD44, CD133, and NANOG expression, high snail and vimentin expression (p < 0.05). High CXCR4 expression was strongly associated with clinical stage, histological grade, lymph node metastasis and peritoneal cytology of EOC (p < 0.05).

Table 1. Correlations between expression of CXCR4 and clinicopathological features from EOC patients.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Positive</th>
<th>Negative</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXCR4</td>
<td>0.42</td>
<td>0.51</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>CD44</td>
<td>0.42</td>
<td>0.51</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Conclusion: CXCR4 could promote EOC progression by EMT and the existence of CSCs. Thus, targeting of the CXCR4 could have clinical applications in suppressing EOC progression.

90 Open Communications 5 – Research & Science
(2:15 PM–3:15 PM)

Is There Appropriate Utilization of Alternative Treatment before Hysterectomy for Benign Conditions in Northern California Kaiser Permanente?

Nguyen NT1, Salyer CV1, Merchant M2, Pastelthwaite D3, Yamamoto M4, Zaritsky E5. 1Department of Obstetrics & Gynecology, Kaiser Permanente Northern California, Oakland, California; 2Division of Research, Kaiser Permanente Northern California, Oakland, California

Study Objective: To investigate counseling and utilization of alternative treatments before hysterectomy for benign gynecologic indications.

Design: Retrospective cohort study.

Setting: Kaiser Permanente Northern California, a community based integrated health care system.

Patients: Women with hysterectomies for benign gynecologic conditions from years 2012–2014.

Intervention: N/A.

Measurements and Main Results: A stratified random sample of 1050 by indication for hysterectomy was selected from a cohort of 9991 women. 980 met criteria for inclusion. The predominant indication for hysterectomy was symptomatic fibroids (54.39%) followed by abnormal uterine bleeding (29.98%), endometriosis (5.82%), pelvic pain (3.06%), dysmenorrhea (3.37%) and other (4.39%). The major routes of hysterectomy were laparoscopy (68.78%) and vaginal hysterectomy (13.37%). We identified 99.3% of women counseled regarding alternative treatments prior to hysterectomy with 18.8% declining all alternative treatment options. Over 81% of the women tried at least one alternative treatment prior to hysterectomy, with 47.5% trying at least two alternative treatments. Alternative treatment use did not differ by clinical characteristics such as hypertension, diabetes, COPD, deep vein thrombosis, pulmonary embolism and smoking. Results from the logistic regression model indicated that alternative treatment use differed by age group and indications for surgery after adjusting for race, type of hysterectomy and BMI. Compared to younger women (age<40), women (age 45–49) and (age >50) were 8% (adjusted odds ratio [aOR] = 0.42 p = 0.007) and 49% (aOR = 0.51 p = 0.048) less likely to use alternative treatments prior to hysterectomy, respectively. Additionally, compared to women with indications for abnormal uterine bleeding, women with symptomatic fibroids were 61% (aOR = 0.39 p < 0.001) less likely to try alternative treatments.

Conclusion: Most patients in KPNC were offered alternative treatments (99%) with majority trying an alternative treatment prior to hysterectomy. An integrated health care system may contribute to the high rate of preoperative counseling and subsequent utilization of alternative treatments prior to a hysterectomy.

91 Open Communications 5 – Research & Science
(2:15 PM–3:15 PM)

Vaginal Extraction Index: A Predictive Model for Extraction of Hysterectomy Specimens

Exikittah R1, Mohling S2, Mashak Z1, Holcombe J1, Boren T1, DePasquale S1, Obstetrics and Gynecology – Division of Minimally Invasive Gynecology, University of Illinois College of Medicine – Peoria, Peoria, Illinois; 1Obstetrics and Gynecology – Division of Minimally Invasive Gynecology, University of Tennessee College of Medicine – Chattanooga, Chattanooga, Tennessee
Study Objective: To determine the “Vaginal Extraction Index” as a predictive model for vaginal extraction that could assist gynecologic surgeons in preoperatively determining the likelihood of success in delivering an intact uterine specimen through the vagina following laparoscopic hysterectomy.

Setting: Tertiary Care Center.

Patients: A total of 316 patients who underwent a laparoscopic hysterectomy followed by attempted vaginal extraction of uterine specimens.

Intervention: Attempted vaginal extraction of the intact uterine specimen. Patients who failed the vaginal extraction required a mini-laparotomy for specimen removal.

Measurements and Main Results: Vaginal extraction of the intact specimen was attempted in all the surgeries and was successful in 72% of the cases. Dichotomous predictor variables for uterine length, height and width were calculated separately based on differential percentile scores and combined with age in a logistic regression analysis. The logistic regression model was statistically significant and explained 80.5% (Nagelkerke R2) of the variance in procedure type and correctly classified 94.6% of cases. Factoring in parity or uterine weight did not statistically impact the predictive power of the model. The model’s sensitivity was 85.3%, specificity was 98.1%, positive predictive value was 94.57% and negative predictive value was 94.55%. This created a predictive weighted index incorporating age with ureterine length, height and width. Age >50 years counted as one point, while length (>11 cm), height (>8 cm), and width (>6.9 cm) each count for 3 points resulting in a potential scale range of 0 to 10 points. An index score equal to or greater than 4 suggests the need for an alternative to vaginal extraction.

Predictive Model Weighted-Scores

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Measurement</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uterine Length</td>
<td>&gt;11 cm</td>
<td>3</td>
</tr>
<tr>
<td>Uterine Height</td>
<td>&gt;8 cm</td>
<td>3</td>
</tr>
<tr>
<td>Uterine Width</td>
<td>&gt;6.9 cm</td>
<td>3</td>
</tr>
<tr>
<td>Age</td>
<td>&gt;50 years</td>
<td>1</td>
</tr>
</tbody>
</table>

VG: Vaginal
ML: Mini-laparotomy

Conclusion: This vaginal extraction index provides an approximate 95% confidence level in predicting the success of vaginal extraction of uterine specimens at the time of hysterectomy. This is a valuable tool in counseling patients undergoing hysterectomy especially when ultrasound measurements are available pre-operatively.

92 Open Communications 5 – Research & Science (2:15 PM – 3:15 PM)

2:36 PM – GROUP A

Prospective-Controlled Assessment of Stress Hormones in Patients Undergoing Myomectomy by Laparoscopy and Open Surgery

Pados GA,1 Katrantzis K,1 Tiolakkidou D,1 Gerossi S,2 Tarlatzis B1,1 “Diavalkiano” Hospital and “Papageorgiou” Hospital, Department of Obstetrics, Aristotle University, Thessaloniki, Greece; 2“Analisi” Diagnostic and Research Center, Thessaloniki, Greece

Study Objective: To determine the “Vaginal Extraction Index” as a predictive model for vaginal extraction that could assist gynecologic surgeons in preoperatively determining the likelihood of success in delivering an intact uterine specimen through the vagina following laparoscopic hysterectomy.

Design: A total of 316 patients who underwent a laparoscopic hysterectomy followed by attempted vaginal extraction of uterine specimens.

Intervention: Attempted vaginal extraction of the intact uterine specimen. Patients who failed the vaginal extraction required a mini-laparotomy for specimen removal.

Measurements and Main Results: Vaginal extraction of the intact specimen was attempted in all the surgeries and was successful in 72% of the cases. Dichotomous predictor variables for uterine length, height and width were calculated separately based on differential percentile scores and combined with age in a logistic regression analysis. The logistic regression model was statistically significant and explained 80.5% (Nagelkerke R2) of the variance in procedure type and correctly classified 94.6% of cases. Factoring in parity or uterine weight did not statistically impact the predictive power of the model. The model’s sensitivity was 85.3%, specificity was 98.1%. Positive predictive value was 94.57% and negative predictive value was 94.55%. This created a predictive weighted index incorporating age with uterine length, height and width. Age >50 years counted as one point, while length (>11 cm), height (>8 cm), and width (>6.9 cm) each count for 3 points resulting in a potential scale range of 0 to 10 points. An index score equal to or greater than 4 suggests the need for an alternative to vaginal extraction.

Predictive Model Weighted-Scores

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Measurement</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uterine Length</td>
<td>&gt;11 cm</td>
<td>3</td>
</tr>
<tr>
<td>Uterine Height</td>
<td>&gt;8 cm</td>
<td>3</td>
</tr>
<tr>
<td>Uterine Width</td>
<td>&gt;6.9 cm</td>
<td>3</td>
</tr>
<tr>
<td>Age</td>
<td>&gt;50 years</td>
<td>1</td>
</tr>
</tbody>
</table>

VG: Vaginal
ML: Mini-laparotomy

Conclusion: This vaginal extraction index provides an approximate 95% confidence level in predicting the success of vaginal extraction of uterine specimens at the time of hysterectomy. This is a valuable tool in counseling patients undergoing hysterectomy especially when ultrasound measurements are available pre-operatively.

93 Open Communications 5 – Research & Science (2:15 PM – 3:15 PM)

2:47 PM – GROUP B

Healthcare Utilization Patterns among Women with Newly Diagnosed Abnormal Uterine Bleeding by Diagnosis and Intervention

Nardy M1, Bonafede MM2, Nelson JK, Miller JD, “Icahn School of Medicine, Mount Sinai, New York, New York; 2Truven Health Analytics, an IBM Company, Cambridge, Massachusetts

Study Objective: To describe healthcare resource utilization and costs among commercially insured women with newly diagnosed abnormal uterine bleeding (AUB).

Design: US retrospective administrative claims database analysis.

Setting: N/A.

Patients: Women with at least 12 months of continuous health plan enrollment in the Truven Health MarketScan® Research Databases prior to and following a new AUB diagnosis.

Intervention: N/A.

Measurements and Main Results: 1,27M women with newly diagnosed AUB between 2010–2014 were identified and stratified by AUB-related diagnostic and treatment procedures in the 12-month follow-up period. Four cohorts were defined for women with:

- Cohort 1: Only one AUB diagnosis (n = 555,365, 43.9%),
- Cohort 2: 2+ AUB diagnoses but no structural abnormality diagnosis (n = 286,561, 22.6%),
- Cohort 3: Structural abnormality diagnosis (n = 224,587, 17.7%),
- Cohort 4: AUB-related surgery (n = 199,467, 15.8%)
The median number of ObGyn visits increased progressively between Cohorts 1 and 4, ranging from 2 to 5 visits-per-patient. Overall biopsy prevalence (23.1%) also increased across cohorts (7.2%, 23.9%, 39.5%, 47.7%). Among women who underwent biopsy, 29.3% of biopsies occurred >1 month after initial AUB diagnosis, highest among women with two AUB diagnoses (Cohort 2, 32.4%) and women with a physical diagnosis but no surgery (Cohort 3, 37.6%). Likewise, 52.2% of women across all cohorts received a diagnostic imaging procedure, with 24.3% of the imaging procedures performed more >1 month after the initial AUB diagnosis, ranging from 20.6% in Cohort 4 to 28.1% in Cohort 3. Average total costs increased with cohort (1: $7411, 2: $8364, 3: $10 866, 4: $21 214). Average radiology service costs also increased from $665 in cohort 1 and $876 in cohort 2 to $1269 for cohorts 3 and 4.

**Conclusion:** Approximately two-thirds (66.5%) of women with newly diagnosed AUB do not have an underlying structural abnormality or receive surgery yet have high diagnostic resource utilization often unnecessarily stretching over several months. Earlier direct imaging may benefit patient and healthcare resources alike.

**Table 2.** Characteristics and prevalence of health factors and quality of life by transgender status from 2015 BRFSS survey.

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**Open Communications 5 – Research & Science**

**2:15 PM–3:15 PM**

**Quality of Life and Health Care Access in Transgender Population: Findings From 21 U.S. States in the Behavioral Risk Factor Surveillance System (BRFSS) Survey**

Motwani A, Fatehchehr S. Department of Obstetrics & Gynecology, Division of Female Pelvic Medicine & Reconstructive Surgery, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma

**Study Objective:** To determine association between transgender individuals (TGI) and self-reported access to health care and quality of life from BRFSS.

**Design:** Cross-sectional health-related phone survey.


**Patients:** Individuals who identified as transgender: male-to-female, female-to-male, nonconforming.

**Intervention:** N/A.

**Measurements and Main Results:** Weighted analysis was conducted with SAS statistical software (University Edition). Regression analysis was used to estimate associations between transgender status and general health status, presence of personal health care provider, cost as a barrier to healthcare, time since last routine checkup, and number of days of poor physical health, mental health, and physical and mental health experienced in the past 30 days. Of 164 437 respondents from 21 states, 0.58% identified as transgender: 49.5% male-to-female, 28.1% female-to-male, 22.4% nonconforming.

45.6% were <40 years old (p = .0108), 55.4% were white (p < .0001), and 66.3% had annual income of <$50 000 (p < .0001). 77.3% reported health care coverage with 20.8% reporting fair/poor general health status compared to 16.9% non-TGI (p = .0007). TGI reported experiencing more poor mental health days (p = .0486) and higher numbers of poor physical and mental health with mean 6.2 days compared to non-TGI with mean 4.5 days (1.7 days, p = .0564). 20.8% of TGI reported cost as a barrier to seeing a doctor in the past twelve months compared to 14.0% of non-TGI (p = .0011).

**Conclusion:** Prevalence of BRFSS respondents identifying as transgender was low with predominantly young, white with low income and male-to-female identifications. Transgender individuals report lower quality of life in terms of poor general and mental health along with more poor days of physical and mental health compared to non-transgender responders. Majority of transgender have health care coverage though cost has been identified as a major barrier for access to healthcare in transgender population.
Study Objective: The purpose of this study was to evaluate rates of small bowel obstruction (SBO) following hysterectomies performed for benign indications and to evaluate factors that may increase the risk of SBO occurrence including route of hysterectomy.

Design: Single center retrospective observational cohort analysis.

Setting: University urban affiliated medical center.

Patients: 667 hysterectomies performed in a 12 month period from January 2011 through December 2011.

Intervention: A review of the electronic medical records of all 667 cases for any documentation of SBO in the immediate or remote post operative period up to five years post hysterectomy with diagnosis of SBO being confirmed with CT scan or surgically.

Measurements and Main Results: Of the 667 hysterectomies performed through the Montefiore Medical Centers between January 2011 and December 2011, 568 had benign pathology. 52% of benign hysterecctomies were performed with a minimally invasive technique which included 21% vaginal hysterectomies, 25% laparoscopic hysterectomies and 6% robotic-assisted hysterectomies. 63% of the patients were documented to have continued care through our institution 4 or more years post hysterectomy. There were 15 cases of SBO with 8 of the cases occurring in the benign hysterectomy cohort and 7 occurring in the malignant. Of the benign hysterectomies, 6 SBOs occurred after open cases and 2 were noted after laparoscopic cases. The odds ratio for having a SBO after an open hysterectomy compared to minimally invasive hysterectomy was 0.37 with a p value of .27. The benign cases with small bowel obstructions were associated with higher mean estimated blood losses (528 ml vs 295 ml), larger uteri (1266g vs 516g) and longer surgical time (341 min vs 290 min).

Conclusion: Small bowel obstruction is rare following benign hysterectomy and the route of hysterectomy, blood loss, surgical time and uterine weight does not have a statistically significant affect on the risk.

96 Open Communications 5 – Research & Science (2:15 PM–3:15 PM)

3:08 PM – GROUP B

Somatic Mutations in Gene MED 12 among Women with the Family History of Uterine Fibroids

Sogoyan NS,1 Kizneysova MV,1 Tsyfymov DY,1 Adamyan LV,1 Stepanian AA,1 Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology named after V.I. Kulakov, Moscow, Russian Federation; 2Academia of Women’s Health and Endoscopic Surgery, Atlanta, Georgia

Study Objective: To compare the frequency and nature of the occurrence of somatic mutations in exon 2 of the gene MED 12 in women with (1st group) an without (2nd group) first-degree family history of uterine fibroids and to determine the variability of this exon in different fibroids in patients with multiple myomas.


Setting: Department of Operative Gynecology, Federal Research Center.

Patients: Patients with uterine myoma.

Intervention: Laparoscopic myomectomy or hysterectomy were performed. Tissue samples of the fibroids and an aliquot of the blood of all patients were collected during hysterectomy or myomectomy. DNA extraction and amplification were carried out, the PCR reaction was conducted, and the sequence fragments were identified.

Measurements and Main Results: 32 patients were included in the study (17 and 15 in the first and the second groups, respectively). We found that the number of patients with somatic mutations in exon 2 of gene MED 12 was higher in the first group (12 out of 17 patients, 71%) as compared with patients in second group (9 out of 15 patients, 60%).

The number of fibroids with somatic mutations was also higher in the first group (29 out of 44 fibroids in 17 patients, 66%) as compared with 15 out of 31 fibroids of 15 patients (60%), in the second group.

The number of patients with deletions at the MED12 gene was higher in the first group (8 out of 17, (47%)) as compared with the second group (3 out of 15 (20%).

Conclusion: The study of somatic mutations in the exon 2 of a gene MED 12 suggests that this gene is one of the key factors in the pathogenesis of uterine fibroid. Somatic mutations in the gene MED12 are found more often in patients with a first-degree family history of uterine fibroids.
TVS sensitivity for diagnosing polyps was particularly low (0.51). SIS was also compared to hysteroscopy in seven studies and had similar sensitivity but inferior specificity (0.93 and 0.83 vs. 0.95 and 0.90, respectively, p = .007). All three procedures were well tolerated by women. SIS was successfully completed in 95% of women. Technical variations, such as the use of balloon catheters, were not found to impact diagnostic accuracy.

**Conclusion:** TVS lacks sensitivity to be used alone to exclude the presence of polyps and leiomyomas in women with AUB. Although less specific than hysteroscopy, SIS offers a similar detection rate and permits concomitant visualization of the ovaries and myometrium. Cost, convenience and tolerability of different imaging techniques require further evaluation.

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**98 Open Communications 6 – New Instruments**

**2:22 PM – GROUP A**

**Rethinking the Urinary Catheter: Less Trauma**

**Through Better Design – A Sheep Model**

Kohli N, Sun X, Graziul-Bilska AT, Vonnahme KA, Webb BT.

1. Department of Animal Sciences, North Dakota State University, Fargo, North Dakota; 2. Department of Ob/Gyn, Brigham & Women’s Hospital/ Harvard Medical School, Wellesley, Massachusetts

**Study Objective:** Little has changed in the basic design of the urinary catheter since its introduction despite known complications: catheter associated UTI (CAUTI), trauma, hematuria, fistula, and even cancer. Complications may result from damage to mucosal integrity from the traumatic tip and side suction ports. This study compares catheter associated bladder trauma between the traditional Foley catheter with a new catheter design utilizing low profile flat pancake balloon, minimal tip length, and open ended distal suction ports in a sheep model.

**Design:** 6 ewes were randomly assigned to one of two urinary catheters: 16 Fr Foley catheter or 16 Fr CystoSure catheter. After 96 hours of standard bladder drainage, animals were sacrificed and their bladders harvested. The gross specimens were photographed and analyzed to determine the proportion of surface area mucosal injury and edema relative to the total bladder surface area.

**Setting:** Animal Sciences Center, Fargo, ND.

**Patients:** 6 sheep.

**Intervention:** Sheep were randomized to one of 2 catheters for 96 hours and then gross appearance of the bladder was studied.

**Measurements and Main Results:** Visual inspection and image analysis of the bladders revealed marked differences in the degree of mucosal injury.

The mean injured surface area in Foley bladders = 7.2 ± 0.8% vs CystoSure bladders = 1.8 ± 0.4% (p < .004) and the mean edematous area in Foley bladders = 26.9 ± 5.2% vs CystoSure bladders = 13 ± 5% (p = .13).

**Conclusion:** In this study, a catheter with an open-ended rounded tip and a reduced balloon base/tip profile resulted in dramatically reduced bladder mucosal damage compared to Foley use in ewes within the short study period of 3 days. Mucosal damage may allow invasion of uropathogens across the bladder epithelial surface. Design modification of the distal urinary catheter resulting in less associated bladder trauma may reduce the incidence of CAUTI associated with urinary catheter use. Initial animal results are encouraging and should apply to human subjects. Further studies and clinical trials are warranted.

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**99 Open Communications 6 – New Instruments**

**2:29 PM – GROUP A**

**A Comparison of Carbon Dioxide (CO₂) Absorption Rates in Gynecologic Laparoscopy with a Valveless Insufflation System Versus Standard Insufflation**

**System at Intra-Abdominal Pressures of 10 mmHg and 15 mmHg – A Randomized Controlled Trial**


1. Gynecologic Specialty Surgery, Columbia University Medical Center, New York, New York; 2. Obstetrics and Gynecology, Virginia Commonwealth University, Richmond, Virginia

**Study Objective:** To compare CO₂ absorption rates, surgeons’ visualization of operative field, anesthesiologists’ perception of difficulty maintaining adequate end-tidal carbon dioxide (etCO₂) and postoperative shoulder pain associated with urinary catheter use. Initial animal results are encouraging and should apply to human subjects. Further studies and clinical trials are warranted.

**Design:** A 4-arm non-blinded randomized controlled trial using an equal allocation ratio into one of four arms: standard insufflation/IAP 10 mmHg, standard insufflation/IAP 15 mmHg, valveless insufflation/IAP 10 mmHg, valveless insufflation/IAP 15 mmHg.

**Setting:** Single tertiary care academic institution.

**Patients:** Women ≥18 years of age undergoing non-emergent gynecologic laparoscopic or robotic surgery.

**Intervention:** Use of a valveless insufflation system or standard insufflation system at an IAP of 10 or 15 mmHg.

**Measurements and Main Results:** A total of 132 patients were enrolled and randomized. There were 33 patients per arm. 84 cases were robotic and 47 were laparoscopic (1 case cancelled). CO₂ absorption rates calculated at two discrete time points during surgery did not differ across groups (p-value: .661 at 15 minutes; .737 at 60 minutes). The surgeons’ visualization of the operative field favored use of the valveless insufflation system (p-value < .001) but was not impacted by IAP (p-value > .05). The anesthesiologists’ difficulty in maintaining adequate etCO₂ as measured on a 3-point Likert scale, was comparable across groups (p-value: .417). Postoperative shoulder pain measured at different time points, on a 10-cm visual analog pain scale showed no difference across groups (p-values > .05).

**Conclusion:** Insufflation type (valveless vs. standard) and IAP (10 vs. 15 mmHg) did not impact CO₂ absorption rates, anesthesiologists’ difficulty...
maintaining adequate etCO₂ or post-operative shoulder pain in gynecologic laparoscopy. Surgeons’ visualization of the operative field was significantly improved when using the valveless insufflation system over standard insufflation system.

100 Open Communications 6 – New Instruments (2:15 PM–3:15 PM)

2:36 PM – GROUP A

Uterine Myoma Treatment Speeds Achieved Using Noninvasive Robotic Ultrasound-Guided Shell Ablation

Parsons JE,1 Lau MPH,2 Martin PJ,1 Islas Lagos JJ,2 Aguilar Aguirre JM,3 Coad JE,5 Garza Leal JG,6 Metabolis Medical, Inc., Bothell, Washington; 2Hospital Torre Medica, Ciudad de Mexico, Distrito Federal, Mexico; 1Obstetrics and Gynecology, Hospital Universitario, Universidad Autonoma de Nuevo Leon, Monterrey, Nuevo Leon, Mexico; 4Pathology Laboratory for Translational Medicine, West Virginia University School of Medicine, Morgantown, West Virginia

Study Objective: To measure uterine myoma treatment speeds using a noninvasive robotic ultrasound-guided ablation device that combines thermal and ischemic necrosis to minimize treatment time.

Design: Prospective single-arm pilot study.

Setting: Academic affiliated teaching hospital and private community hospital.

Patients: Patients seeking hysterectomy for symptomatic uterine myomas who met enrollment criteria.

Intervention: The ablation device is a portable transabdominal ultrasound-guided high-intensity focused ultrasound system. Ultrasound image guidance is used to locate the myoma and select the region to be ablated via touchscreen controls. During treatment, a robotic motion system automatically positions ablation cells along the outer portion of the targeted region, producing a “shell” of ablated tissue that reduces perfusion to the interior. This strategy leverages both thermal and ischemic necrosis to minimize the treatment time required.

73 patients underwent treatment, 67 of whom then had scheduled hysterectomies between 0 and 179 days post-treatment.

Measurements and Main Results: Patients were grouped in two sequential cohorts, an early development cohort (N = 37) and a final validation cohort (N = 36). Ablated tissue volumes were measured via gadolinium-enhanced MRI or pathology processing after hysterectomy. Average ablated volumes and total treatment times were 44.9 ± 58.5 cm³ and 3.6 ± 2.1 minutes in the validation cohort, vs. 17.9 ± 24.9 cm³ and 4.9 ± 2.4 minutes in the development cohort. Treatment speed was determined for each patient as the ablated volume divided by the total treatment time. Median treatment speeds were 9.2 cm³/minute in the validation cohort vs. 1.6 cm³/minute in the development cohort (p < .001).

Conclusion: The shell ablation method resulted in a rapid median treatment speed of approximately 10 cm³/minute in the validation cohort because only the outer portion of the targeted volume is insolated, allowing the interior to succumb indirectly to ischemic necrosis and heat accumulation. This technique increases the efficiency of noninvasive uterine myoma treatment.

101 Open Communications 6 – New Instruments (2:15 PM–3:15 PM)

2:47 PM – GROUP B

Smartphone Speculum: Design, Development and Initial Experience

Shroff N,1 Shroff R,2 Thakur Y,1 Thakur V,1 Penketh R1 Tax B1,2 Biology, AVHS, Pleasanton, California; 3Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, New York; 4Gynaecology, Basildon University Hospital, Basildon, Essex, United Kingdom; 5Gynaecology, Broomfield Hospital, Chelmsford, Essex, United Kingdom; 6Gynaecology, Cardiff University Hospital, Cardiff, Wales, United Kingdom; 7Obstetrics and Gynecology, ZNA Stuivenberg, Antwerpen, Antwerpen, Belgium

Study Objective: To describe design and development of a novel device, and share initial multicenter experience in UK and EU.

Design: Review of initial experience in 50 procedures.

Setting: Outpatient clinics at hospitals in UK and EU.

Patients: 50 women undergoing routine outpatient gynecology procedures.

Intervention: Routine outpatient gynecology procedures to visualize the vaginal walls, cervix and transcervical uterine access.

Measurements and Main Results: The Smartphone Speculum consists of a low-cost single-use vaginal access probe attached to a Smartphone. It was used instead of a standard speculum, after patient consent. The gel lubricated probe was first introduced to locate the cervix. Subsequent steps varied depending on the primary procedure that ranged from simple vaginoscopy and cervix inspection to insertion of an IUD.

All patients tolerated the insertion of the probe well. Operating physician evaluated the adequacy of lighting as well as visualization of vaginal cavity and cervix using a five-point scale. Ease of use of other instruments such as vulsellum, forceps, and IUD through the access channel in the probe was also evaluated. Patient pain scores during probe insertion and manipulation were captured on a ten-point visual-analogue scale, and recorded along with the physician’s assessment of patient comfort during the steps. Each patient’s recollection of pain during prior speculum examinations was recorded for an informal comparison. The findings from this initial experience will be presented.

Conclusion: Smartphone Speculum offers several advantages over a traditional speculum. Besides improving patient comfort and ergonomics for the operator, the integration with a smartphone enables a platform with a future potential to add functions like real-time audio notes and image/video capture with an ability to integrate with EHR systems.

102 Open Communications 6 – New Instruments (2:15 PM–3:15 PM)

2:54 PM – GROUP B

Novel Dissection Technique for Vesicouterine Ligament to Prevent Ureter Injury in Laparoscopic Radical Hysterectomy

Kyo S, Nakayama K, Ishikawa M, Ishibashi T, Nakamura K, Sanuki K, Yamashita H, Ono R. Obstetrics and Gynecology, Shimane University Hospital, Izumo, Shimane, Japan

Study Objective: Dissection of vesicouterine ligament is a highlight of laparoscopic radical hysterectomy, but with technical difficulty due to anatomical complexity around ureter. We propose a novel dissection technique for vesicouterine ligament to easily visualize ureter and prevent its injury.

Design: Case series.

Setting: University hospital.

Patients: Patients undergoing laparoscopic radical or semi-radical hysterectomy performed for cervical cancer (stage Ib1) or endometrial cancer (stage I) between 2015–2017.

Intervention: At the dissection of vesicouterine ligament, the connective tissues and the membranes around uterine-side edge of dissected uterine artery are first detached by monopolar cutting or vessel sealing, so that uterine artery is isolated up to around the junction of its ascending and descending branches. By this detaching procedures, anterior layer of vesicouterine ligament is spontaneously opened, without making ureter tunnel. Next, the paravaginal space is opened, which can be developed with forceps by digging paravaginal connective tissues in a dorsal direction along with the lateral edge of the cervix. The presence of pneumoperitoneum helps opening this space. Development of this space mobilizes the bladder and the vesicouterital junction in caudal and lateral directions, making the remaining ureteral roof clearly exposed, that include one or two cervicovesico vessels. Finally, the remaining ureter is safely dissected by vessel sealing.

Measurements and Main Results: A total of 25 patients underwent this novel technique for dissecting vesicouterine ligament. No ureter or bladder injury was observed. Approximately, it takes approximately 30 min for dissecting anterior vesicouterine ligament in one side.
Conclusion: Novel two step procedures, an isolation of uterine artery by detaching the surrounding membranes and the opening of paravaginal space are the key procedure to success in safely dissecting vesicouterine ligament, visualizing ureter clearly.

103  Open Communications 6 – New Instruments
(2:15 PM–3:15 PM)

3:01 PM – GROUP B

Laser Angiography with Indocyanine Green to Assess Vaginal Cuff Perfusion during Robotic-Assisted Total Laparoscopic Hysterectomy
Beran B,1 Shockley M,1 Farag S,1 Frazzini Padilla P,1 Escobar P,2 Sprague ML,3 Zimberg S.1 1Gynecology, Cleveland Clinic Florida, Weston, Florida; 2Obstetrics and Gynecology, Cleveland Clinic, Cleveland, Ohio

Study Objective: To determine feasibility of using laser angiography with indocyanine green (ICG) to assess vaginal cuff perfusion during robotic-assisted total laparoscopic hysterectomies (RATLH).

Design: Pilot experimental study.

Setting: Academic-affiliated hospital.

Patients: Twenty women undergoing RATLH for benign disease.

Intervention: Images were captured of vaginal cuff perfusion after intravenous administration of ICG before and after cuff closure using the Da Vinci Si with Firefly vision technology upgrade (Intuitive Surgical). Participants were randomized to equal-sized groups for ultrasonic versus monopolar devices for colpotomy and barbed versus non-barbed suture for vaginal cuff closure.

Measurements and Main Results: ICG was visible at the vaginal cuff in all participants. Optimal dosage for this system was determined to be 7.5 mg of ICG per intravenous dose. Mean time to pelvic appearance for ICG was 18.4 ± 7.3 seconds (mean ± S.D.) pre-closure, and 19.0 ± 8.7 seconds post-closure. Three reviewers evaluated printed images of vaginal cuffs and determined areas of adequate vaginal cuff perfusion. No significant difference (p = .19) was noted in judged perfusion in open cuffs following colpotomy using monopolar (48.9 ± 26.0%) or ultrasonic devices (40.2 ± 14.1%). No difference was seen after cuff closure (p = .36) when monopolar (70.9 ± 21.1%) or ultrasonic devices (70.5 ± 20.5%) were used. Use of barbed (74.1 ± 20.1%) or non-barbed suture (66.4 ± 20.9%) for cuff reapproximation did not significantly affect judged closed cuff perfusion (p = .19). Time of instrument activation during colpotomy was standardized to cervical cup circumference. Decreased judged perfusion was seen with longer overall activation times in open cuffs (R2 = 0.3175).

Conclusion: Laser angiography with ICG during RATLH allows visualization of vascular perfusion at the vaginal cuff. The technology remains limited by lack of quantifiable fluorescence, and clinically meaningful values of fluorescence. Larger studies may further support our observation that prolonged energy activation time to unit area may decrease vaginal cuff perfusion levels.

104  Open Communications 6 – New Instruments
(2:15 PM–3:15 PM)

3:08 PM – GROUP B

The Feasibility of Mini-Plus Percutaneous (MpPc) Endoscopy for Benign Gynecologic Procedures: Single Institution Experience
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Study Objective: To evaluate the feasibility of Mini-plus percutaneous (MpPc) endoscopic surgery in different trocar settings for benign gynecologic operations.

Design: Prospective observational study.

Setting: Tertiary-care university-based teaching hospital and academic affiliated private hospital.


Intervention: MpPc surgeries were performed through one optical transumbilical 5-mm trocar, one 5-mm ancillary port on the right-lower quadrant, one 2.4-mm percutaneous endoscopic instrument (MiniGrip Handle, Teleflex, USA) on the right-upper quadrant, and if it is needed 3.5-mm 30-degree pediatric telescope, 3.5 mm mini-laparoscopic instruments (Karl Storz, Tuttingen, Germany) and integrated bipolar and ultrasonic technology (Thunderbeat, Olympus, Japan) were used. The umbilical incision was closed with a 4/0 Monocryl, whereas other incisions were approximated by using sterile-strips. All operations were performed by the same surgeon.

Measurements and Main Results: A total of 49 patients were conducted. The median age was 38 years (range, 28–63 years); body-mass index was 26 kg/m2 (range, 22–32 kg/m2). Of the 49 patients, 14 had uterine fibroids; 13 had benign adnexal mass; 5 had breast cancer plus BRCA1 carrier; 4 had endometrial intraepithelial neoplasia; 4 had adenomyosis + abnormal uterine bleeding; 4 had ectopic pregnancy; 3 had hydrosalpinx, and 2 had adnexal torsion. As MpPc surgical procedures had 27 total laparoscopic hysterectomies, 8 ovarian cystectomy, 7 salpingo-oophorectomy, and 7 salpingectomy The median operating time was 60 minutes (range, 20–185 min), and estimated blood loss was 40 ml (range, 10–180 ml). Conversion to 5-mm conventional laparoscopy or open surgery was not required. No Intra- and postoperative complications were recorded.

Conclusion: MpPc is feasible and nearly “scar-free” ultra-minimally invasive procedure for benign gynecologic operations.

TUESDAY, NOVEMBER 14, 2017

109  Open Communications 7 – Hysteroscopy
(2:15 PM–3:15 PM)

2:15 PM – GROUP A

Post Vapour Ablation Cavity Evaluation: A Pilot Study
van Eijndhoven H,1 Lenglet J,2 van Baal M,1 Therkow A,3 Harris M.4 1Gynecology, Isala Klinieken, Zwolle, The Netherlands; 2Gynecology, Flevoziekenhuis, Almere, The Netherlands; 3Gynecology, St. Lucas Andreas Ziekenhuis, Amsterdam, The Netherlands; 4Aegese Medical, Redwood City, California
Study Objective: To assess access to, and evaluation of, the endometrial cavity three to five years following endometrial ablation (EA) using water vapor.

Design: Prospective, observational, single-arm clinical trial.

Setting: 3 sites in the Netherlands.

Patients: Subjects were participants in the feasibility trial of an EA device that uses water vapor (Aegaea). The study was conducted at three sites in The Netherlands. The mean patient age was 49 years (44–53) and the mean time since EA was 4.1 years (3.5–4.6). All subjects were healthy and reported satisfaction with the procedure at the 24-month termination visit of the feasibility study. Of these women, three were amenorrheic, four described their menses as regular, and four had some amount of vaginal bleeding within the previous year.

Intervention: All subjects provided informed consent and underwent in-office diagnostic hysteroscopy using a vaginoscopic technique with a 3 mm or 5 mm OD hysteroscope. Each cavity was evaluated by the ability to traverse the cavity volume in thirds: lower cavity, mid-cavity and fundus; by the ability to visualize cornua and ostia; and by the presence and severity of adhesions. Investigators used a modified American Fertility Society adhesion scoring system, and documented visual landmarks.

Measurements and Main Results: In 82% (9/11) of subjects, access to the mid-cavity or fundus was possible, with the ability to visualize one or both tubal cornua in 5/11 (45%). Type 4 adhesions were observed to some degree in each of the cavities.

Conclusion: In this pilot study, the majority of endometrial cavities ablated with water vapor 4–5 years earlier could be hysteroscopically accessed and were determined to have an evaluable endometrial cavity. Further research is warranted to better characterize accessibility to the endometrial cavity following endometrial ablation with vapor.

105 Open Communications 7 – Hysteroscopy
(2:15 PM–3:15 PM)

2:22 PM – GROUP A

Endometrial Ablation Using Water Vapor: 24-Month Follow-Up

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Study Objective: Twenty-four month follow-up of a pivotal trial that evaluated the safety and effectiveness of the AEGEA Vapor System for the treatment of heavy menstrual bleeding (HMB) secondary to AUB-E and AUB-L.

Design: Prospective, multicenter, single-arm, study. Follow-up assessments were conducted 12 and 24 months, continuing to 36 months after the endometrial ablation procedure.

Setting: 15 sites in the U.S., Canada, Mexico and the Netherlands.

Patients: 155 premenopausal women aged 30 to 50 years with HMB determined by a Pictorial Blood Loss Assessment (Higham) score ≥150. Screening inclusion allowed treatment of up to 12 cm endometrial cavity lengths, uterine septa up to 1/3 of the endometrial cavity length, and leiomyomata FIGO Types 2–6 up to 4 cm in diameter.

Intervention: Endometrial ablation (120 second treatment time) was performed under varying anesthesia regimens using the AEGEA Vapor System.

Measurements and Main Results: The following outcomes were evaluated at 24-month follow-up: patient satisfaction, quality of life using the Menorrhagia Impact Questionnaire (MIQ), a qualitative assessment of menstrual flow, and gynecological adverse events. Patient satisfaction remained high at 91%, with 93% of subjects reporting that they would recommend the procedure to a friend. The mean quality of life (MIQ) score improved from 14.7 at baseline to 6.1 at 24 months. Eighty-six percent of subjects report the same or reduced menstrual flow since 12 months. Amenorrhea was reported in 25%. Medical or surgical intervention for heavy bleeding was confined to the treatment failures identified at 12 months.

Conclusion: Safety and effectiveness outcomes 24-months after endometrial ablation with the AEGEA Vapor System for HMB in women with normal endometrial cavities (AUB-E) 6–12 cm in length, and with leiomyomata (AUB-L, FIGO Types 2–6 up to 4 cm in diameter) are consistent with 12-month results.

106 Open Communications 7 – Hysteroscopy
(2:15 PM–3:15 PM)

2:29 PM – GROUP A

Risk Factors for Essure Removal

Kelty, JG, Petri M, Levine M, To J Obstetrics & Gynecology and Women’s Health, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, New York

Study Objective: To identify risk factors for Essure device removal.

Design: Case-control study.

Setting: Urban, academic medical center.

Patients: Montefiore Medical Center patients who underwent office Essure sterilization at a faculty practice from January 2012 to December 2015.

Intervention: Laparoscopic Essure removal.

Measurements and Main Results: 541 patients had Essure sterilizations performed. 185 patients (34%) did not have office follow up after Essure placement. Of the 356 patients who followed up, 230 (64.6%) had no complaints, 42 (11.8%) had pelvic pain, 48 (13.5%) had abnormal uterine bleeding (AUB), 25 (7%) had both pelvic pain and AUB, and 7 (2%) had no tubal occlusion. Cases were defined as patients who had laparoscopic Essure removal (n = 21) and controls were defined as patients who had Essure devices placed without subsequent removal (n = 520).

Using the student t test, chi squared test, and multivariate logistic regression, risk factors were evaluated for association. Significantly, those who underwent Essure removal were noted to be younger (33.1 y.o. vs 35.7 y.o., p = .03) and a higher incidence of suspected adenomyosis was noted in the case group (14.3% vs. 2.6%, p = .02). No significant association was noted with a history of chronic pelvic pain (CPP) or AUB.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cases (n = 21)</th>
<th>Controls (n = 462)</th>
<th>p-value</th>
<th>Odd’s Ratio [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>33.1</td>
<td>35.7</td>
<td>.03</td>
<td>1.46 [0.48–4.47]</td>
</tr>
<tr>
<td>Prior STI</td>
<td>4</td>
<td>17</td>
<td>.52</td>
<td>1.46 [0.48–4.47]</td>
</tr>
<tr>
<td>Smoker</td>
<td>1</td>
<td>73</td>
<td>.34</td>
<td>0.30 [0.04–2.31]</td>
</tr>
<tr>
<td>History of CPP</td>
<td>1</td>
<td>19</td>
<td>.74</td>
<td>0.67 [0.07–6.58]</td>
</tr>
<tr>
<td>History of Suspected Adenomyosis</td>
<td>3</td>
<td>12</td>
<td>.02</td>
<td>5.78 [1.38–24.26]</td>
</tr>
<tr>
<td>History of Fibroids</td>
<td>3</td>
<td>38</td>
<td>.21</td>
<td>2.15 [0.36–6.33]</td>
</tr>
<tr>
<td>History of AUB</td>
<td>4</td>
<td>36</td>
<td>.06</td>
<td>2.15 [0.56–8.30]</td>
</tr>
<tr>
<td>Prior Cesarean Delivery</td>
<td>7</td>
<td>133</td>
<td>.45</td>
<td>1.45 [0.57–3.66]</td>
</tr>
</tbody>
</table>
Conclusion: The incidence of Essure removal was 3.88%. Essure removal may be associated with younger age at placement and suspected adenomyosis. Patients may experience pelvic pain and abnormal uterine bleeding after Essure placement. It is important to counsel patients on these risks and adverse effects prior to device placement.

107 Open Communications 7 – Hysteroscopy (2:15 PM–3:15 PM)
2:36 PM – GROUP A

Initial Experiences With the Storz TrophyScope® Versus CooperSurgical EndoSee® for Office Diagnostic Hysteroscopy
Guha P, Espinol M, Dinh TA, Chen AH, Pettit PD, DeStephano CC. Medical and Gynecologic Surgery, Mayo Clinic, Jacksonville, Florida

Study Objective: Determine use patterns and success rates for diagnostic hysteroscopy in the office with the 2.9 mm Storz TrophyScope® and handheld portable CooperSurgical EndoSee® device in a clinic new to office hysteroscopy.

Design: Prospective quality improvement cohort study (Canadian Task Force classification II-3).

Setting: Gynecology clinic in a tertiary care center.

Patients: Patients undergoing office hysteroscopy.

Intervention: Diagnostic office hysteroscopy.

Measurements and Main Results: Between August 2016–March 2017, office hysteroscopy was attempted in 54 patients: 25 (46.3%) with EndoSee®, 28 (51.9%) with Storz TrophyScope®, and 1 (1.9%) with both devices (excluded from comparisons). No differences were found between the two groups regarding age, weight, body mass index, parity, menopausal status, and indication for hysteroscopy. The most common indication was abnormal uterine bleeding in 21 (38.9%) followed by postmenopausal bleeding in 19 (35.2%). Of 25 EndoSee® cases, 5 (20%) were inadequate versus 5 (17.9%) of 28 TrophyScope® cases (p = 1.0). Of the 10 inadequate diagnostic hysteroscopies, 1 (10%) was due to inadequate visualization and 9 (90%) were due to patient intolerance. There were significant differences in inadequate diagnostic hysteroscopies depending on which physician scheduled the procedure (p < .0001) with 7 (46.7%) of 15 scheduled hysteroscopies being inadequate by one physician and 3 (7.9%) of 38 scheduled by the other 4 physicians. There were no significant differences in the mean pain score during speculum insertion, dilation, and hysteroscope insertion between EndoSee® and TrophyScope®. Of 20 adequate EndoSee® hysteroscopies, 7 (35.0%) proceeded to operating room for additional surgical management versus 3 (13.0%) of 23 adequate TrophyScope® hysteroscopies (p = .09).

Conclusion: Initial experience suggests no difference in successful diagnostic hysteroscopies with the two devices. Differences in failure rates among physicians appear to be secondary to patient selection. Additional data is being collected to determine cost-effectiveness of the devices and protocols for selection of ideal candidates for office hysteroscopy.

<table>
<thead>
<tr>
<th>Mean pain scores in TrophyScope® Versus EndoSee® group</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain with speculum insertion (n = 28)</td>
<td>.81</td>
</tr>
<tr>
<td>Pain with dilation (n = 25)</td>
<td>.48</td>
</tr>
<tr>
<td>Pain with hysteroscopy (n = 25)</td>
<td>.88</td>
</tr>
</tbody>
</table>

*p-Kruskal Wallis test.

Different Indications of Hysteroscopy

<table>
<thead>
<tr>
<th>Indications</th>
<th>TrophyScope® (%)</th>
<th>EndoSee® (%)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUB/IMB (n = 13)</td>
<td>53.85</td>
<td>46.15</td>
<td>1.00</td>
</tr>
<tr>
<td>AUB/IMB (n = 8)</td>
<td>50.00</td>
<td>50.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Post menopausal bleeding (n = 19)</td>
<td>47.37</td>
<td>52.63</td>
<td>.78</td>
</tr>
<tr>
<td>Abnormal ultrasound (n = 2)</td>
<td>100.00</td>
<td>100.00</td>
<td>.49</td>
</tr>
<tr>
<td>Thickened endometrium (n = 7)</td>
<td>57.14</td>
<td>42.86</td>
<td>1.00</td>
</tr>
<tr>
<td>Lost IUD (n = 2)</td>
<td>100.00</td>
<td>100.00</td>
<td>.49</td>
</tr>
<tr>
<td>Postcoital bleeding (n = 2)</td>
<td>50.00</td>
<td>50.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Polypos (n = 3)</td>
<td>0.00</td>
<td>100.00</td>
<td>.10</td>
</tr>
<tr>
<td>Failed office endometrial biopsy (n = 1)</td>
<td>100.00</td>
<td>100.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Fisher exact test.

108 Open Communications 7 – Hysteroscopy (2:15 PM–3:15 PM)
2:47 PM – GROUP B

Pre-Operative Risk Factors for Re-Operation Following Hysteroscopic or Laparoscopic Sterilization
Wahl H, Dalton V, Kamdar N, Seiler K, As-Sanie S. Obstetrics and Gynecology, University of Michigan, Ann Arbor, Michigan

Study Objective: To determine if pre-existing chronic pain, mood disorder, and/or opioid use increases the likelihood of re-operation in the 18 months following surgical sterilization.


Setting: ClininformaticsTM DataMart (OptumInsight, Eden Prairie, MN), a commercial claims database containing de-identified medical and pharmacy data from a single private payer.

Patients: 27,239 women, age 18–50 at index sterilization between 2005 and 2012, with continuous enrollment on a single plan at least 8 months pre- and 18 months post-index sterilization.

Intervention: Hysteroscopic or laparoscopic sterilization.

Measurements and Main Results: Sixteen chronic pain conditions and seven mood disorders were analyzed. Opioid use was defined using oral morphine equivalents. Pre-sterilization opioid naive was 0 opioid prescription fills from 31 to 243 days pre-sterilization. Pre-sterilization chronic opioid use was >3 prescriptions filled or >80-day supply between 31 to 243 days pre-sterilization. All others were intermittent opioid users. Women with pre-existing endometriosis (adjusted hazard ratio [aHR] 1.89, 95% confidence interval [CI] 1.23–2.92), chronic pelvic pain (aHR 2.00, CI 1.63–2.45), bladder pain (aHR 3.98, CI 1.97–8.04), 21 pain condition(s) (aHR 1.33, CI 1.15–1.53), intermittent opioid use (aHR 1.31, CI 1.16–1.47), or chronic opioid use (aHR 1.86, CI 1.51–2.30) were more likely to undergo hysterectomy in the 18 months following laparoscopic sterilization. Women with pre-existing endometriosis (aHR 2.65, CI 1.55–4.51), chronic pelvic pain (aHR 2.46, CI 1.85–3.27), bladder pain (aHR 4.03, CI 1.49–10.93), 21 pain condition(s) (aHR 1.48, CI 1.19–1.85), intermittent opioid use (aHR 1.24, CI 1.03–1.49), or chronic opioid use (aHR 2.02, CI 1.49–2.72) were more likely to undergo salpingectomy/oophorectomy following laparoscopic sterilization. Those undergoing hysterectomy versus laparoscopic sterilization were less likely to undergo re-operation (hysterectomy aHR 0.48, CI 0.43–0.55; oophorectomy/salpingectomy aHR 0.37, CI 0.30–0.46).

Conclusion: Pre-existing chronic pain, opioid use, and laparoscopic sterilization are independently predictive of re-operation. Patients meeting any of these criteria may require additional counseling and comprehensive medical management pre-sterilization.
Combined Use of Office Hysteroscopy and Hysterosalpingography: A Novel Combination in Infertility Work-Up

Cevrioglu AS,1 Darol YV,2 Bostanci MS,1 Akdamir N,1 Tuna AT,1 1Obstetrics and Gynecology, Sakarya University School of Medicine, Sakarya, Turkey; 2Obstetrics and Gynecology, Yenikent State Hospital, Sakarya, Turkey; 3Anesthesiology, Sakarya University School of Medicine, Sakarya, Turkey

Study Objective: In patients who have planned hysterosalpingography (hsg) for routine infertility workup, investigate the feasibility and potential benefits of simultaneous office hysteroscopy (ofhys) use.

Design: Prospective, clinical study.

Setting: Tertiary care center affiliated with a school of medicine.

Patients: 72 infertile patients were selected for this study. There were no endometrial or adnexal pathology during the initial ultrasound examination. An environment was established for simultaneous use of ofhys and hsg under portable fluoroscopy. Mild sedation or parenteral analgesics were used during the procedure according to the patient’s need.

Intervention: The ofhys procedure started from introduction of the 4 mm rigid ofhys (Karl Storz, Germany) through the external cervical os, and finished after visualization of the uterine cavity and tubal ostia. If any pathology is detected, appropriate surgical procedure (adhesiolysis, polypectomy, etc.) was carried out with the help of scissors or grasper which passed through the operative channel of ofhys. Before removing the hysteroscope the portable fluoroscopy was adjusted for an appropriate pelvic image, and a hsg was performed by applying contrast media through an irrigation cannula. We recorded the procedural time, and the findings of the combined ofhys and hsg.

Measurements and Main Results: While evaluating the combined ofhys-hsg, normal findings were found in 47 patients and pathological findings were found in 25 patients. Procedural time was statistically higher in patients who detected abnormal findings (2.55 ± 1.06 vs 6.82 ± 4.2 minutes respectively, p = .001). Tubal pathology detection rate was 15.3% for hsg. The rate of endometrial pathology detected and corrected during ofhys was 25%.

Conclusion: The combined ofhys-hsg method is not only more reliable for the assessment of tubal and uterine cavity pathologies, but also give an opportunity to treat endometrial pathologies are detected at the same time. Safety, ease of use, shortened time of pre-treatment research of infertility and high patient tolerance may make combined ofhys-hsg method an ideal candidate for the infertility workup.

Table 1. Combined office hysteroscopy-hysterosalpingography (ofhys-hsg) findings

<table>
<thead>
<tr>
<th>ofhys</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>54</td>
<td>75</td>
</tr>
<tr>
<td>Endometritis</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Polyp</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Synechia</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td>Endometrial hyperplasia</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>hsg</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>61</td>
<td>84.7</td>
</tr>
<tr>
<td>Bilateral prox. tubal obst.</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Unilateral prox. tubal obst.</td>
<td>8</td>
<td>11.1</td>
</tr>
<tr>
<td>Unilat. hydrosalpenks</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>100</td>
</tr>
</tbody>
</table>

ofhys: Office hysteroscopy, hsg: Hysterosalpingography.

TUESDAY, NOVEMBER 14, 2017

Minitouch Endometrial Ablation Performed as an Outpatient (Office) Procedure in a UK District General Hospital – An Update

Gent JL, Alam M, Steele G, Kubwalo B. Obstetrics and Gynaecology, Arrowe Park Hospital, Wirral, United Kingdom

Study Objective: Endometrial Ablation is a safe and effective treatment for heavy menstrual bleeding with established NICE guidelines. It can be performed with a combination of analgesics in selected patients in an outpatient...
setting, thus avoiding the risks of general anaesthetic. We present our updated results of 69 patients who underwent outpatient endometrial ablation; focusing on ease of use, completion of procedure, use of local anaesthetic, patient acceptability, complications, patient satisfaction and outcomes.

**Design:** Retrospective Review.

**Setting:** Nurse led outpatient clinic in Arrowe Park Hospital, a district general hospital in the UK.

**Patients:** 69 Patients.

**Intervention:** Minitouch procedures performed since 2014.

**Measurements and Main Results:** Data from all 69 patients is now available. 59/69 performed by nurse hysteroscopy, 4/69 by consultant (MA), 3/69 by community doctor and 3/69 by registrar (KA). The average age was 44.4, average parity 2.4 and sounding length 9 cm. 4 patients did not complete the procedure (unable to tolerate/cavity not appropriate/failed to gain entry to cavity). 65 patients successfully underwent ablation, treatment time was short and cervical dilatation was not required. Local anaesthetic was used for those with a tender cervix. No immediate complications occurred and only 2 patients required antibiotics for suspected infection. Satisfaction was high and results show a success rate exceeding 81% at 4 month follow up.

**Conclusion:** Minitouch endometrial ablation is an easy to use, safe procedure that does not require cervical dilatation. It is well suited in a nurse led outpatient setting. It has positive outcomes and is an acceptable treatment option for selected patients.

### 114  Open Communications 8 – Hysteroscopy (2:15 PM–3:15 PM)

#### 2:22 PM – GROUP A

**Models to Predict Unsuccessful Endometrial Ablation: A Retrospective Study**

Stevens K.1; Meulenbroeks D.1; Houterman S.2; Gijsen T.1; Weyers S.4; Schoot D.1. 1Department of Obstetrics and Gynaecology, Catharina Hospital, Eindhoven, Noord-Brabant, The Netherlands; 2Department of Education and Research, Catharina Hospital, Eindhoven, Noord-Brabant, The Netherlands; 3Department of Obstetrics and Gynaecology, Elkerliek Hospital, Helmond, Noord-Brabant, The Netherlands; 4Department of Obstetrics and Gynaecology, Ghent University Hospital, Gent, Oost-Vlaanderen, Belgium

**Study Objective:** Development of two prediction models to help counsel patients for failure of endometrial ablation (EA) or surgical re-intervention within 2 years after EA.

**Design:** Retrospective cohort study, minimal follow-up time of 2 years.

**Setting:** Catharina Hospital, Eindhoven and Elkerliek Hospital, Helmond, both non-university teaching hospitals in the Netherlands.

**Patients:** Pre-menopausal women (18+) with complaints of abnormal blood loss, for which they received EA between January 2004 and April 2013. If meeting the in- and exclusion criteria and willing to fill in the questionnaire, they were selected (n = 446).

**Intervention:** Used ablation methods were Cavatherm (Veldana Medical SA, Morges, Switzerland), Thermaablate EAS (Idoman, Ireland) and Gynecare Thermachoice (Ethicon, Sommerville, USA). Earlier research showed that all the interventions had the same outcomes.

**Measurements and Main Results:** All data were put into IBM SPSS statistics software version 21.0 (IBM Corp., Armonk, NY, USA). Using logistic regression analysis, multifactorial prediction models were formed. The mean age of the patients was 43.8 years (range 20–55), 97.3% had complaints of menorrhagia. 57.4% of dysmenorrhoea and 61% had complaints of dysfunctional blood loss. A hysterectomy was performed in 18.8% of the patients. Low age, parity ≥5 and dysmenorrhea were significant multivariate predictors of failure in both models. Chance of re-intervention was significantly greater in women with menstrual duration >7 days or a previous caesarean section, while preoperative menorrhagia significantly influenced the chance of failure of EA. The models had a c-index of 0.71 and 0.68 respectively.

**Conclusion:** With the use of our prediction models a better counselling can be done regarding EA in patients with abnormal blood loss. Counselling can be done for the outcomes “failure of EA” or “surgical re-intervention within two years after EA”. This can help patients to make a balanced decision about treatment and contributes to the shared-decision making.

### Table 1. Preoperative predictors of re-intervention after Endometrial Ablation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Univariate analysis</th>
<th>Multivariate analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds ratio</td>
<td>p-value</td>
</tr>
<tr>
<td>Age (y)</td>
<td>0.93</td>
<td>0.89–0.98</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>0.99</td>
<td>0.93–1.05</td>
</tr>
<tr>
<td>Dysfunctional bleeding</td>
<td>1.56</td>
<td>0.84–2.89</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>2.83</td>
<td>1.44–5.55</td>
</tr>
<tr>
<td>Length of menstruation &gt;7 days</td>
<td>1.87</td>
<td>1.04–3.37</td>
</tr>
<tr>
<td>Length of the uterus (cm)</td>
<td>1.16</td>
<td>0.88–1.54</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>0.67</td>
<td>0.14–3.12</td>
</tr>
<tr>
<td>Myomata</td>
<td>0.67</td>
<td>0.30–1.48</td>
</tr>
<tr>
<td>Parity (No.)</td>
<td>0.88</td>
<td>0.66–1.17</td>
</tr>
<tr>
<td>Parity ≥5</td>
<td>5.84</td>
<td>1.27–26.83</td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>0.40</td>
<td>0.16–0.95</td>
</tr>
<tr>
<td>Previous caesarean section</td>
<td>2.98</td>
<td>1.52–5.83</td>
</tr>
<tr>
<td>Smoking</td>
<td>1.36</td>
<td>0.70–2.62</td>
</tr>
<tr>
<td>Sterilization</td>
<td>1.59</td>
<td>0.86–2.94</td>
</tr>
<tr>
<td>TED</td>
<td>0.64</td>
<td>0.18–2.29</td>
</tr>
<tr>
<td>-Thin, 0–3 mm</td>
<td>1.00</td>
<td>–</td>
</tr>
<tr>
<td>-Normal, 4–12 mm</td>
<td>1.00</td>
<td>–</td>
</tr>
<tr>
<td>-Thick, 13+ mm</td>
<td>0.96</td>
<td>0.36–2.58</td>
</tr>
<tr>
<td>Uterus position</td>
<td>-Antverted</td>
<td>1.00</td>
</tr>
<tr>
<td>-Retroverted</td>
<td>1.23</td>
<td>0.54–2.79</td>
</tr>
<tr>
<td>-Midposition</td>
<td>2.77</td>
<td>0.70–10.96</td>
</tr>
</tbody>
</table>
The HTA group (p-value <.001). Interestingly, although narcotic administration was not different. While in the PACU, however, the HTA group required nearly twice as much narcotic. The HTA group required a median of 10.5 morphine equivalents versus a median of 5.0 for the radiofrequency ablation group (p-value < .001). Interestingly, although the radiofrequency ablation group had lower pain scores and required less narcotics, fewer in this group received ketorolac, 84.8% versus 93.6% in the HTA group (p-value = .002).

### Table 2. Preoperative predictors of failure of Endometrial Ablation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Univariate analysis</th>
<th>Multivariate analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odd’s ratio</td>
<td>p-value</td>
</tr>
<tr>
<td>Age (y)</td>
<td>0.93</td>
<td>0.89–0.96</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>0.99</td>
<td>0.95–1.03</td>
</tr>
<tr>
<td>Dysfunctional bleeding</td>
<td>1.22</td>
<td>0.82–1.83</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>2.14</td>
<td>1.42–3.23</td>
</tr>
<tr>
<td>Length of menstruation &gt; 7 days</td>
<td>1.26</td>
<td>0.84–1.89</td>
</tr>
<tr>
<td>Length of the uterus (cm)</td>
<td>1.07</td>
<td>0.89–1.28</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>0.27</td>
<td>0.08–0.91</td>
</tr>
<tr>
<td>Myomas</td>
<td>0.92</td>
<td>0.56–1.49</td>
</tr>
<tr>
<td>Parity (No.)</td>
<td>0.88</td>
<td>0.73–1.07</td>
</tr>
<tr>
<td>Parity ≥5</td>
<td>11.17</td>
<td>1.33–93.60</td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>0.63</td>
<td>0.39–1.03</td>
</tr>
<tr>
<td>Previous caesarean section</td>
<td>1.57</td>
<td>0.90–2.72</td>
</tr>
<tr>
<td>Smoking</td>
<td>0.73</td>
<td>0.45–1.18</td>
</tr>
<tr>
<td>Sterilization</td>
<td>1.30</td>
<td>0.84–2.01</td>
</tr>
<tr>
<td>TED</td>
<td>-Thin, 0–3 mm</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td>-Normal, 4–12 mm</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>-Thick, 13+ mm</td>
<td>0.55</td>
</tr>
<tr>
<td>Uterus position</td>
<td>-Antverted</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>-Retroverted</td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>-Midposition</td>
<td>1.51</td>
</tr>
</tbody>
</table>

### 115 Open Communications 8 – Hysteroscopy

#### 2:15 PM–3:15 PM

**Postoperative Pain Following Endometrial Ablation: Radiofrequency Versus Hydrothermal**

Molitoris JJ,1 Devaiah G,2 Sosnowski JP,1 Crisp CC.1 Department of Ob/Gyn, Trihealth, Cincinnati, Ohio; 2 Hatton Research Institute, Trihealth, Cincinnati, Ohio; 1 Division of Female Pelvic Medicine and Reconstructive Surgery, Trihealth, Cincinnati, Ohio

**Study Objective:** To evaluate differences in postoperative pain scores between radiofrequency ablation and hydrothermal ablation (HTA).

**Design:** IRB-approved, retrospective chart review.

**Setting:** Academic tertiary referral center.

**Patients:** 500 patients undergoing endometrial ablation with radiofrequency ablation or HTA between February 2013 and April 2016.

**Intervention:** Radiofrequency ablation employs bipolar radiofrequency, whereas HTA uses circulating hot water to achieve the same goal, ablation of the uterine endometrium.

**Measurements and Main Results:** A total of 250 radiofrequency ablations and 250 HTAs were reviewed. When analyzing the 0–10 pain score, HTA demonstrated increased average pain compared to radiofrequency ablation (p-value < .001). To investigate further, the area under the curve for pain scores was established for the time in the post anesthesia care unit (PACU). Again, a significant difference was found, with HTA having a median area under the curve of 7.43 versus 3.03 for radiofrequency ablation (p-value < .001). Additionally, patients in the HTA group necessitated longer mean surveillance in the PACU prior to discharge (120 minutes vs. 78 minutes, p-value < .001). Narcotic requirements were then evaluated. Intraoperatively, narcotic administration was not different. While in the PACU, however, the HTA group required nearly twice as much narcotic. The HTA group required a median of 10.5 morphine equivalents versus a median of 5.0 for the radiofrequency ablation group (p-value < .001). Interestingly, although the radiofrequency ablation group had lower pain scores and required less narcotics, fewer in this group received ketorolac, 84.8% versus 93.6% in the HTA group (p-value = .002).

**Conclusion:** When comparing radiofrequency ablation and HTA, those undergoing radiofrequency endometrial ablation had lower pain scores, required less narcotics, and were discharged to home sooner than those in the HTA group.

### 116 Open Communications 8 – Hysteroscopy

#### 2:15 PM–3:15 PM

**Hysteroscopic Approach Versus D&C (Dilatation and Curettage) in the Management of Suspected Intrauterine Tissue after Delivery, Miscarriage or Termination of Pregnancy**

Tahmasbi Rad M, Becker S. Department of Gynecology and Obstetrics, Frankfurt University, Frankfurt am Main, Hessen, Germany

**Study Objective:** To evaluate the effect of hysteroscopic evaluation and hysteroscopic guided removal of suspected intrauterine tissues in patients after delivery, miscarriage or termination of pregnancy and to compare it with traditional D&C.

**Design:** Case-control study.

**Setting:** University hospital.

**Patients:** The patients with suspected intrauterine tissues in ultrasonography after delivery, miscarriage or termination of pregnancy were enrolled from January 2012 to March 2017 with suspected intrauterine tissues in ultrasonography after delivery, miscarriage or termination of pregnancy. retrospective review of medical records of these patients was performed and intra- and postoperative outcomes in these 2 groups of patients has been compared.

**Measurements and Main Results:** Analysis of 45 procedures was performed. Twenty one patients had only D&C and 24 patients hysteroscopic guided intervention. In D&C group in 5 patients (23.8%) ultrasonography revealed still a uterine cavity with residual tissues, these patients underwent hysteroscopic operation. In hysteroscopic group no residual tissues have been seen in ultrasonography after the operation. In D&C group one case
of perforation (during cervix dilatation) and one case of longer intraoperative bleeding has been reported. The operation time in hysteroscopic group was longer than D&C group but this difference was not statistically significant. Postoperatively, 3 patients (14.2%) in D&C group and 1 (4.1%) patient in hysteroscopic group had abdominal pain.

**Conclusion:** Hysteroscopic guided intervention and selective removal of tissues seems to be an effective technique for management of suspected placental remnants. Future studies comparing cost-effectiveness and availability of the technique in different countries are needed to change management and approach in every centers.

**117 Open Communications 8 – Hysteroscopy (2:15 PM–3:15 PM)**

**2:47 PM – GROUP B**

**Reproductive Outcome after Hysteroscopic Correction of Arcuate Uterine Anomaly in Infertile Patients**

Abuzeid O1, Farhan D1, Pacheco A2, Hebert J1, Sharara F, Abuzeid M1. 1Ob/Gyn, Harley Medical Center/Michigan State University College of Human Medicine, Flint, Michigan; 2REI, IVF Michigan, Rochester Hills, Michigan; 3REI, Virginia Center for Reproductive Medicine, Reston, Virginia

**Study Objective:** To compare the reproductive outcome in infertile patients after hysteroscopic correction of a significant arcuate uterine anomaly (Class VI) by ASRM classification, to those with normal endometrial cavity on hysteroscopy. Surgical correction of a significant arcuate uterine anomaly is better than to manage the problems and main results of patients with normal endometrial cavity on hysteroscopy (Group 2). Depending on the underlying etiology couples were allowed to try to conceive spontaneously, with Clomid treatment, intrauterine insemination after controlled ovarian stimulation or in-vitro fertilization. Follow-up was up to 3 years.

**Intervention:** Hysteroscopic correction of arcuate uterine anomaly in patients in Group 1.

**Measurements and Main Results:** There was no significant difference in female age (32.6 + 5.0 vs 32.3 + 4.7), day 3 serum FSH (7.0 + 3.4 vs 7.3 + 3.1), incidence of ovulatory disorders (31.4% vs 26.9%), and incidence tubal factor (24.1% vs 27.5%) between the two groups. There was significantly higher incidence of primary infertility (73.1% vs 55.5%) (p = .000), and male factor infertility (38.0% vs 28.8%) (p = .001), in Group 1 vs Group 2 respectively. The incidence of endometriosis (47.2% vs 64.6%) was significantly lower (p = .000) in Group 1 vs Group 2 respectively. There was a significantly higher clinical pregnancy (55.6% vs 33.3%), and delivery/ongoing pregnancy (49.5% vs 28.4%) rates in Group 1 compared to Group 2 respectively (p = .000).

There was no significant difference in miscarriage, ectopic, and multiple pregnancy rates between the two groups.

**Conclusion:** The reproductive outcome in infertile patients after hysteroscopic correction of a significant arcuate uterine anomaly is better than to those with normal endometrial cavity on hysteroscopy. Surgical correction of such anomalies may improve reproductive potential.

**118 Open Communications 8 – Hysteroscopy (2:15 PM–3:15 PM)**

**2:54 PM – GROUP B**

**AltaSeal®: Pilot and Initial Pivotal Trial Results of a New Hysteroscopic System for Sterilization and Tubal Occlusion for Hydrosalpinges**

Tharkow AL1, Coleman JE2, Bongers MY3, Veersema S4, Gannon MP5. 1Ob/Gyn, Minimal Invasive Gynecology, Academic Medical Center (University Hospital of the University of Amsterdam), Amsterdam, New Hampshire, The Netherlands; 2AlthesaScience Ltd, Dublin, Ireland; 3Ob/ Gyn, Maxima Medisch Centrum, Veldhoven, North Brabant, The Netherlands; 4Ob/Gyn, UMC (University Medical Centre) Utrecht, Utrecht, The Netherlands; 5Ob/Gyn, Midland Regional Hospital, Mullingar, Westmeath, Ireland

**Study Objective:** Results to-date of Pilot and initial Pivotal trial on AltaSeal® – a new device for hysteroscopic sterilization. Hysteroscopic sterilization is preferable over laparoscopic sterilization for many reasons. The Essure® system has been subject to discussion due to late adverse effects. AltaSeal® a new hysteroscopic sterilization implant is being developed as an evolution from an arterial closure device, Celi ACD® that has FDA approval and has been used in Europe in over 20 000 patients.

AltaSeal® is made from biocompatible 316LVM stainless steel which results in mechanical tubal occlusion. Unlike Essure® or Adiana® it does not depend on tissue ingrowth as its mechanism of action. In pilot studies involving 88 patients relying on AltaSeal® for >2 years and some out to 4 years, there have been no clinical issues and no pregnancies in these patients.

**Design:** A non-randomized, single arm study of patients seeking permanent contraception. Correct placement with a new flexible delivery system and tubal occlusion will be assessed visually and by TVU and HSG at three months.

**Setting:** Ambulatory Daycare (office).

**Patients:** 180 patients seeking permanent contraception.

**Intervention:** Hysteroscopic Sterilization with AltaSeal®.

**Measurements and Main Results:** The study will assess the pregnancy rate at 12 months, the placement rate, the reliance rate and adverse events during the procedure and in long-term follow-up. The initial pilot trials had bilateral placement rate of 88%. Placement failure was due to the delivery system being too rigid and with a diameter that proved to be a challenge in some hysteroscopy working channels.

**Conclusion:** The results presented will show pilot study results in 88 patients with long term follow-up and the placement and reliance rates with the new iteration of the AltaSeal® delivery system along with details of adverse events and follow-up.

**119 Open Communications 8 – Hysteroscopy (2:15 PM–3:15 PM)**

**3:01 PM – GROUP B**

**Presentation and Management of Malpositioned Essure in Patients With Suspected Nickel Hypersensitivity**

Nieto K, Tsiambarlis A, Yang L, Liebermann M. Obstetrics and Gynecology, Loyola University Medical Center, Maywood, Illinois

**Study Objective:** To discuss the presentation and surgical management of malpositioned Essure devices in patients with suspected nickel hypersensitivity.

**Design:** Case Report.

**Setting:** Academic hospital.

**Patients:** Two patients, one with suspected, and another with confirmed nickel hypersensitivity, diagnosed with Essure device uterine perforation.

**Intervention:** For both patients, device perforation was confirmed intraoperatively and bilateral Essure devices were removed laparoscopically. Postoperative follow-up revealed resolution of symptoms.

**Measurements and Main Results:** In the first case, a 38-year-old, with suspected nickel hypersensitivity, presented with diffuse pruritus, rash and dysmenorrhea since Essure placement. In Case 1, abdominopelvic radiographs demonstrated that the right Essure device followed an atypical curvilinear course, resembling a U-shape, as well as possible fragmentation, with separation of the inner and outer coil. Intraoperatively, perforation of the outer Essure coil near the right cornual region was confirmed.
In the second case, a 48-year-old, with confirmed nickel allergy, presented with worsening asthma, pelvic and joint pain since Essure placement. In Case 2, a CT abdomen/pelvis demonstrated the right Essure device to be extra-uterine in location. During laparoscopic evaluation, the right Essure device was found perforated through the posterior uterine wall and attaching to the bowel mesentery.

In each case, bilateral devices were removed laparoscopically, and postoperative follow-up revealed resolution of symptoms. These cases emphasize the importance of preoperative counseling, as per the new Food and Drug Administration (FDA) black box warning, especially amongst patients with suspected or confirmed nickel allergy. Patients who have undergone Essure placement with suspected or confirmed nickel allergy.

**Conclusion:** It is possible that nickel hypersensitivity or allergy may contribute to increasing likelihood of Essure complications. Patients who have undergone Essure placement with suspected or confirmed nickel allergy presenting with systemic symptoms should be carefully assessed. The clinician should consider imaging to ensure that the Essure device is in the correct position and/or surgical removal of the device.

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**Design:** A prospective study of consecutive patients who attended the postmenopausal bleeding clinic who were found to have endometrial polyps.

**Setting:** Office based clinic with no facility for sedation or general anesthesia in a secondary care hospital.

**Patients:** Patients were referred with postmenopausal bleeding from their primary care doctor. All patients underwent an ultrasound assessment, those with an abnormal endometrial echo were offered a hysteroscopic assessment. If a polyp was identified then they were offered immediate treatment.

**Intervention:** All patients underwent a transvaginal ultrasound assessment, those who had an indistinct endometrial echo, abnormal endometrial echo or an echo of 5 mm or greater were offered oral analgesia and a hysteroscopic assessment using a vaginoscopic approach. If a polyp was identified then immediate treatment with MyoSure Lite with an Aquillex Fluid Management system was offered. An intracervical block was used to allow dilatation.

**Measurements and Main Results:** The average endometrial thickness recorded for patients with polyps was 11.8 mm (range of 4.2–35 mm). The average intrauterine pressure utilised was 85 mmHg (range 80–120 mmHg). The average cutting time to remove the polyps was 55 s (range of 4–353 s). The average fluid deficit was 190 ml (range of 0–960). The patient was asked to record the worst pain on a visual analogue scale from 0 (no pain) to 10 (worst pain possible). The average pain score was 1.8 (range of 0–6). All polyps were treated at a single visit to the clinic, all polyps were removed completely and sent for histological assessment. There were no failed procedures, no adverse outcomes or complications.

**Conclusion:** A single visit “see and treat” clinic using MyoSure Lite with Aquillex Fluid Management is a clinically effective and safe method of treating endometrial polyps in patients with postmenopausal bleeding.
Conclusion: Perioperative factors such as lower hemocrit as well as intraoperative factors such as single-site operations and prolonged operative time are predictive of overnight hospital stay.

**122 Open Communications 9 – Laparoscopy**

(3:25 PM – 5:05 PM)

**3:32 PM – GROUP A**

**Evaluating the Impact of Surgical Complexity on Operative Times During Total Laparoscopic Hysterectomy**

Pacis MM,1 Lenihan JP,2 Stetter C,3 Kanselman A,3 Harkins G.1

1Department of Obstetrics and Gynecology, Penn State Health Milton S. Hershey Medical Center, Hershey, Pennsylvania; 2Department of Obstetrics and Gynecology, Multicare Health Systems, Tacoma, Washington; 3Department of Public Health Sciences, Penn State Health Milton S. Hershey Medical Center, Penn State College of Medicine, Hershey, Pennsylvania

**Study Objective:** To objectively quantify the impact of factors contributing to the complexity of conventional (TLH) versus robotic-assisted (RATLH) total laparoscopic hysterectomy as a function of operative time.

**Design:** Retrospective cohort study.

**Setting:** Academic tertiary care center.

**Patients:** Women between the ages of 21 to 62 who underwent either TLH or RATLH for benign indications between June 2015 and May 2016.

**Intervention:** One hundred patients were grouped according to route of hysterectomy – 50 in the TLH group and 50 in the RATLH group. Factors considered to contribute to increasing complexity included uterine size and shape, body mass index (BMI), adhesions, parity, prior surgery, ovarian cystectomy, presence of surgical trainees, and morcellation. Factors were assigned points reflecting increasing complexity within each element, and individual components were evaluated independently.

**Point Allocation**

- Uterine Size: 1-3, 1-3, 3-5
- Uterine Shape: 1-3, 1-3, 3-5
- Adhesions: 1-3, 1-3, 3-5
- Prior Surgery: 0-1, 0-1, 1-2
- Ovarian Cystectomy: 1-2, 1-2, 2-3
- Presence of Surgical Trainees: 1-2, 1-2, 2-3
- Morcellation: 0-1, 0-1, 1-2

**Measurments and Main Results:** Mean operative time for TLH was 78.9 min and 77.7 min for RATLH. Increasing CS significantly correlated with longer operative times for TLH (p < .001). While a higher CS did not significantly lengthen operative times for TLH or RATLH.

**Conclusion:** Higher CS for TLH correlated with longer operative times. Increased case complexity was driven by greater uterine weights, extensive adhesiolysis (p < .03), and performance of manual morcellation (p < .02) contributed to increasing CS for TLH. However, no complexity factors significantly contributed to higher operative times for RATLH. Ovarian cystectomy, prior surgery, higher BMIs, nulliparity, and participation of surgical trainees did not lead to significantly lengthier operative times for TLH or RATLH.

**Specific factors** such as aberrations in uterine size (p < 0.04), need for extensive adhesiolysis (p < .03), and performance of manual morcellation (p < .02) contributed to increasing CS for TLH. However, no complexity factors significantly contributed to higher operative times for RATLH. Ovarian cystectomy, prior surgery, higher BMIs, nulliparity, and participation of surgical trainees did not lead to significantly lengthier operative times for TLH or RATLH.

**Conclusion:** Higher CS for TLH correlated with longer operative times. Increased case complexity was driven by greater uterine weights, extensive adhesiolysis, and morcellation. Despite increasing complexity, the robotic approach maintained standard operative times.

**Points were added, generating a total adjusted complexity score (CS). Linear regression was used to determine factors contributing to increasing operative time as a function of CS.**

**Measurements and Main Results:** Mean operative time for TLH was 78.9 min and 77.7 min for RATLH. Increasing CS significantly correlated with longer operative times for TLH (p < .001). While a higher CS did extend operative times for RATLH, this was not statistically significant (p = .18).

**123 Open Communications 9 – Laparoscopy**

(3:25 PM – 5:05 PM)

**3:39 PM – GROUP A**

**Change in Surgical Practice for Women With Fibroids Following the FDA Safety Communication on Morcellation**

Clark N, Schembri M, Jacoby V. Obstetrics, Gynecology, and Reproductive Sciences, University of California, San Francisco, San Francisco, California

**Study Objective:** To evaluate changes in the use of laparoscopy for surgical treatment of uterine fibroids following the FDA safety communication on tissue morcellation.

**Design:** Cross-sectional study of hospital discharge data from January 2013 to December 2014.

**Setting:** Publically available, all-payer, data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient and State Ambulatory Surgical Databases from Arizona, Florida, Kentucky, and New Jersey was used.

**Patients:** All women >18 years with a diagnosis of uterine fibroids who underwent hysterectomy or myomectomy were included in the analysis.

**Intervention:** Hysterectomy for an indication of uterine fibroids or myomectomy.

**Measurements and Main Results:** There were 81,968 surgeries included in the analysis; 63,269 hysterectomies for fibroids and 18,699 myomectomies. Forty-four percent of all cases were performed as outpatient surgeries. In multivariable analysis, changes in the proportion of cases performed laparoscopically, vaginally, or by laparotomy were assessed from the year prior to the FDA safety communication to the year after. Overall, there was...
a 4% decrease in the proportion of hysterectomies performed laparoscopically from 62% of all hysterectomies before the FDA communication on morcellation to 58% afterward (p < .001). Changes in surgical practice were more pronounced in the inpatient versus outpatient setting; inpatient laparoscopic hysterectomy decreased by 7%, from 24% to 17% of all hysterectomies with an accompanying increase in laparotomy from 71 to 79% (p < .001). The proportion of surgeries that were myomectomy cases remained stable at approximately 24% before and after the FDA safety communication.

Conclusion: The FDA safety communication discouraging the use of power morcellators for the removal of uterine fibroids resulted in decreased use of laparoscopic hysterectomy for fibroids and an accompanying increase in laparotomy. The clinical implications of this change in practice may result in increased morbidity and prolonged recovery for women undergoing fibroid surgery.

124 Open Communications 9 – Laparoscopy
(3:25 PM–5:05 PM)

3:46 PM – GROUP A

Intravenous Acetaminophen Versus Saline in Postoperative Analgesia After Laparoscopic Hysterectomy: A Randomized, Double Blind, Placebo Controlled Trial

Ribot ND, Mansur SA, King CR. Obstetrics and Gynecology, Magee-Womens Hospital, Pittsburgh, Pennsylvania; Obstetrics and Gynecology, University of Wisconsin-Madison, Madison, Wisconsin

Study Objective: To compare intravenous acetaminophen with placebo and evaluate post-surgical pain control and patient satisfaction after laparoscopic hysterectomy.

Design: Prospective double blind randomized study with patients randomly assigned (1:1) to receive IV acetaminophen or placebo.

Setting: Tertiary-care, academic hospitals.

Patients: From February 2015 to August 2016, 183 patients underwent a total laparoscopic hysterectomy and were enrolled in the study.

Intervention: 91 patients received a preoperative dose of 1000 mg of IV acetaminophen (ACET) and 92 received a placebo of IV saline (PLAC), followed by a repeat dose 6 hours later. The induction of anesthesia and remaining postoperative pain regimen was uniform between groups. Both groups were asked to report their pain and nausea levels preoperatively as well as 2, 4, 6, 12 and 24 hours after surgery. Surgical satisfaction scores were recorded at 24 hours. Pain, nausea and satisfaction were recorded using a Visual Analog Scale (VAS), a validated data collection tool where patients make a mark along a 10 cm line, which is then measured and a score is calculated.

Measurements and Main Results: VAS scores are reported as mean ± standard deviation; comparisons between treatment groups are performed using t-tests. There were no significant differences in generalized abdominal pain at 2 hours (PLAC 3.6 ± 2.5 vs. ACET 4.4 ± 2.5, p = .07), 4 hours (PLAC 3.5 ± 2.2 vs. ACET 3.9 ± 2.5, p = .31), 6 hours (PLAC 3.6 ± 2.3 vs. ACET 3.8 ± 2.4, p = .15), 12 hours (PLAC 3.3 ± 2.1 vs. ACET 3.7 ± 2.6, p = .27), or at 24 hours (PLAC 3.3 ± 2.4 vs. ACET 3.6 ± 2.5, p = .28). Similar results were observed for nausea present in the upper abdomen, lower abdomen, and nausea.

Conclusion: There were no differences demonstrated between the acetaminophen and placebo groups in their postoperative pain or satisfaction. Given the relatively high cost ($23.20 per dose in our study), lack of benefit and available oral alternatives, our results do not support routine use during hysterectomy.

125 Open Communications 9 – Laparoscopy
(3:25 PM–5:05 PM)

3:57 PM – GROUP B

Outpatient Total Hysterectomy in the Freestanding ASC Setting – Experience With 819 Consecutive Cases
Ribot HD,1,2 Georgia Advanced Surgery Center for Women, Cartersville, Georgia; Cartersville Ob/Gyn Associates, Cartersville, Georgia

Study Objective: To document the clinical outcomes of a large series of total hysterectomies performed in a freestanding non-hospital setting with discussion of major cost implications.

Design: All total hysterectomies performed by three surgeons in a non-hospital setting as same day procedures. Complete outcomes data recorded for all patients.

Setting: Freestanding ambulatory surgery center.

Patients: All patients from a single practice undergoing total hysterectomy in a freestanding ASC from May 2010 through March 2017.

Intervention: Minimally invasive total hysterectomy, with same day discharge.

Measurements and Main Results: Clinical outcomes recorded included 30 day readmission, 30 day reoperation, intraoperative injury, hospital transfer, blood transfusion, undiagnosed malignancy with morcellation, and conversion to laparotomy. Readmission was 0.98% (9 patients, 4 surgical and 5 medical), reoperation was 0.48% (4 patients, no laparotomies), intraoperative injury in 0.85% (7 patients, no sequelae), hospital transfer in one (non-surgical), and no laparotomies or transfusions. No malignancies underwent morcellation. Additional data included age, parity, prior abdominal surgery, BMI, histology, operating time, concomitant procedures, uterine weight. Cost data for ASC vs. HOPD calculated.

Conclusion: Routine minimally invasive total hysterectomy in a non-hospital setting with excellent outcomes is feasible and reproducible. Although TVH is known to be less costly, a reality is that this route is declining and a growing majority of minimally invasive hysterectomies are endoscopic. This large series demonstrates that surgeons with widely differing levels of experience can produce excellent outcomes with same day discharge from an ASC setting. With average cost differential conservatively calculated at over $5000 per procedure between ASC and HOPD (hospital outpatient department), in our practice alone cost savings conservatively exceeds $4 000 000. Removing the non-clinical barri-

Table 1. Pre-operative and post-operative pain, nausea, and vomiting scores

<table>
<thead>
<tr>
<th></th>
<th>All Patients</th>
<th>Placebo</th>
<th>IV Acetaminophen</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Op</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized Abdominal Pain</td>
<td>1.14 ± 1.81</td>
<td>0.92 ± 1.42</td>
<td>1.34 ± 2.11</td>
<td>.159</td>
</tr>
<tr>
<td>Upper Abdomen</td>
<td>0.48 ± 1.07</td>
<td>0.33 ± 0.48</td>
<td>0.63 ± 1.40</td>
<td>.081</td>
</tr>
<tr>
<td>Lower Abdomen</td>
<td>1.29 ± 2.03</td>
<td>0.96 ± 1.59</td>
<td>1.61 ± 2.35</td>
<td>.054</td>
</tr>
<tr>
<td>Umbilical</td>
<td>0.32 ± 0.55</td>
<td>0.32 ± 0.53</td>
<td>0.33 ± 0.57</td>
<td>.951</td>
</tr>
<tr>
<td>Nausea</td>
<td>0.63 ± 1.44</td>
<td>0.54 ± 1.19</td>
<td>0.72 ± 1.65</td>
<td>.455</td>
</tr>
<tr>
<td><strong>2 Hours Post-Op</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized Abdominal Pain</td>
<td>4.02 ± 2.57</td>
<td>3.61 ± 2.52</td>
<td>4.39 ± 2.57</td>
<td>.070</td>
</tr>
<tr>
<td>Upper Abdomen</td>
<td>1.88 ± 2.29</td>
<td>1.39 ± 1.82</td>
<td>2.29 ± 2.56</td>
<td>.020</td>
</tr>
<tr>
<td>Lower Abdomen</td>
<td>4.57 ± 2.84</td>
<td>4.17 ± 2.88</td>
<td>4.91 ± 2.77</td>
<td>.123</td>
</tr>
<tr>
<td>Umbilical</td>
<td>2.54 ± 2.58</td>
<td>2.22 ± 2.44</td>
<td>2.81 ± 2.67</td>
<td>.176</td>
</tr>
<tr>
<td>Nausea</td>
<td>0.83 ± 1.51</td>
<td>0.79 ± 1.53</td>
<td>0.86 ± 1.51</td>
<td>.784</td>
</tr>
<tr>
<td>Vomiting</td>
<td>4 (2.1%)</td>
<td>3 (3.3%)</td>
<td>1 (1.1%)</td>
<td>NA</td>
</tr>
</tbody>
</table>

(Continued)
Table 1. Continued

<table>
<thead>
<tr>
<th>4 Hours Post-Op</th>
<th>All Patients</th>
<th>Placebo</th>
<th>IV Acetaminophen</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalized Abdominal Pain</td>
<td>3.74 ± 2.22</td>
<td>3.54 ± 2.23</td>
<td>3.92 ± 2.22</td>
<td>.314</td>
</tr>
<tr>
<td>Upper Abdomen</td>
<td>1.80 ± 2.05</td>
<td>1.76 ± 1.91</td>
<td>1.83 ± 2.18</td>
<td>.828</td>
</tr>
<tr>
<td>Lower Abdomen</td>
<td>4.38 ± 2.38</td>
<td>4.15 ± 2.46</td>
<td>4.59 ± 2.31</td>
<td>.276</td>
</tr>
<tr>
<td>Umbilical</td>
<td>2.21 ± 2.41</td>
<td>2.20 ± 2.42</td>
<td>2.22 ± 2.42</td>
<td>.957</td>
</tr>
<tr>
<td>Nausea</td>
<td>1.27 ± 2.11</td>
<td>1.26 ± 2.10</td>
<td>1.27 ± 2.14</td>
<td>.982</td>
</tr>
<tr>
<td>Vomiting</td>
<td>3 (1.6%)</td>
<td>1 (1.1%)</td>
<td>2 (2.2%)</td>
<td>.620</td>
</tr>
<tr>
<td>12 Hours Post-Op</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized Abdominal Pain</td>
<td>3.49 ± 2.40</td>
<td>3.25 ± 2.09</td>
<td>3.71 ± 2.65</td>
<td>.266</td>
</tr>
<tr>
<td>Upper Abdomen</td>
<td>2.15 ± 2.28</td>
<td>2.03 ± 1.97</td>
<td>2.27 ± 2.54</td>
<td>.537</td>
</tr>
<tr>
<td>Lower Abdomen</td>
<td>3.96 ± 2.62</td>
<td>3.79 ± 2.37</td>
<td>4.12 ± 2.83</td>
<td>.458</td>
</tr>
<tr>
<td>Umbilical</td>
<td>2.62 ± 2.42</td>
<td>2.57 ± 2.34</td>
<td>2.66 ± 2.50</td>
<td>.830</td>
</tr>
<tr>
<td>Nausea</td>
<td>1.17 ± 2.02</td>
<td>1.30 ± 2.18</td>
<td>1.06 ± 1.87</td>
<td>.484</td>
</tr>
<tr>
<td>Vomiting</td>
<td>7 (3.7%)</td>
<td>3 (3.3%)</td>
<td>4 (4.4%)</td>
<td>.774</td>
</tr>
<tr>
<td>Pain Medications</td>
<td>110 (57.9%)</td>
<td>54 (58.7%)</td>
<td>56 (61.3%)</td>
<td>.755</td>
</tr>
<tr>
<td>24 Hours Post-Op</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized Abdominal Pain</td>
<td>3.34 ± 2.36</td>
<td>3.11 ± 2.22</td>
<td>3.55 ± 2.47</td>
<td>.275</td>
</tr>
<tr>
<td>Upper Abdomen</td>
<td>2.25 ± 2.33</td>
<td>1.79 ± 1.96</td>
<td>2.67 ± 2.58</td>
<td>.025</td>
</tr>
<tr>
<td>Lower Abdomen</td>
<td>3.76 ± 2.57</td>
<td>3.48 ± 2.50</td>
<td>4.02 ± 2.61</td>
<td>.208</td>
</tr>
<tr>
<td>Umbilical</td>
<td>2.73 ± 2.49</td>
<td>2.44 ± 2.34</td>
<td>3.01 ± 2.60</td>
<td>.181</td>
</tr>
<tr>
<td>Nausea</td>
<td>0.77 ± 1.41</td>
<td>0.85 ± 1.58</td>
<td>0.69 ± 1.25</td>
<td>.508</td>
</tr>
<tr>
<td>Vomiting</td>
<td>3 (1.6%)</td>
<td>2 (2.2%)</td>
<td>1 (1.1%)</td>
<td>.517</td>
</tr>
<tr>
<td>Pain Medications</td>
<td>124 (65.3%)</td>
<td>61 (66.3%)</td>
<td>63 (69.2%)</td>
<td>.653</td>
</tr>
</tbody>
</table>

Minimally Invasive Surgery as the Preferred Route for Gynecological Procedures: Shift Since the Implementation of a Formal MIGS Program in a Single Academic Center

Flores-Mendoza H,1 Basurto-Diaz D,1 Hernandez-Nieto CA,3 Mireles-Lecano GI,1 Programa Múlticentro de Residencias Médicas, Tecnológico de Monterrey, Monterrey, Nuevo Leon, Mexico; 3Reproductive Medicine Associates, New York, New York, New York; 4Hospital Regional Materno Infantil de Alta Especialidad, Guadalajara, Nuevo Leon, Mexico

Study Objective: The main objective was to determine the incidence and tendency of gynecological surgery route in a teaching hospital in northeast Mexico before and after the implementation of a minimally invasive surgery program. Secondary objectives were to establish if a difference in proportions of MIGS between years existed.

Design: Retrospective cohort study. Gynecological surgeries where further divided in open abdominal, MIGS and vaginal; for research purposes differences where sought only in MIGS surgeries. A chi-squared test was used to explore differences in proportions in the years in question.

Setting: Secondary-care government-funded hospital in Monterrey, Mexico.

Patients: All patients who underwent gynecological surgeries in a before and after the establishment of the MIGS program in 2015 were included.

Table 1. Surgical route by year

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIGS</td>
<td>203</td>
<td>313</td>
</tr>
<tr>
<td>Abdominal</td>
<td>351</td>
<td>184</td>
</tr>
<tr>
<td>Vaginal</td>
<td>161</td>
<td>166</td>
</tr>
<tr>
<td>Total</td>
<td>715</td>
<td>663</td>
</tr>
</tbody>
</table>

Table 2. Surgical route percentage by year

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>p-value (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIGS</td>
<td>28.4</td>
<td>47.2</td>
<td>&lt;.0001 (13.6, 23.8)</td>
</tr>
<tr>
<td>Abdominal</td>
<td>49.1</td>
<td>27.8</td>
<td>&lt;.0001 (16.1, 26.3)</td>
</tr>
<tr>
<td>Vaginal</td>
<td>22.5</td>
<td>25</td>
<td>.28 (−2.09, 7.1)</td>
</tr>
</tbody>
</table>

Intervention: No interventions were done.

Measurements and Main Results: A total 1378 surgeries took place before and after the establishment of the formal MIGS program in the hospital. A total 715 (51.8%) were performed in 2015 and 663 (48.2%) in 2016. The number of abdominal, MIGS and vaginal surgery in 2015 was: 351 (49.1%), 203 (28.4%) and 161 (22.5%), respectively. Meanwhile in 2016: 313 (47.2%), 184 (27.8%) and 166 (25%). Division by year and surgical route can be seen in Tables 1–2. A clear upward numeric and percentual trend can be seen in MIGS in the years in question, also a clear downward trend was observed in open abdominal surgery; vaginal surgery remained stable throughout. These trends are further depicted in Figures 1–2.
Proportions in MIGS between both years differed significantly (p ≤ .0001; CI 13.6, 23.8).

Conclusion: Implementation of a formal MIGS program in a teaching hospital resulted in a significant increment in the proportion of procedures done with minimally invasive techniques, which are now the most common surgical route for gynecological procedures in our center. Aside from training residents in minimally invasive techniques, this program also provides patients with the proven benefits of MIGS.

127 Open Communications 9 – Laparoscopy
(3:25 PM–5:05 PM)

4:11 PM – GROUP B

Force Required for Veress Needle Entry During Laparoscopy
Vu MT, Rodriguez F, Panarelli E, Samuelson R. Obstetrics, Gynecology, and Reproductive Biology, Danbury Hospital, Western Connecticut Health Network, Danbury, Connecticut

Study Objective: The purpose of this study was to investigate the amount of force required to enter the abdominal cavity using a Veress needle. We hypothesize the force needed to penetrate the abdominal cavity is consistent among patients regardless of their body mass index (BMI). With standardized force values, an educational simulator can be developed to improve proficiency in Veress needle closed abdominal entry technique for laparoscopic surgery.

Design: This was a prospective observational study of patients undergoing elective laparoscopic gynecologic surgery.

Setting: The study was performed in the surgical suites of a Connecticut community-based hospital.

Patients: Patients scheduled for laparoscopic gynecologic surgery were consented during their pre-operative visits to participate in the study. Twenty-eight patients were enrolled and 17 of these patients completed the study.

Intervention: An adapter was engineered to connect a digital force gauge to the handle end of a standard Veress needle. This allowed data collection using the Veress needle during closed abdominal entry while continuously measuring the force of penetration in units of gram-Force (gF). All data was obtained using evidence-based laparoscopic techniques by a single board-certified gynecologic surgeon.

Measurements and Main Results: For 17 patients, the peak forces ranged from 332 to 1414 gF with a mean of 752 ± 212 gF. Patients were divided into two cohorts based on BMI. Mean peak force of entry was 740 ± 60.9 gF for patients with BMI < 26.4 kg/m² and 763 ± 49.1 gF for patients with BMI > 26.4 kg/m² (p = .757, two-tailed student t-test).

Conclusion: There was no significant difference in peak forces between the two cohorts, suggesting entry force is independent of patient BMI. Our study demonstrated standard forces could be quantified using the Veress needle closed abdominal entry technique. With this data, a training simulator for resident education can be developed to mimic similar forces required for Veress needle penetration through the abdominal wall.

128 Open Communications 9 – Laparoscopy
(3:25 PM–5:05 PM)

4:18 PM – GROUP B

Fertility and Obstetric Outcomes Following Isobaric Gasless Laparoscopic Myomectomy
Cammareri G, Bracco B, Di Simone G, Maggi V, Zavatta A, Ferrazzi EM. Department of the Women, Mother and Neonate, Buzzi Children’s Hospital, Milan, Michigan, Italy

Study Objective: To investigate pregnancy rate and obstetric outcomes after isobaric gasless laparoscopic myomectomy.

Design: Retrospective study.

Setting: Department of the Women, Mother and Neonate, Buzzi Children’s Hospital, University of Milan, Medical School of Clinical Sciences, Milan, Italy.

Patients: 104 women aged ≤42 years with 1 or more intramural or subserosal myomas with a mean diameter ≥4 cm, symptomatic, looking for pregnancy.

Intervention: Isobaric gasless laparoscopic myomectomy using a subcutaneous lifting system and conventional laparotomic surgical instruments.

Measurements and Main Results: The number of myomas removed per patient was 2.16 ± 1.2. The mean diameter of the largest fibroid was 6.78 ± 2.1 cm. Type of myomas was in 99% of cases intramural and in 55% subserosal. The most common symptoms were menorrhagia (71%), metrorrhagia (63%), while bulking symptoms occurred in 34% of cases. During
surgical performance, uterine cavity was opened in 6%. The median blood loss was 200 mL (I.Q. 100–300 mL). Pregnancy rate was 71% (74/104). We observed 3 (1.3%) early miscarriage and one women required voluntary interruption of pregnancy. The median time to conception after surgery was 62.5 months (I.Q. 50–95 months). In 65 cases (88%) we assisted to term birth (≥37 gestational weeks), while in 3 cases birth was before 37 weeks of gestation (4%). 40 women (58 %) underwent caesarean section (87% elective), 25 (37%) had vaginal delivery and 31 (45%) had operative vaginal delivery. In 25% cases the indication for cesarean section was previous myomectomy and, in 7.5 %, there were placental anomalies. The median blood loss at delivery was 400 mL (I.Q. 262–600 mL), in 15% of cases a severe post-partum hemorrhage occurred (defined as blood loss ≥ 1000 mL). No uterine rupture during pregnancy or delivery occurred.

Conclusion: women undergoing isobaric myomectomy have good pregnancy rate and positive obstetric outcomes.

129 Open Communications 9 – Laparoscopy
(3:25 PM–5:05 PM)

4:29 PM – GROUP C

The Fibroid Center as Model of Health Care Delivery That Improves Health Care Utilization and Quality
Shah AJ, Anderman J, Florence AM, Goldstein JA. 1 Division of Minimally Invasive Gynecology, Department of Obstetrics and Gynecology, Bronx Lebanon Hospital Center, Bronx, New York; 2 School of Medicine, American University of the Caribbean, Coral Gables, Florida

Study Objective: To assess the effect of our care model on quality measures and resource utilization.
Design: Relational model database derived from the active medical record (EMR) was used to create a cohort of patients from whose digital data could be queried. Novel SQL code was created to “read” the electronic medical record. Each variable assessed by multiple queries types: keywords, codes, clinical and registration information.
Setting: An urban health care system comprised of 972 bed teaching hospital and outpatient clinics – utilizing the same EMR.

Intervention: The Fibroid Center (August 2014) an integrative outpatient/inpatient model of care.

Measurements and Main Results: 3503 18–55 year old women were treated for fibroids from 2013–2016: 407 at the Fibroid Center, 1997 in the gyn outpatient clinic – chi square and student t test confirmed demographically similarity between the 2 groups (age, zip code, insurance type).
Health care utilization data included admission, emergency department, and outpatient clinic visits.
R, an open source statistics-computing language was employed to evaluate the data.
Negative binomial models demonstrates fibroid center patients have an increase use of outpatient clinics 95%CI: (0.977, 1.524); estimated effect size: 1.251, p-value <.001.
With a concomitant reduction in emergency room utilization 95%CI: (−0.989, −0.303); estimated effect size: −0.646, p-value <.001.
Secondary outcomes: Fibroid Center patient had a higher Minimally Invasive Surgery (MIGS) rate 78% vs. 33%. (surgical complexity confirmed by uterine weight distribution) with a shorter inpatient length of stay 2.60 vs 4.29 days: 95%CI: (−0.953, 0.684); estimated effect size: −0.116, p-value = .781.

Fig. 2. Minimally invasive surgery rate and specimen weight 2013–2016.

Conclusion: Patients treated at the Fibroid Center have decreased emergency room utilization with concurrent higher outpatient clinical utilization, and shorter length of stay for hospital admission, which may be due to the higher MIGS rate.

130 Open Communications 9 – Laparoscopy
(3:25 PM–5:05 PM)

4:36 PM – GROUP C

Quality of Life After Myomectomy
Rodriguez-Triana VM, Kelly M, Olson T, Parker WH. Department of Obstetrics and Gynecology, University of California, Los Angeles, Los Angeles, California

Study Objective: To analyze patients’ quality of life and severity of symptoms before and after undergoing either laparoscopic or abdominal myomectomy for symptomatic fibroids.
Design: Prospective cohort study.
Setting: Academic university hospital.

Patients: Patients undergoing either laparoscopic or abdominal myomectomy for symptomatic fibroid uterus between 2014 and 2016.

Intervention: Patients undergoing evaluation for myomectomy filled out a validated Uterine Fibroid Symptom and Health-Related Quality of Life Questionnaire (UFS-QOL), and symptoms were scored to achieve a Symptom Severity Score (SSS) and Highest Raw Quality of Life Score (HRQL). Patients who underwent surgery completed the same questionnaire between 6 and 25 months after surgery.

Measurements and Main Results: A total of 256 patients completed their preoperative UFS-QOL questionnaire, of which 125 underwent either laparoscopic or abdominal myomectomy. A total of 108 post-operative responses were received (n = 45 between 6–15 months, n = 63 greater than 16 months). For the laparoscopic myomectomy group, the mean pre-operative SSS was 50; the mean HRQL score was 53. Post-operative mean SSS at 6–15 months decreased to 14 and at 16–25 months was also 14; mean HRQL score increased to 94 at 6–15 months and was 92 at 16–25 months.

For the abdominal myomectomy group, the mean pre-operative SSS was 55 and HRQL was 43. Post-operative mean SSS at 6–15 months decreased to 14, and at 16–25 months it was 10; mean HRQL score increased to 87 at 6–15 months and was 93 at 16–25 months.

Conclusion: Myomectomy can lead to significant improvements in overall quality of life and a decrease in symptom severity in women with symptomatic fibroids. This effect was durable for the duration of our study.
131 Open Communications 9 – Laparoscopy  
(3:25 PM–5:05 PM)  

4:43 PM – GROUP C  
Surgical Excision of Parasitic Leiomyomas: An Institutional Case Series  
Pepin KJ, Clark NV, Rizzo AF, Mushinski AA, Ajaoo MO, Einasarzion JJ, Cohen SL. Brigham and Women’s Hospital, Boston, Massachusetts  
Study Objective: To identify patient and procedure characteristics of women undergoing surgical excision of parasitic leiomyomas.  
Design: Retrospective case series.  
Setting: A large academic medical center.  
Intervention: Surgical excision of parasitic leiomyomas.  
Measurements and Main Results: Seventeen patients were identified who underwent surgical excision of parasitic leiomyomas between 2012 and 2016. The average age was 41.2 ± 7.2 years (range 30–55). Nearly all patients (16/17, 94.1%) had previous uterine surgery; 11 had a prior myomectomy (2 open, 9 laparoscopic) and 5 had a prior hysterectomy (all laparoscopic). Four patients had more than one prior uterine surgery. Operative reports were available for 18 prior surgeries, all of which involved uncontained power morcellation. The range of time between the first surgery and surgery for excision of parasitic leiomyomas was 3–15 years. The most common presenting symptom was pelvic pain (7/17, 41.2%). Six patients (17.6%) were asymptomatic. On surgical evaluation, 3.2 ± 2.5 (range 1–9) parasitic leiomyomas were identified, ranging in size from <1 cm to 13 cm. Sites of parasitic leiomyoma attachment included the anterior abdominal wall (8/17, 47.1%), pelvic side wall (4/17, 23.5%), adnexal region (4/17, 23.5%), bowel (3/17, 17.6%), and bladder (1/17, 5.8%). The average blood loss for parasitic leiomyoma excision was 430 ± 944 cc (range 0–4000). Fourteen surgeries were performed laparoscopically, 2 of which converted to open, and 3 were performed exclusively using an open approach.  
Conclusion: Parasitic leiomyomas are a rare complication of laparoscopic uterine surgery and are diverse in their presenting timing, symptoms, and location. This case series supports morcellation as a risk factor for parasitic fibroids.

132 Open Communications 9 – Laparoscopy  
(3:25 PM–5:05 PM)  

4:50 PM – GROUP C  
The Outcomes of Adnexal Surgery After Prior Hysterectomy  
Alammari RA, Modest AM, Chu J, King LP, Avestry CS. Department of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Boston, Massachusetts  
Study Objective: To evaluate surgical outcomes of interval laparoscopic adnexal surgery after prior hysterectomy.  
Design: Retrospective cohort study.  
Setting: Tertiary academic medical center.  
Patients: Patients who underwent laparoscopic adnexal surgery (unilateral or bilateral salpingo-oophorectomy, unilateral or bilateral ovarian cystectomy) after prior hysterectomy from 2011 to 2013 (hysterectomy group) were compared to the next five patients who underwent laparoscopic adnexal surgery without prior hysterectomy (non-hysterectomy group).  
Intervention: N/A.  
Measurements and Main Results: We reviewed 1654 charts and identified 65 hysterectomy and 325 non-hysterectomy patients. Data are presented as proportion or median (interquartile range). BMI was similar between the two groups. Preoperative indication was adnexal mass (84.4%), pelvic pain/ endometriosis (9.7%), risk reducing (9.5%), other (13.3%). Surgeries were performed by gynecologic oncologists (43.3%), minimally invasive gynecologic surgeons (31.3 %), general gynecologists (24.9 %), urogynecologists (0.3%) and general surgeons (0.3%).  
Operative time was longer among the hysterectomy patients (101.0 minutes (70.0–133.0) vs. 81.0 minutes (53.0–111.0), p = .003) and the need for lysis of adhesions was higher (64.6% vs. 24.3%, p < .001). Surgeons were more likely to evaluate for possible ureteral injury with cystoscopy in hysterectomy patients when compared to non-hysterectomy patients (24.6% vs. 8.3%, p = .001). The hysterectomy patients were more likely to be converted to laparotomy (9.2% vs. 1.5%, p = .004) and had more postoperative urinary retention (12.3% vs. 4.3%, p = .01). Major intraoperative complications were higher in the hysterectomy group when compared to non-hysterectomy (4.6% vs. 0.9%, p = .005). Complications were 1 enterotomy, 1 cystotomy and 1 blood transfusion.  
Conclusion: Laparoscopic adnexal surgery after prior hysterectomy is associated with longer operative time and is more likely to require lysis of adhesions, cystoscopy for evaluation of the ureters and conversion to laparotomy when compared with adnexal surgery without prior hysterectomy. This is the first study that quantifies these risks which could allow for better patient counseling and surgical planning.

133 Open Communications 9 – Laparoscopy  
(3:25 PM–5:05 PM)  

4:57 PM – GROUP C  
Operating Room Efficiency: Examining the Impact of Personnel Handoffs  
Study Objective: To identify modifiable factors associated with longer OR times in women having prolapse surgery.  
Design: Retrospective.  
Setting: Academic Center.  
Intervention: The following information was abstracted: demographics; procedure; operating room (OR), anesthetic, and surgical times; number of handoffs between anesthesia members, circulators and scrub-techns; and number of learners (residents, fellows, students).  
Measurements and Main Results: 148 women underwent prolapse surgery and are included. Participants had mean±SD age of 54 ± 14 and BMI of 28 ± 6. The majority was healthy and Caucasian. Prolapse procedures were: 31% laparoscopic sacrocolpopexies (LASC), 28% robotic sacrocolpopexies (RASC), 19% colpocleises, 13% uterosacral ligament suspensions, and 9% sacropinous ligament suspensions. Most had concomitant procedures: 64% midurethral slings and 74% hysterectomies. Mean OR and surgical times were 227 ± 79 min and 185 ± 75 min. Median anesthesia, scrub-tech, and circulating handoffs were 1 (IQR 1–2), 0 (0–1) and 1 (0–1). Median number of learners was 3 (2–5). Younger age, higher BMI and EBL were associated with longer OR times (p < .001, p < .001 and p = .001), while patient comorbidities and ASA class were not (p = .9 and p = .4). OR time was positively correlated with an increasing number of anesthesia, scrub-tech and circulating handoffs, but not with learner number (rho = 0.34, p = .001; rho = 0.34, p < .001; rho = 0.59, p < .001 and rho = 0.16, p = .43). Variables significantly associated with OR time were included in linear regression models to determine factors independently associated with longer OR time for LASC + hysterectomy and RASC + hysterectomy. For LASC, every scrub-tech handoff was associated with an additional 23 minutes of OR time (p = .004). For RASC, every scrub-tech handoff was associated with an additional 31 minutes of OR time (p = .007) and circulating handoffs with 15 additional minutes (p = .05).  
Conclusion: Handoffs between OR personnel are associated with longer OR times independent of patient factors. Handoff reduction may be a modifiable factor in reducing OR time and, thereby, decreasing cost and enhancing patient safety.
WEDNESDAY, NOVEMBER 15, 2017

134 Open Communications 10 – Urogynecology
(11:00 AM–12:00 PM)

11:00 AM – GROUP A

Impact of FDA Power Morcellation Ban on Perioperative Outcomes in Sacrocervical Procedures
Fan KW,1,2 Shu M,1,2 Eddib A,1,2 Obstetrics and Gynecology, Women and Children’s Hospital of Buffalo, University at Buffalo, Jacobs School of Medicine and Biological Sciences, Buffalo, New York; Obstetrics and Gynecology, Millard Fillmore Suburban Hospital, University at Buffalo, Jacobs School of Medicine and Biological Sciences, Buffalo, New York.

Study Objective: Supracervical hysterectomy with sacrocolposcopy (SCHSC) is a urogynecologic procedure utilizing the cervical stump for sacrocolposcopy mesh attachment to prevent a vaginal cuff incision, which is associated with a higher incidence of mesh erosion and infection. It is important to identify a safe and efficient method of tissue retrieval, especially in the postmenopausal population in whom benign masses may have an increased risk of uterine cancer. This study examines the effect of the FDA ban on power morcellation and resulting perioperative outcomes in robotic SCHSC cases.

Design: A retrospective cohort study conducted at a teaching hospital included 162 patients who underwent robotic SCHSC requiring tissue extraction, comparing surgical outcomes in power versus manual morcellation groups.

Setting: Teaching Hospital institution.

Patients: 162 patients undergoing SCHSC.

Intervention: Primary outcome was operative time, specifically robot undocking to incision closure, indicating specimen removal time. Secondary outcomes were intraoperative and postoperative outcomes: age, BMI, uterine weight, estimated blood loss, length of hospital stay, PACU time and pain medication utilization measured as morphine milligram equivalents.

Measurements and Main Results: The power morcellation group had shorter operative duration (40.31 minutes versus 49.53 minutes, p-value = .110) and lower total pain MME (15.25 versus 24.85, p-value = .087). Higher uterine weights had slightly longer procedure time (0.118 minutes per gram, p-value < .001). Other surgical outcomes were not statistically significant.

Conclusion: Eliminating tissue power morcellation in urogynecologic patients is safe and effective. With the exception of slight increase in procedure time and pain MME, there is no other significant increase in morbidity.

135 Open Communications 10 – Urogynecology
(11:00 AM–12:00 PM)

11:07 AM – GROUP A

Elevated Post-Void Residual Urine Volume: Identifying Risk Factors and Predicting Resolution
Ulrich A1, Plock K,2 O’Sullivan DM1, Davis P,2 Tulikangas P2.
1Department of Obstetrics and Gynecology, University of Connecticut, Farmington, Connecticut; 2Female Pelvic Medicine and Reconstructive Surgery, Department of Women’s Health, Hartford Hospital, Hartford, Connecticut.

Study Objective: Evaluate the resolution rate of elevated post-void residual urine volume (PVR) in patients undergoing reconstructive surgery for pelvic organ prolapse (POP), and identify risk factors for elevated preoperative PVR and persistently elevated postoperative PVR.

Design: Retrospective cohort study.

Setting: Academic-affiliated hospital.

Patients: Women undergoing surgery for pelvic organ prolapse.

Intervention: Comparisons made between 50 women with elevated preoperative PVR (≥100 mL) and 50 women with normal PVR (<100 mL). Preoperative demographic, physical exam, and urodynamic data were collected. Type of surgery performed and postoperative trial of void (TOV) data were collected.

Measurements and Main Results: The elevated PVR cohort was older (65.5 ± 13.3 vs. 60.6 ± 10.1 years, p = .04). The cohorts did not differ by body mass index, parity, number of cesarean deliveries, prior hysterectomy, incontinence, prolapse surgery, menopausal status, hormone replacement therapy, history of recurrent urinary tract infections, diabetes mellitus, or maximum bladder capacity. Most patients had preoperative anterior compartment prolapse stage 2 or 3 (84% normal PVR cohort vs. 79.5% elevated PVR cohort); pre- and postoperative prolapse stage did not differ. Stress and urge incontinence, and overactive bladder, did not differ. Surgical procedures performed (including concomitant incontinence procedure(s)) and intraoperative cystoscopy findings did not differ. There was no difference in postoperative TOV failures by PVR cohorts (normal, 11 (22.4%); elevated, 16 (32%) – p = .36). The distribution of outpatient TOVs by PVR cohort did not differ (17 normal, 31 elevated; p = .67). One patient per cohort learned to perform clean intermittent self-catheterization for persistently elevated PVR postoperatively. In both, PVR normalized within eleven days of Foley catheter removal.

Conclusion: In this study, all women undergoing surgery for POP had postoperative resolution of elevated PVR. Patients with non-neurogenic elevated PVR can be reassured that bladder emptying is likely to improve after surgical repair of pelvic organ prolapse.
138 Open Communications 10 – Urogynecology
(11:00 AM–12:00 PM)

11:32 AM – GROUP B

Primary Pelvic Organ Prolapse Surgery Using Delayed Absorbable Suture: One-Year Outcomes Comparing Anterior Wall Success in Vaginal Uterosacral Ligament Suspension VersusSacral Colpopexy

Bastavros DA,1 Tarr ME,1 Templin MA,2 Stepp KJ,1 Taylor B,1 Myers EM,1 Carolinas Health Care System, Charlotte, North Carolina;2Center for Outcomes Research and Evaluation, Charlotte, North Carolina

Study Objective: To evaluate one-year anatomic success rates for vaginal uterosacral ligament suspension (USLS) utilizing delayed absorbable polydioxanone (PDS) compared with minimally invasive sacral colpopexy (SCP) utilizing barbed delayed absorbable suture for vaginal mesh fixation. Additionally, we sought to assess postoperative quality of life measures between groups.

Design: Retrospective cohort analysis.

Setting: Academic.

Patients: Women with one year follow-up who underwent a vaginal USLS or minimally invasive SCP with concomitant hysterectomy over a 48-month period.

Intervention: PDS suture used bilaterally for USLS suspension or barbed delayed absorbable suture used for anterior and posterior vaginal mesh attachment for SCP.

Measurements and Main Results: A total of 47 tracheectomies were performed for indications including vaginal bleeding (n = 24), abnormal pap smear (n = 7), pain (n = 16), prolapse (n = 13), and cancer (n = 2). Preoperative sampling of the cervix or endocervix was done in 38% (18/47) of patients with no complications (0/18). Adequate tissue was obtained in all samples (18/18). Of patients who reported bleeding, 41.7% (10/24) underwent repeat prolapse surgery, all having a minimally invasive sacral colpopexy within their follow-up period (p = .67). Thirty-six completed questionnaires were analyzed. There was no significant difference in postoperative scores between groups.

Conclusion: Anatomic success rates at one year utilizing delayed absorbable suture were greater for SCP when using the anterior wall as a measure of success, but there was no difference in apical success rates between groups. There were no differences in QoL measures between groups.
No sampling was done in 61.7% (29/47) of patient undergoing trachelec-
tomy. Among patients who were not sampled, one diagnosis of cervical cancer
was made on final surgical pathology. Cervicitis was found in 10% (1/10) of
patients sampled for bleeding, however, a higher incidence was found on
final pathology with 50% (12/24) of specimens found to have cervicitis.

**Conclusion:** There is currently limited evidence on the utility and out-
comes of preoperative tissue evaluation in patients planning trachelectomy
following supracervical hysterectomy. Preoperative endocervical sampling
can be performed safely and adequately with results consistent with final
trachelectomy pathology. More importantly, failure to sample may lead to
a missed diagnosis of cancer and subsequent appropriate preoperative plan-
ing. Given the high incidence of cervicitis, consideration should be given
for medical management prior to surgical excision.

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**140 Open Communications 10 – Urogynecology**

**11:46 AM – GROUP B**

**Evaluation and Management of Complications after**
**Transvaginal Mesh Repair of Pelvic Organ Prolapse**

**Wang X, Chen Y, Hua K. Obstetrics and Gynecology Hospital of Fudan
University, Shanghai, China**

**Study Objective:** To identify risk factors for complications after mesh-
augmented repair for prolapse and evaluate the outcomes of vaginal mesh
removal.

**Design:** Retrospective analysis of the ACS-NSQIP database (Canadian Task
Force Classification II-2).

**Setting:** Tertiary university-affiliated hospital.

**Patients:** Between Aug 2010 and Sep 2015, 289 patients underwent surgery
of transvaginal mesh placed for pelvic organ prolapse.

**Intervention:** Demographics, presenting symptoms, surgical procedures, and
postoperative symptoms were extracted from medical records; removal of
vaginal mesh was used for resolution of presenting symptoms.

**Measurements and Main Results:** A total of 289 subjects were included,
48 of which had complications related to vaginal mesh. The most common
presenting signs and symptoms were mesh exposure 75% (n = 36), pain 42%
(n = 20), and dyspareunia 6% (n = 3). The mean (SD) follow-up was 13.4
(11.8) months. Univariate analysis showed a statistically significant posi-
tive association between exposure rates and the following risk factors: lower
body mass index (BMI) (p = .026), menopause in combination with the use
of hormone replacement therapy (p = .023), estimated blood loss (p = .018),
concurrent total hysterectomy (p < .001). After vaginal mesh removal, 96%
(n = 46) had resolution of all presenting symptoms. Mesh exposure was treated
successfully in 97% of cases, while pain was released in 50% of women.

**Conclusion:** Concomitant total hysterectomy is an independent risk factor
for mesh exposure; removal of vaginal mesh is greatly helpful in relieving
symptom of mesh exposure, mildly helpful in pain.

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**141 Open Communications 10 – Urogynecology**

**11:53 AM – GROUP B**

**Feasibility and Clinical Outcome of a Novel Surgical Technique in the Laparoscopic Management of Vesicouterine Fistulae**

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**WEDNESDAY, NOVEMBER 15, 2017**

**142 Open Communications 11 – Robotics**

**11:00 AM – GROUP A**

**Robot-Assisted Laparoscopic Adenomyomectomy: A Feasible Option of Uterus-Sparing Surgery**


**Study Objective:** To evaluate the feasibility of robot-assisted laparo-
scopic adenomyomectomy for Patients Who Want to Preserve Fertility.

**Design:** A retrospective chart review.

**Setting:** An academic medical center.

**Patients:** Women who underwent robot-assisted laparoscopic adenomyomectomy.

**Intervention:** This study is a retrospective chart review of 23 patients who
underwent robot-assisted laparoscopic adenomyomectomy by a single op-
erator at Seoul St. Mary’s Fibroid Center between May, 2011 and November,
2016. We selected the women who have focal adenomyosis with severe dys-
menorrhea or severe pelvic pain, which is unresponsive to medical therapy,
most of them were nulliparous women who want to preserve their fertility.
We reported the demographic information, the size of the removed adeno-
myosis, preoperative CA 125 and VAS score of dysmenorrhea. We organized
surgical outcomes including the operative time, estimated intraoperative blood
loss, length of hospital stay, and perioperative complications.
Measurements and Main Results: Total 23 women underwent adenomyomectomy by robotics. The patient age was 35.91 ± 4.71 years old, and 91.3 percent of them were nulliparous. The Pre-op CA 125 was 128.46 ± 27.37 and VAS score of dysmenorrhea was 8.9 ± 1.0.

The operation time was 328 ± 126.89 minutes. No case was converted into conventional laparoscopy or laparotomy and all the patients recovered without any major complication. As compared with open adenomyomectomy, Robotic surgery had less estimated blood loss during operation (250 ± 249.6 mL vs 690.91 ± 776.47 mL) and shorter postoperative hospital stay (2.57 vs 4.0 days). The dysmenorrhea and pelvic pain of the patients nearly disappeared after surgery.

Conclusion: Robot-assisted laparoscopic adenomyomectomy would overcome the previous limitations of conventional laparoscopy, and could be an excellent treatment option as a minimally invasive surgery for women who wish to preserve their fertility.

143 Open Communications I1 – Robotics (11:00 AM–12:00 PM)

11:07 AM – GROUP A

Risk Factors for an Extended Length of Stay in Patients Undergoing Robot-Assisted Laparoscopic Myomectomy, a 10-Year Review

Study Objective: To assess pre-operative and operative risk factors and associations for an extended hospital stay in patients undergoing a robot-assisted laparoscopic myomectomy.

Design: Retrospective chart review.

Setting: University Hospital.

Patients: 584 patients undergoing robotic-assisted laparoscopic myomectomy from 6/06–12/16 by one surgeon.

Intervention: All patients were determined to be a can date for a robotic-assisted laparoscopic myomectomy by MRI confirmation that all fibroids were accessible laparoscopically. All patients underwent a robot-assisted myomectomy with 4 total ports. All patients had vasopressin injected into the myoma before serosal incision. All patients were counseled that the surgery was scheduled as outpatient but that they would be evaluated in the recovery room and would be given the option to stay overnight if they were too uncomfortable to go home. Demographic, pre-operative and surgical data were evaluated in relation to hospital length of stay.

Measurements and Main Results: Of the 584 patients, 450 (77.1%) patients went home the same day and 130 (22.3%) were discharged on post-operative day 1 and 4 on post-operative day 2 (0.7%) (Table 1). Age, duration of surgery, EBL, and weight of the myomas were found to be independent related to a greater likelihood of overnight admission. (all p < .001).

<table>
<thead>
<tr>
<th>Results</th>
<th>Same Day Discharge</th>
<th>At least one night stay</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>450</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>37.78 (8.12)</td>
<td>44.61 (14.72)</td>
<td>.000</td>
</tr>
<tr>
<td>BMI (SD)</td>
<td>23.78 (4.47)</td>
<td>25.18 (6.01)</td>
<td>.187</td>
</tr>
<tr>
<td>Parity</td>
<td>0.21 (0.55)</td>
<td>0.20 (0.53)</td>
<td>.701</td>
</tr>
<tr>
<td>Duration (min) (SD)</td>
<td>121.23 (40.23)</td>
<td>167.44 (55.55)</td>
<td>.000</td>
</tr>
<tr>
<td>EBL (cc) (SD)</td>
<td>178.90 (229.4)</td>
<td>301.67 (363.4)</td>
<td>.000</td>
</tr>
<tr>
<td>Fibroid Mass (gm) (SD)</td>
<td>293.12 (230.33)</td>
<td>399.34 (387.41)</td>
<td>.001</td>
</tr>
<tr>
<td>Fibroid number (SD)</td>
<td>3.34 (2.55)</td>
<td>3.71 (3.48)</td>
<td>.066</td>
</tr>
<tr>
<td>Clinical Size of uterus (weeks) (SD)</td>
<td>13.78 (2.87)</td>
<td>13.97 (4.10)</td>
<td>.554</td>
</tr>
</tbody>
</table>

Conclusion: Age, greater blood loss, longer surgical duration and increased mass of the myomas increases the risk that the patient will be admitted overnight. Knowledge of this may help in guiding pre-operative goals and expectations.

144 Open Communications I1 – Robotics (11:00 AM–12:00 PM)

11:14 AM – GROUP A

Moritake T, Ito H, Takamizawa S, Isaka K. Obstetrics and Gynecology, Tokyo Medical University, Tokyo, Tokyo, Japan

Study Objective: This study targeted endometrial cancer patients to investigate whether robotic surgery is affected by obesity or physique. In particular, we investigated the usefulness of robotic surgery for Japanese patients, who often have small physiques, with short stature and low body weight.

Design: Retrospective case-control study.

Setting: Department of Obstetrics and Gynecology, Tokyo Medical University Hospital.

Patients: 116 patients (70 cases and 46 controls) diagnosed as early endometrial cancer according to histopathological and imaging examinations.

Intervention: 70 patients underwent robotic surgery between March 2010 and May 2016. The control group comprised 46 early endometrial cancer patients who underwent open surgery during the same period.

Measurements and Main Results: Patient backgrounds and various perioperative factors between the robotic surgery group (RG) and the open surgery group (OG) were compared. All cases were divided into the five groups according to their BMI (W1 to W5) and their body height (H1 to HS) respectively to comparatively investigate patient backgrounds and various perioperative factors. RG led to markedly smaller blood loss (approximately 1/16), shorter hospital stays (approximately 1/3), and an increase in the number of lymph nodes resected and a significantly lower incidence of postoperative complications (approximately 1/10) than open surgery. No significant differences in patient data were noted between RG and OG. No significant differences were found between any BMI-based subgroups and height-based subgroups.

Conclusion: In our study, which targeted Japanese women with small physiques, no significant differences were noted in perioperative factors in endometrial cancer patients of any weight, ranging from thin to extremely obese. This also suggests that robotic surgery for endometrial cancer offers higher utility than open surgery for patients with smaller physiques in the same manner as it does for patients with larger physiques.

145 Open Communications I1 – Robotics (11:00 AM–12:00 PM)

11:21 AM – GROUP A

Detection of Urinary Tract Injuries by Routine Cystoscopy during Robotic Hysterectomy for Malignant and Complex Benign Pathology
El Neemary D, 1 Parsell N, 1 Greenberg P, 2 Garcia E, 1 Giglio A, 1 Chen Y, 1 Elshabini K, 1 Obstetrics & Gynecology, Jersey Shore University Medical Center, Neptune, New Jersey; 2 Office of Research Administration, Jersey Shore University Medical Center, Neptune, New Jersey

Study Objective: To evaluate the role of routine cystoscopy in the detection of urinary tract injuries in robotic total laparoscopic hysterectomies performed for malignant and complex benign pathology.

Design: A retrospective chart review.

Setting: Two academic affiliated hospitals.

Patients: Patients undergoing robotic-assisted laparoscopic hysterectomy for malignant or complex benign indications by a single gynecologic oncologist between January 2012 and December 2015. Routine cystoscopy was performed for all cases.

Intervention: N/A.

Measurements and Main Results: A total of 212 cases were reviewed for inclusion and six cases of urinary tract injury were identified (3%). Patient ages ranged from 47–90 years old and the average BMI was 31.8 ± 7.7 across all six patients. Three patient injuries were detected intra-operatively and the other 3 were diagnosed postoperatively. Two of the 3 cases of urinary
146 Open Communications 11 – Robotics
(11:00 AM–12:00 PM)

11:32 AM – GROUP B

Perioperative Outcomes of Robotic Hysterectomy With Mini-Laparotomy (RHML) Versus Open Hysterectomy (OH) for Uterus Weighing More Than 250 Grams
Gupta N, McKendrick R, Mohling S, Holcombe J, Boren T, Depausque S. University of Tennessee College of Medicine, Chattanooga, Tennessee

Study Objective: To compare perioperative outcomes in patients undergoing robotic hysterectomy and extraction of specimen via mini-laparotomy (RHML) versus open hysterectomy (OH) when uterus weighs more than 250 grams.

To study the factors determining the length of hospital stay in the 2 groups.

Design: Retrospective Study (Canadian Task Force Classification II-3).

Setting: Academic Community Based Hospital.

Patients: Patients undergoing hysterectomy with uterine size more than 250 grams between years 2012 to 2015.

Intervention: A mini-laparotomy, connecting 2 lateral port sites was performed for removal of specimen after completing hysterectomy.

Measurements and Main Results: A total of 140 patients were divided into 2 groups based on type of surgery performed: RHML (n = 82) and OH (n = 58). Patient factors and perioperative outcomes were compared using Student t-tests and Chi-square analysis. Mean length of stay (RHML=1.4 days; OH=5.4 days); patient age (RHML = 51.5; OH = 46.5), estimated blood loss (EBL) (RHML = 119.9 mL; OH = 547.5 mL) and operative time (RHML = 191.5 min; OH = 162.8 min) were significantly different. No significant differences were noted for patient BMI, comorbidities, intraoperative complications, pathology of uterus and uterus weight. Postoperative complications were significantly different between two groups (RHML = 11.0%; OH = 25.9%; p = .021).

None of the patients stayed less than 24 hours in OH group compared to 59.8% patients in RHML group. Type of procedure (p = .004) and EBL (p = .002) significantly predicted length of stay, accounting for 28.5% of the variance. Age (p = .073), operative time (p = .354) and uterus weight (p = .205) were not predictive of increased length of stay.

Conclusion: Patients undergoing RHML have significantly shorter length of stay, EBL and postoperative complications than OH. The operative time for RHML was longer than OH, but this disadvantage is overcome by the overall decreased length of stay. RHML approach retains all the benefits of using da Vinci, while simultaneously preserving the specimen. This is a safe and feasible technique for tissue extraction where contained morcellation is either not preferred or not available.

148 Open Communications 11 – Robotics
(11:00 AM–12:00 PM)

11:46 AM – GROUP B

Outpatient Morbidity Associated with Concomitant High-Uterosacral Ligament Plication at the Time of Robotic Total Hysterectomy
Sanderson DJ,† Malczewski S, Osman M,‡ Edlib A,§ Obstetrics and Gynecology, Millard Fillmore Suburban Hospital, Williamsville, New York;‡Western New York Urology Associates, Cheektowaga, New York

Study Objective: To compare the associated outcomes of robotic total hysterectomy (RTLH) with high-uterosacral ligament plication (HUSLP) to RTLH during the outpatient post-operative period.

Design: Retrospective cohort study.

Setting: Academic affiliated community hospital.

Patients: Women who had benign robotic hysterectomy with or without concomitant HUSLP performed between 2012 and 2017 were selected for inclusion if they had at least 12 weeks of outpatient follow-up data available.

Intervention: Robotic total hysterectomy for benign indications with or without high-uterosacral ligament plication.

Measurements and Main Results: Except for age (55.9 years vs 48.8 years, p = .02) patient demographics were similar between the HUSLP group (n = 30) and the RTLH group (n = 30). Performance of concomitant HUSLP was associated with a 10% difference in discharge by post-operative day 2 (83% vs 93%, p = .23). Patients in the HUSLP group were more likely to have 3 or more follow-up visits (12 vs 5, p = .04) compared to RTLH patients.
to the RTLH group with a significant difference in new-onset overactive bladder (OAB) or post-operative pelvic pain (5 vs 0, p = .01) amongst these women. Despite this difference there were no patients that required additional narcotics or pelvic floor therapy for pain control. Concomitant HUSLP was not associated with an increased incidence of post-operative urinary retention (5 vs 2, p = .23), office triage phone calls (18 vs 17, p = .79), emergency department (ED) visits (2 vs 3, p = .64), or readmissions (1 vs 1, p = 1.0).

Conclusion: Concomitant high-uterosacral ligament plication is well tolerated but was associated with increased follow-up encounters and complaints of new-onset OAB and post-operative pelvic pain during the study period.

149 Open Communications 11 – Robotics
(11:00 AM–12:00 PM)

11:53 AM – GROUP B

Initial Experience With Crowd Sourced Assessment of Technical Skills
Prosper R, Nimaroff M. Obstetrics and Gynecology, Northwell Health, Manhasset, New York

Study Objective: To analyze initial results and experience with a crowd sourced assessment of technical skills (C-SATS), an intra-operative review system that analyzes robotic surgical dexterity.

Design: Retrospective cohort study.

Setting: Three affiliated academic hospitals.

Patients: Patients who have undergone robotic surgery from a range of surgical specialties including benign gynecology, gynecologic oncology, general surgery, urology and cardiothoracic surgery in 2016.

Intervention: C-SATS, an online service developed to improve performance via intra-operative reviews was introduced at the three hospitals. Using this voluntary peer review system, surgeons were graded on their robotic surgical skills.

Measurements and Main Results: There were 155 robotic cases performed and submitted for on-line review during the study period. Cases included hysterectomies, myomectomies, sacral-colpopexies, gastopectomies, pancreactomectomies, and coronary artery bypass surgeries. There were a total of 36 surgeons that participated in the review process performing a range of robotic surgeries ranging from 1 to 18 cases. Videos submitted varied by specialty with benign gynecology (11 cases), urogynecology (20), gynecologic oncology (60), general surgery (25), cardiothoracic (23) cases. A score for each case review was provided based on several factors including depth perception, robotic control, bimanual dexterity, efficiency, and force sensitivity. The total mean score for the group was 19.962. The gynecologic oncology group had the highest mean score of 20.94 while the general oncology group had the lowest mean score of 19.74.

Conclusion: C-SATS is a new tool to objectively access a robotic surgeon’s capabilities and may assist administrators in initial credentialing and recredentialing of robotic privileges. Additional data is needed to assess the correlation between C-SATS scores and improved patient outcomes.

WEDNESDAY, NOVEMBER 15, 2017

150 Open Communications 12 – Oncology
(12:10 PM–1:10 PM)

12:10 PM – GROUP A

Oncologic Effectiveness and Safety of Nerve-Sparing Radical Hysterectomy in Cervical Cancer
Ditto A, Leone Roberti Maggiore U, Bogani G, Martineilli F, Lopez C, Perotto S, Lorasso D, Raspagliesi F. IRCCS National Cancer Institute, Milan, Italy

Study Objective: Nerve-sparing radical hysterectomy (NSRH) was introduced with the aim to reduce pelvic dysfunctions related to conventional radical hysterectomy (RH). Here, we sought to assess the effectiveness and safety of NSRH in a large population of cervical cancer patients undergoing either primary surgery or neoadjuvant chemotherapy followed by surgery.

Design: Retrospective study.

Setting: Gynecologic oncology center.

Patients: Patients undergoing NSRH and of a historical cohort of patients undergoing conventional RH.

Intervention: Outcomes of consecutive patients undergoing NSRH and of a historical cohort of patients undergoing conventional RH were retrospectively reviewed.

Measurements and Main Results: This study included 325 (49.8%) and 327 (50.2%) undergoing NSRH and RH, respectively. Via a multivariable model, nodal status was the only factor predicting for DFS (HR: 2.09 (95%CI: 1.17, 3.73); p = .01). A trend towards high risk of recurrence was observed for patients affected by locally advanced cervical cancer undergoing neoadjuvant chemotherapy followed by surgery (HR: 2.57 (95%CI: 0.95, 6.96); p = .06). Type of surgical procedures (NSRH versus RH) did not influence risk of recurrence (p = .47). Similarly, we observed that the execution of NSRH rather than RH had not a detrimental effect on OS (HR: 1.19 (95%CI: 0.16, 9.01); p = .87). Via multivariable model, no factor directly correlated with OS; however, histology (rather than squamous) (p = .01), FIGO grade 3 tumor (p = .08) and nodal involvement (p = .06) were associated with worse OS. No difference in early complication rates was observed between the two study groups. Conversely, a significant higher number of late complications was reported in Group RH (n = 37) versus Group NSRH (n = 20; p = 0.20).

Conclusion: Our data suggested that NSRH upholds effectiveness of conventional RH, without increasing recurrence and complication rates but improving pelvic dysfunction rates.

151 Open Communications 12 – Oncology
(12:10 PM–1:10 PM)

12:17 PM – GROUP A

Assessing the Risk of Pelvic and Para-Aortic Nodal Involvement in Apparent Early-Stage Ovarian Cancer Undergoing Retroperitoneal Staging
Bogani G, Martineilli F, Ditto A, Signorelli M, Chiappa V, Leone Roberti Maggiore U, Lorasso D, Raspagliesi F. National Cancer Institute, Milan, Italy

Study Objective: To estimate the prevalence of nodal involvement according to various disease characteristics in order to assess the prognostic advantages to have nodal dissection in apparent early-stage epithelial ovarian cancer (eEOC).

Design: Retrospective study.

Setting: Gynecologic oncology referral center.

Patients: Data of consecutive patients undergoing comprehensive staging for eEOC were retrospectively evaluated. Logistic regression and a nomogram-based analysis were used to assess the risk of nodal involvement.

Intervention: Retroperitoneal staging including pelvic and para-aortic node dissection.

Measurements and Main Results: Overall, 377 patients were included. All patients had nodal dissection including pelvic and para-aortic lymphadenectomy in 366 and 370 cases, respectively. Forty-four (11.7%) patients were upstaged due to nodal involvement. Pelvic and para-aortic nodal metastases were observed in 32/366 (8.7 %) and 42/370 (11.3%) patients, respectively. Nodal involvement was observed in 46/136 (33.8%), 8/24 (33.3%), 15/94 (15.9%), 4/42 (9.5%) and 1/81 (1.2%) patients with serous, undifferentiated, endometrioid, clear cell, and mucinous histology (p < .001). Via multivariate analysis, we observed that poor differentiated tumor, (FIGO grade 3), serous histology and bilateral tumors were
Independently associated with both pelvic and para-aortic nodal involvement (p < .01). The risk of presence of nodal involvement was calculated using a nomogram.

Conclusion: Our data suggested that FIGO grade 3, serous and bilateral eEOC are at high risk of having disease harboring in the lymph nodes. After receiving external validation, our data will help to identify patients deserving comprehensive retroperitoneal staging.

152 Open Communications 12 – Oncology (12:10 PM–1:10 PM)

12:24 PM – GROUP A

Sentinel Node Detection in Endometrial Cancer: A Single Center Experience Over 200 Cases of Hysteroscopic Injection of Tracers

Martinelli F, Ditto A, Bogani G, Signorelli M, Chiappa V, Perrotto S, Scaffa C, Recalcati D, Lorasso D, Raspagliesi F. Gynecologic Oncology, IRCCS National Cancer Institute, Milano, Italy

Study Objective: To analyze detection-rate (DR) and diagnostic accuracy of sentinel nodes (SLNs) mapping following hysteroscopic injection of tracer.

To compare DR and accuracy between tracer used: ICG and Tc99m.

Setting: Gynecologic oncology referral center.

Patients: Consecutive patients with endometrial cancer underwent SLNs mapping following hysteroscopic injection of tracer 2 full surgical staging.

Intervention: Mapping technique consisted in a hysteroscopic peritumoral injection of tracer. Evaluation of DR (overall-bilateral-aortic) and diagnostic accuracy among the entire cohort and comparison between tracer used: ICG and Tc99m.

Design: Retrospective evaluation of Prospectively collected data.

Measurements and Main Results: A total of 202 procedures were performed. Mean age was 60 years (28–82) and mean BMI was 26.8 Kg/m² (15–47). In 133 cases (65.8%) hysterectomy and mapping procedure were performed laparoscopically. The overall-DR of the technique was 93.2% (179/192) (10 cases excluded:9 equipment failure; 1 vagal reaction). Bilateral pelvic mapping was found in 49.7% of cases (107/179) and was more frequent in the ICG group (72.8% vs 53.3%; p < .012). In 50.8% of cases (91/179) SLNs mapped both to pelvic and aortic nodes, and in 5 cases (2.8%) only in the aortic area. Mean number of detected SLNs was 3.7 (1–8).

There were 22 patients (12.3%) with nodal involvement: 10 – (45.5%) macrometastases; 5 – (22.7%) micrometastases; 7 – (31.8%) ITCs. In 6 cases (27.3%) only aortic nodes were positive; in 5 cases (22.7%) both pelvic and aortic nodes and in 11 cases (50%) only pelvic area was involved. Three false negative result were found, all in the Tc99m group. All had isolated aortic metastases with negative pelvic nodes.

Overall sensitivity was 86.4% and overall negative predictive value (NPV) was 98.12%.

No differences in terms of overall-DR, overall-sensitivity and overall-NPV were found between the two tracers.

Accuracy of hysteroscopic SLNs procedure

<table>
<thead>
<tr>
<th></th>
<th>Global (202)</th>
<th>Tc99m (135)</th>
<th>ICG (67)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluded</td>
<td>10</td>
<td>8</td>
<td>2</td>
<td>.397</td>
</tr>
<tr>
<td>DR</td>
<td>179/192 (93.2%)</td>
<td>12/127 (94.5%)</td>
<td>59/65 (90.7%)*</td>
<td>.495</td>
</tr>
<tr>
<td>Overall Sensitivity</td>
<td>19/22 (86.4%)</td>
<td>16/19 (84.2%)</td>
<td>3/3 (100%)</td>
<td>.629</td>
</tr>
<tr>
<td>Overall NPV</td>
<td>157/160 (98.12%)</td>
<td>98/101 (97%)</td>
<td>56/56 (100%)</td>
<td>.527</td>
</tr>
<tr>
<td>Overall FN rate</td>
<td>3/22 (13.4%)</td>
<td>3/19 (15.8%)</td>
<td>0/3 (0%)</td>
<td>.629</td>
</tr>
</tbody>
</table>

*After first 16 cases thanks to equipment improvement DR reached 95.9% (47/49).

Conclusion: Hysteroscopic injection of tracer for SLNs mapping in endometrial cancer is as accurate as cervical injection with a higher DR in the aortic area. ICG improved bilateral DR. Further investigation is warranted on this topic.

153 Open Communications 12 – Oncology (12:10 PM–1:10 PM)

12:31 PM – GROUP A

Risk Factors for Malignancy at Hysterectomy or Myomectomy for Benign Indications

Alvi F A, Glaser LM, Kim A, Tolentino J, Tsai S. Obstetrics and Gynecology, Northwestern University Feinberg School of Medicine, Chicago, Illinois

Study Objective: To identify risk factors for malignancy at time of hysterectomy or myomectomy performed for benign indications.

Design: Retrospective case-control study.

Setting: Urban, academic tertiary care center.

Patients: All patients undergoing hysterectomy or myomectomy for benign indications between January 1, 2010 and December 31, 2014.

Intervention: Charts were reviewed for relevant demographic, clinical, and pathologic data.

Measurements and Main Results: A total of 1568 hysterectomies or myomectomies were performed during the study period, excluding patients with known pre-malignant or malignant gynecologic conditions. Seventeen patients were found to have unanticipated gynecologic malignancies. Malignancies included 9 endometrioid adenocarcinomas, 4 leiomyosarcomas (LMS), 1 endometrial stromal sarcoma (ESS), 1 serous tubal intraepithelial carcinoma (STIC), 1 fallopian tube adenocarcinoma in situ, and 1 microinvasive cervical carcinoma. Five patients were found to have “borderline” tumors, defined as those not meeting criteria for benign or malignant. Among these, 3 were found to have smooth muscle tumors of uncertain malignant potential (STUMP) and 2 had an atypical leiomyoma. None of these specimens were morcellated. The overall rate of gynecologic malignancy in the study population was 1.02%. The rate of leiomyosarcoma with a preoperative indication of benign leiomyoma was 0.26%. Compared to controls, patients diagnosed with incidental malignancy were older (M = 51.0 ± 10.8 versus M = 45.4 ± 10.3, p < .05), and more gravid (M = 3.1 ± 2.6 versus M = 2.0 ± 1.9, p < .05). Post-menopausal status (OR 2.44; 95% confidence interval [CI], 1.11–5.35; p < .05), prior cancer history (OR 4.44; 95% CI, 1.85–10.67; p < .05), and primary indication of risk-reducing surgery (OR 4.44; 95% CI, 1.85–10.67; p < .05) were all independently associated with a diagnosis of malignancy on pathology. The rate of malignancy at time of risk-reducing surgery was 7.50%.

Conclusion: Gynecologic malignancy may be discovered at time of surgery for benign indications. Associated risk factors include age, gravidity, post-menopausal status, and a primary surgical indication of risk reduction.
Subjective Ultrasound Assessment and the Adnex Model to Differentiate Between Benign and Malignant Ovarian Tumors

Leone Roberti Maggiore U1, Chiappa V1, Ferrero S2, Bogani G3, Perotto S1, Martinelli F1, Ditto A4, Raspagliesi F5, Gynecologic Oncology Unit, IRCCS National Cancer Institute, Milan, Italy; 2Academic Obstetrics and Gynecology Unit, IRCCS AOU San Martino-IST, Genoa, Italy

Study Objective: Recently, the International Ovarian Tumor Analysis (IOTA) has developed a mathematical multiclass model (“the ADNEX model”) that is able to discriminate between benign and malignant tumours. This study aimed to compare subjective ultrasound assessment and the ADNEX model to differentiate benign and malignant ovarian tumors.

Design: Retrospective study.

Setting: Gynecologic oncology referral center.

Patients: Women with ovarian tumors who underwent surgery for these lesions.

Intervention: All patients underwent both transabdominal and transvaginal examination to assess tumor morphology and extent of the disease. Two expert sonographers performed all the scans. The ultrasound examiner assessed tumor morphology according to the IOTA protocol. Finally, the sonographer predicted the tumor as benign or malignant. This assessment was based on knowledge from previously published IOTA studies and was given without knowledge of the results of the ADNEX model.

Accuracy of the ADNEX was calculated for the cut-offs of 3% (ADNEX-3%) and 10% (ADNEX-10%), respectively.

Measurements and Main Results: A total of 207 women were included in the study. Subjective ultrasound evaluation had a significantly higher accuracy (91.8%) in discriminating benign and malignant ovarian tumors in the study. Subjective ultrasound evaluation had a significantly higher accuracy with ADNEX-3% and ADNEX-10%, respectively. The Yates continuity correction was used to compare the accuracy of subjective evaluation with the ADNEX model.

Conclusion: This study shows that subjective ultrasound assessment performed by an expert sonographer is more accurate than ADNEX model using different cut-off points in differentiating benign and malignant ovarian tumors. Future prospective studies with larger population of patients should confirm these preliminary findings.

154 Open Communications 12 – Oncology (12:10 PM–1:10 PM)

12:42 PM – GROUP B

Nerve-Sparing Anatomical Radical Hysterectomy with Robotic Fascia Space Dissection Technique (FSDT) Versus Laparoscopic FSDT in Early Cervical Cancer: A Case-Control Study

Wang Y, Chen G, Xu H, Liang Z. Department of Obstetrics and Gynecology, Southwest Hospital, Third Military Medical University, Chongqing, China

Study Objective: To report our experience with robotic fascia space dissection technique (R-FSDT) comparing perioperative results with a series of laparoscopic fascia space dissection technique (L-FSDT) for nerve-sparing radical hysterectomy in early cervical cancer.

Design: Data from patients were prospectively collected and compared (Classification: Canadian Task Force classification II-1).

Setting: University teaching hospital.

Patients: From July 2014 to March 2017 all cervical cancer patients with preoperative FIGO stage IA2 to IB1 were assessed at preoperative magnetic resonance imaging scan and clinically confirmed by investigation under anesthesia, complying strictly with the FIGO criteria. Surgical and post-surgical data of performed FSDT procedures were collected.

Intervention: Nerve-sparing radical hysterectomy with R-FSDT and L-FSDT for early cervical cancer were performed.

Measurements and Main Results: Fifty-four women underwent nerve-sparing radical hysterectomy with R-FSDT and 62 patients were submitted to nerve-sparing radical hysterectomy with L-FSDT (control subjects) for early cervical cancer. The median estimated blood loss was 250 mL in the cases and 200 mL in the control subjects (p = .72). The median operative time, calculated from the beginning of intraperitoneal procedures to skin closure, was 246 minutes in the cases and 126 minutes in the control subjects (p = .03). The time taken to obtain a post-void residual urine volume of less than 50 mL after removal of the urethral catheter was 7.4 ± 2.35 d (5–18 d) in R-FSDT group and was 6.75 ± 2.73 d (5–15 d) in L-FSDT group (p = .25). The median time to discharge from the hospital was postoperative days 6 (range, 6–12) and 5.6 (range, 6–9) for R-FSDT and L-FSDT, respectively (p = .31).

Conclusion: The few differences we registered do not seem to be clinically relevant, thus making the 2 procedures comparable. Further prospective trials are needed to confirm our results.

155 Open Communications 12 – Oncology (12:10 PM–1:10 PM)

12:49 PM – GROUP B

Assessment and Analysis of Difference for Surgical Outcomes, Intraoperative and Postoperative Complications Associated With Performing Complete Surgical Staging Pelvic and Para-Aortic Node Dissections for Endometrial Cancer: Laparoscopic Versus Robot, a Case Match Control Study

Lim PC1, Kang EY2, Kellum BL1. 1Gynecologic Oncology Robotic Surgery, Center of Hope Renown Regional Medical Center, Reno, Nevada; 2University of Nevada School of Medicine, Reno, Nevada

Study Objective: To define and determine a difference in the type of intraoperative and postoperative outcomes for laparoscopic versus robotic pelvic and para-aortic node dissection for complete surgical staging for endometrial cancer.

Design: Case Matched study.

Setting: Academic affiliated tertiary hospital.

Patients: Patients underwent complete surgical staging consisting of pelvic and para-aortic node dissection either via laparoscopic (LPLND) or robotic-assisted surgery (RPLND) from 1998 to 2017 for endometrial cancer.

Intervention: Surgical outcomes and complications were graded based on Common Terminology of Adverse Events (CTAE) was assessed for LPLND and RPLND cohort. A two tail test was performed to determine if there was a difference.

Measurements and Main Results: A total of 309 patients underwent thorough surgical staging; pelvic and para-aortic node dissection from 1998–2017: LPLND consisted of 175 (56%) and RPLND consisted of 134 (44%). The average age for LAPND 60.5 and RPLND was 62.6. BMI was 29.9 and 28.5 for LPLND and RPLND respectively. Significant findings were associated with: increased operative time (175.7 vs. 159.3 minutes), blood loss (193.6 vs 77 ml), higher pelvic (24.5 vs 17.8) and para-aortic nodes (18.4 vs 11.6) harvested, and longer hospitalization (3.02 vs 1) for LPLND compared to RPLND respectively. The incidence of complication was 17% (30/175) and 10.4% (14/134), CTAE grade 3–4 complications was 6.8% (12/175) and 2.98% (4/134) and for grade 1–2 10.2% (18/175) and 7.4% (10/134) for LPLND and RPLND group respectively.

Conclusion: Robotic surgical staging pelvic and para-aortic node dissection for endometrial cancer was noted to have decreased operative time, blood loss, hospitalization, overall complication rate and CTAE grade 3–4 complications. However, operative time, blood loss and hospitalization were the only surgical outcomes found to be significantly less when compared to laparoscopic group.
Open Communications 12 – Oncology
(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

157 Incidence of Sarcoma at Surgery for Presumed Uterine Fibroids
Rey Valzacchi GM, Taboada MV, Rosas P, Viglierchio VT, Gil SJ, Gogorza SJ. Gynecology, Hospital Italiano, Buenos Aires, Argentina

Study Objective: To determine the incidence of sarcoma at surgery for presumed uterine fibroids in our hospital.

Design: Retrospective cohort study.

Setting: Academic hospital, third level of clinical care.

Patients: 1398 patients undergoing surgery between 2006 and 2016. 1350 were premenopausal women, and 48 were postmenopausal.

Intervention: In the group of premenopausal women, 256 laparoscopic myomectomies, 406 laparoscopic myomectomies, 149 hysteroscopic myomectomies, and 540 hysterectomies were performed. In the group of postmenopausal women, 13 hysteroscopic myomectomies and 34 hysterectomies were performed. Power morcellation was only used in laparoscopic myomectomy.

Measurements and Main Results: The mean age of patients was 41. Anatomopathological diagnosis of sarcoma was made in 3 cases. All were premenopausal women, laparoscopic hysterectomy had been performed in 2 of them, and laparoscopic myomectomy in the other one. 2 premenopausal patients had a diagnosis of atypical leiomyoma, and another one of PEComa. There were 27 cases of cellular leiomyomas, 42 of adenomyosis and the rest were all leiomyomas. Considering all patients, the incidence of sarcoma was 2.15 per 1000 surgeries (1 in 466), and considering only the ones in whom a laparoscopic or laparotomy myomectomy was performed, the incidence was 1.51 per 1000 surgeries (1 in 662). We decided not to include in the study one case in which the preoperative suspicion of malignancy was high due to characteristics of the tumor in magnetic resonance imaging.

Conclusion: In 2014, the Food and Drug Administration estimated that approximately 1 in 350 women undergoing hysterectomy or myomectomy for the treatment of fibroids was found to have an unsuspected uterine sarcoma, and warned against the use of laparoscopic power morcellators due to the risk of spreading cancerous tissue. In our hospital (a referral center) the incidence was 1.51 per 1000 surgeries (1 in 662). We decided not to include in the study one case in which the preoperative suspicion of malignancy was high due to characteristics of the tumor in magnetic resonance imaging.

Open Communications 13 – Reproductive Medicine
(12:10 PM - 1:10 PM)

12:17 PM – GROUP A

159 Anatomy of Cesarian-Induced Isthmoceles: Clinical Implications
Cood JE,1 Fugett JH II,1 Wolfe T,1 Castrodale D,1 Bennett H,1 Shroit J,2 Castillo-Saenz L,2 Garza-Leal F.1 Pathology Laboratory for Translational Medicine, West Virginia University School of Medicine, Morgantown, West Virginia; 2Department of Obstetrics and Gynecology, Universidad Autónoma de Nuevo León Facultad de Medicina, Monterrey, Nuevo Leon, Mexico

Study Objective: Evaluate the anatomy of Cesarian section healing.

Design: Prospective single investigational site study.

Setting: International university medical center.

Patients: 204 premenopausal women who underwent a benign hysterectomy.

Intervention: Subjects underwent a hysterectomy due to uterine bleeding, fibroids and/or adenomyosis. Uteri were midline sagittally sectioned to pathologically evaluate the lower segment/endo cervix. The Cesarian section region's anatomy was documented including the presence of inner and outer nonunion healing.

Measurements and Main Results: The uteri weighed 136 ± 51.8 g and sounded 6 cm to 12 cm. Within these uteri, 134 (66% of subjects) had a grossly identifiable C-section scar(s). Of these, two (1.5% of identifiable C-section scars) had transmurally intact incisional healing with minimal wall narrowing (complete union healing). One hundred and eleven (82.8%) had isolated inner nonunion healing with the formation of variably prominent Cesarian-induced isthmoceles. Five (3.7%) had isolated outer nonunion healing without isthmocele formation. Fourteen (10.5%) C-section scars had both inner and outer nonunion healing. Two (1.5%) had complete transmural nonunion healing with localized loss of anterior lower segment wall integrity. The inner and outer nonunion healing, when present, involved on average 39 ± 23% (range: 5–90%) and 27 ± 17% (range: 10–60%) of the wall thickness, respectively. Due to the nonunion healing, the resultant wall thickness at the C-section site was 5.6 ± 2.60 mm (range: 0.0 – 14.2 mm). When compared to the adjacent uterine wall, the nonunion healing resulted in an approximately 70 ± 16% thinner wall.

Conclusion: Following a Cesarian section, a high-incidence of architectural healing-related changes was identified, including notable regional wall thinning (5.6 ± 2.60 mm) that resulted from inner (82.8%), outer (3.7%), combined (10.5%) or complete (1.5%) nonunion healing. While...
Chronic Endometritis and Infertility: a Hidden, Frequent and Mysterious Association

Fonseca EC, Falcão-Junior JOA, Mendonça HC. Gynecology & Obstetrics, Mater Dei Hospital, Belo Horizonte, Minas Gerais, Brazil

Study Objective: To evaluate the prevalence of chronic endometritis in infertile patients through the immunohistochemistry of endometrial biopsies obtained by hysteroscopy.

Design: Cross-sectional study.

Setting: Private tertiary hospital in Brazil.

Patients: 22 infertile patients referred for hysteroscopy for several reasons.

Intervention: Random endometrial biopsies obtained by hysteroscopy (all performed by the same surgeon) and referred for pathological examination (hematoxylin-eosin) and immunohistochemistry.

The aim of the immunohistochemistry was the detection of plasma cells (CD-138, MUM-1) and / or lymphocytes (ALC-CD 45-RB, CD-56, CD-20 and CD-3).

The immunohistochemistry was performed manually and / or automated in Benchmark XT Ventana / Roche model, with heat-induced antigen reactivity in thermodemo-pads com with EZPREP buffer, accompanied by control stains.

Measurements and Main Results: All of them (100%) presenting normal aspect endometrium in hysteroscopy.

The study of chronic endometritis was negative in 22/22 (100%) of the endometrial biopsies studied through hematoxylin-eosin.

When evaluated through immunohistochemistry the presence of chronic endometritis was 9/22 (40.9%).

Conclusion: The prevalence of chronic endometritis detected by immunohistochemistry in our study was 40.9%, which is extremely high and surprising. Chronic endometritis may be suspected by some hysteroscopic aspects such as micro-polyps, stromal edema and hyperemia. However, the endometrial appearance in hysteroscopy may be normal even in the presence of chronic endometritis, which corroborates our finding of 100% normal hysteroscopies. The anatomopathological diagnosis is due to the detection of plasma cells in the endometrial stromal but hematoxylin-eosin staining has a low diagnostic rate (<10%).

Immunohistochemical stain is capable of detecting plasma cell specific surface antigens and showed higher sensitivity for diagnosing chronic endometritis.

Therefore, the diagnosis of chronic endometritis based on the hysteroscopic and anatomopathological aspects is not very effective and the immunohistochemistry considerably increases the diagnostic capacity.

Considering the high prevalence of chronic endometritis, which is associated with infertility and recurrent implantation failures there is a need for new studies comparing gestational outcomes after antibiotic treatment.
The aforementioned correlations were positive but non-significant in AM group. No correlation was observed between MRI and US leiomyomata volume and EBL in all groups.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>MRI</th>
<th>P</th>
<th>US</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopic Myomectomy</td>
<td>Rh o</td>
<td>&lt;0.001</td>
<td>Rh o</td>
<td>NS</td>
</tr>
<tr>
<td>Leiomyomata volume vs.</td>
<td>Rh o</td>
<td>0.87</td>
<td>0.02</td>
<td>NS</td>
</tr>
<tr>
<td>Operating time</td>
<td>Rh o</td>
<td>0.51</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Leiomyomata weight</td>
<td>Rh o</td>
<td>0.45</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Robotic myomectomy</td>
<td>Rh o</td>
<td>0.80</td>
<td>0.03</td>
<td>NS</td>
</tr>
<tr>
<td>Leiomyomata volume vs.</td>
<td>Rh o</td>
<td>0.82</td>
<td>0.01</td>
<td>NS</td>
</tr>
<tr>
<td>Operating time</td>
<td>Rh o</td>
<td>0.40</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Leiomyomata weight</td>
<td>Rh o</td>
<td>0.64</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Abdominal myomectomy</td>
<td>Rh o</td>
<td>0.46</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

**Conclusion:** Pre-operative pelvic MRI in patients undergoing LM or RM strongly correlates with operating time and leiomyomata weight and predicts conversion to laparotomy.

162 Open Communications 13 – Reproductive Medicine
(12:10 PM - 1:10 PM)

Minimally Invasive Abdominal Cervical Compared to Laparotomy: a Comparison of Surgical and Obstetric Outcomes
Menderes G,1 Kim S,1 Klein M J,2 Hill A,3 Cross S,1 Bhatiyar OM,1 Azodi M,1 Obstetrics, Gynecology, and Reproductive Sciences, Yale University School of Medicine, New Haven, Connecticut; 2Obstetrics and Gynecology, Wake Forest University School of Medicine, Winston-Salem, North Carolina; 3Obstetrics and Gynecology, St. Joseph’s Hospital and Medical Center, Phoenix, Arizona

**Study Objective:** The objective of this study is to report surgical and obstetric outcomes of patients following abdominal cerclage placement through either minimally invasive or open techniques.

**Design:** Retrospective cohort study.

**Setting:** Referral centers specializing in high risk pregnancy and minimally invasive gynecologic surgery.

**Patients:** Women who underwent abdominal cerclage placement either during pregnancy or prior to conception.

**Intervention:** One cohort of women had their abdominal cerclage placed using traditional laparoscopy or robotic-assisted laparoscopy. The second cohort consisted of women whose abdominal cerclage was placed through laparotomy. Electronic medical charts were reviewed to collect baseline demographic and pre-procedure obstetric information, as well as surgical and subsequent obstetric outcomes.

**Measurements and Main Results:** Eleven minimally invasive and nine open abdominal cerclages were performed during the study period. Seven of the minimally invasive and two open cerclages were done outside of pregnancy. Average operative time was longer in the minimally invasive cohort. Estimated blood loss was typically lower in the minimally invasive group. Length of hospital stay was shorter in the minimally invasive group. Obstetric outcomes were similar between the two cohorts, with a total of nine live births in the minimally invasive group and seven live births in the open group.

**Conclusion:** Minimally invasive abdominal cerclage is a safe alternative when performed by a surgeon with appropriate training and technical skills, and obstetric outcomes are comparable to those after open abdominal cerclage.
investigation with the determination of a wider range of markers to to evaluate the influence of myoma on reproduction.

164 Open Communications 13 – Reproductive Medicine
(12:10 PM - 1:10 PM)

Myomectomy in Patients with Uterine Myoma after Previously Performed Ineffective Uterine Artery Embolization (UAE), MRI – Guided Focused Ultrasound Ablation
Porotikova I, Gavrilova T, Demura T, Stepanian A, Adamyan L.
1Department of Operative Gynecology, Federal Research Center for Obstetrics, Gynecology, and Perinatology Ministry of Healthcare of the Russian Federation, Moscow, Russian Federation; 2Academia of Women’s Health and Endoscopic Surgery, Atlanta, Georgia

Study Objective: To estimate clinical and morphological changes of the reproductive system in women who have undergone previously ineffective UAE, MRgFUS ablation, and myomectomy.


Setting: Department of Operative Gynecology, Federal Research Center

Patients: Women with symptomatic uterine fibroids, previously treated with UAE, MRgFUS ablation, and myomectomy.

Intervention: Laparoscopic myomectomy was performed in all these cases. Measurements and Main Results: 110 women were included in the study. Group I: 32 patients with a history of UAE; Group II: 26 patients with a history of MRgFUS ablation; and Group III: 52 patients with previous myomectomy. The age of the patients ranged between 22 and 40 years. The indications for additional treatment (myomectomy or hysterectomy) were: menorrhagia (80.2%), pelvic pain (70%), and infertility (95%). 40% and 26% of patients had degenerative changes in the uterine fibroids after UAE and MRgFUS respectively. Patients after UAE were found to have secondary changes throughout the uterine body, while patients of the second group had such changes in the fibroids themselves. Increased bleeding in the UAE group was observed during surgery in 46.0% of patients, compared with 11.5% in the group after MRgFUS. Morphological findings correlated with the clinical data. Necrosis of myoma was detected in 55.2% and edema in 44.8% of women in the group I and in 34.6% and 38.5% of women in group II respectively. A statistically significant number of the largest growth areas and calcification was detected in the group after UAE [p = 0.036].

Conclusion: Laparoscopic myomectomy is a safe and effective method for treatment of symptomatic uterine fibroids. Laparoscopic myomectomy is a safe and effective method for treatment of symptomatic uterine fibroids.

165 Open Communications 13 – Reproductive Medicine
(12:10 PM - 1:10 PM)

Do Young Women Regret Their Hysterectomy? a
Suen MWH, Bougie O, McDonald SL, Arendas K, Chen I, Singh SS. Department of Obstetrics & Gynecology, University of Ottawa, Ottawa, Ontario, Canada

Study Objective: To determine if young women regret a hysterectomy to manage a benign gynecologic condition.

Design: Cross-sectional survey.

Setting: Tertiary level academic centre.

Patients: Patients aged 35 or under with hysterectomy performed by a single surgeon for benign indications between January 1, 2008 and December 31, 2015.

Intervention: A validated decision regret survey and patient health questionnaire were administered.

Measurements and Main Results: Of patients who met inclusion criteria, 22/26 contacted patients agreed to participate and completed the study (response rate 84.6%). No differences in group mean parity, BMI or indication for surgery (p > .05) existed between contacted and non-contacted patients, except a younger age in the latter group (mean difference 2.5 years, p < .05). Median age at time of hysterectomy was 33 years (range 27–35). Median time from hysterectomy to participation was 3 years (range 0.5–8). The most common indications for hysterectomy were chronic pain (58.3% of cases) and heavy bleeding (33.3% of cases). Of the 19/22 participants who disagreed or strongly disagreed to the statement “I regret the choice that was made”, 8 were nulliparous and 9 still had medical management options available. 3/22 participants neither agreed nor disagreed to this statement. 77.3% of participants or their partners did not have a prior form of permanent contraception. 95.5% of participants agreed or strongly agreed that “I would go for the same choice if I had to do it over again”. Most participants (68.2%) felt the decision for hysterectomy was shared between the physician and participant; no participants noted that the decision was made mostly by the physician or by the physician only.

Conclusion: The decision to pursue hysterectomy for benign conditions among young women is complicated by concern for patient regret. This pilot study is the first to suggest that patients who are young, nulliparous, or haven’t failed all forms of medical management, do not regret their decision for hysterectomy.

Wednesday, November 15, 2017

166 Open Communications 14 – Pelvic Pain
(2:15 PM - 3:15 PM)

Laparoscopic Neurolysis for Deep Endometriosis
Infiltrating Pelvic Wall and Somatic Nerves: a Prospective Cohort Study on 382 Patients
Ceccaroni M, Clarizia R, Roviglione P, Bruni F, Verrazzio P. Department of Obstetrics and Gynecology, Gynecologic Oncology and Minimally-Invasive Pelvic Surgery, International School of Surgical Anatomy, Sacred Heart Hospital, Negrar, Verona, Italy

Study Objective: Review efficacy and feasibility of laparoscopic decompression and neurolysis for cases of endometriosis involving sacral plexus and/or somatic nerves.

Design: Prospective case-series, single-centre, single-surgeon study.

Setting: Department of Obstetrics and Gynecology, Gynecologic Oncology and Minimally-Invasive Pelvic Surgery, International School of Surgical Anatomy, Sacred Heart Hospital, Negrar, Verona - Italy.

Patients: 382 patients with deep infiltrating endometriosis with sciatica and ano-genital pain treated by laparoscopic neurolysis of sacral roots and somatic nerves.

Intervention: Two different laparoscopic transperitoneal approaches were employed to get access to the lateral pelvic wall in case of: (A) deep pelvic endometriosis with rectal and/or parametral involvement extending to pelvic wall and somatic nerve (medial approach); (B) isolated endometriosis of pelvic wall and somatic nerves (lateral approach). All the procedures were performed by a gynecologic pelvic surgeon skilled in neuro-anatomy (M.C.).

Measurements and Main Results: All the patients had nervous compression of somatic structures and infiltration of their fascial envelope, whereas in 76 patients (19.8%) the same structures were deeply infiltrated, towards the assonal and peri-neval planes. In all patients a surgical whole decompression and partial neurolysis of nervous structures was performed, where in 76 (19.8%) cases a complete neurolysis was required. Complete relief from neurologic symptoms was achieved in all patients at 6 month after surgery, whereas post-operative neuritis was reported in 77 patients (20.0%)
and successfully treated with corticosteroids or/and anti-epileptic and opioids drugs.

**Conclusion:** Pelvic wall spread of deep infiltrating endometriosis might be more usual than thought. Laparoscopic retroperitoneal nerve-sparing approach to endometriosis extending to the pelvic wall with somatic nerve compression proved to be a feasible and safe procedure, effective in pain relief, recovery of impaired neurological functions and neuromotoric impairment motoric symptoms of the pelvis and the leg related to endometriosis. It should be limited to referral laparoscopic centres lead by surgical neuro-anatomy skilled surgeons.

**Open Communications 14 – Pelvic Pain (2:15 PM - 3:15 PM)**

**2:22 PM – GROUP A**

**Incidence of Adenomyosis in Chronic Pelvic Pain Patients Undergoing Hysterectomy**

Nadella SP, Oshodi C, Castellanos ME. Obstetrics and Gynecology, St. Joseph’s Hospital and Medical Center, Phoenix, Arizona

**Study Objective:** To determine the incidence of adenomyosis in a chronic pelvic pain population, and to identify risk factors that may correlate with the presence or lack of adenomyosis.

**Design:** Retrospective cohort study.

**Setting:** Academic affiliated community hospital.

**Patients:** Patients with chronic pelvic pain undergoing hysterectomy between April 2014 and December 2016 by minimally invasive trained gynecologists.

**Intervention:** Patient data was collected and statistically compared using independent chi-squared, t-tests, and continuous variable regression.

**Measurements and Main Results:** 101 hysterectomies were identified, with the incidence of adenomyosis being 50.5% (n = 51). Comparison groups were well matched with no statistical difference in the incidence of other pathology including endometriosis, leiomyomata, and endometritis. Age and total uterine weight positively predicted the presence of adenomyosis via continuous variable regression (p = .006 and .018 respectively). There was a statistically significant higher proportion of smokers, as well as patients with a history of C-Section in the adenomyosis group (37.3% vs 12.5%, p = .005 and 37.3% vs 16.7%, p = .022 respectively). Odds of adenomyosis were 1.6 times higher (95% CI 1.2 – 2.5) in patients reporting deep pain during intercourse and 1.34 times higher (95% CI 1.9 – .92.2) for patients with heavy menstrual bleeding. The presence of adenomyosis decreased by 87% for patients reporting IBS. (OR = 0.13 (95% CI 0.018 – 0.893).

**Conclusion:** Our study demonstrates the incidence of adenomyosis in patients undergoing hysterectomy for chronic pelvic pain to be 50.5%, likely higher than previously reported. Deep pain with intercourse may be associated with adenomyosis. Smoking, prior C-section, overflow bleeding, larger uterus, or advanced age was more common in patients with adenomyosis, agreeing with prior studies. In this way, patients with risk factors may be counseled on their likelihood of adenomyosis as well as the potential to improve pelvic pain after hysterectomy.

**Open Communications 14 – Pelvic Pain (2:15 PM - 3:15 PM)**

**2:29 PM – GROUP A**

**Does Patient Satisfaction Correlate with the Presence or Absence of Chronic Pelvic Pain?**

Guha P, Espinal M, DeStephano CC, Gajjarawala SP, Pettit PD, Chen AH. Medical and Surgical Gynecology, Mayo Clinic, Jacksonville, Florida

**Study Objective:** Determine whether post-appointment patient satisfaction differs between patients presenting with chronic pelvic pain versus patients without pelvic pain.

**Design:** Prospective quality improvement cohort study using the patient satisfaction questionnaire (PSQ-18).

**Setting:** Medical and Surgical Gynecology Clinic at Mayo Clinic, Florida.

**Patients:** New patients (n = 140) presenting to clinic for the first time between September 2016-February 2017.

**Intervention:** The PSQ-18 was distributed by providers at the end of a new consult. In order to keep the surveys anonymous, pink questionnaires were given to patients with pelvic pain greater than 6 months (chronic pelvic pain), yellow to patients with pelvic pain less than 6 months and green to non-pain patients. PSQ-18 questions are divided into 7 categories of health care including general satisfaction, technical quality, interpersonal manner, communication, financial, time with doctor and access and convenience. Treatment recommendations including observation, medical, surgical or physical therapy were also recorded.

**Measurements and Main Results:** A total of 140 PSQ-18 were collected: 93(66.43%) green (non-pain), 34(24.29%) pink (pain >6 months) and 13(9.29%) yellow (pain <6 months). There was a statistical difference in mean (p = .04) and median (p = .03) scores in the financial aspect category among the three groups.

<table>
<thead>
<tr>
<th>PSQ-18 categories</th>
<th>Overall</th>
<th>Green</th>
<th>Yellow</th>
<th>Pink</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>General satisfaction</td>
<td>5</td>
<td>5</td>
<td>4.5</td>
<td>4.5</td>
<td>0.21</td>
</tr>
<tr>
<td>Technical quality</td>
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<td>4.75</td>
<td>4.25</td>
<td>4.5</td>
<td>0.18</td>
</tr>
<tr>
<td>Interpersonal manner</td>
<td>5</td>
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<td>5</td>
<td>5</td>
<td>0.34</td>
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<td>Communication</td>
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<td>5</td>
<td>4.5</td>
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</tr>
<tr>
<td>Financial aspect</td>
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<td>4</td>
<td>3.5</td>
<td>3.5</td>
<td>0.03</td>
</tr>
<tr>
<td>Time with doctor</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>0.96</td>
</tr>
<tr>
<td>Access and convenience</td>
<td>4.25</td>
<td>4.25</td>
<td>4.25</td>
<td>4.125</td>
<td>0.85</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>4.44</td>
<td>4.44</td>
<td>4.44</td>
<td>4.36</td>
<td>0.43</td>
</tr>
</tbody>
</table>

* Kruskal Wallis test.

There was no significant difference between the treatments received in the three groups with the exception of physical therapy (p = .006) in 62.5% of the yellow group, 47.3% in the pink and 19% in the green group.

**Conclusion:** Among all gynecologic patients, those who received a recommendation for surgery had significantly higher satisfaction than patients presenting to clinic who were recommended non-surgical treatments. Chronic pelvic pain patients report less satisfaction with financial aspects of their care.
Prevalence and Distinguishing Characteristics of Widespread Pain in Women with Pelvic Pain

Till SR, Schrepf AD, Gallagher T, Locier A, As-Sanie S. 1Department of Obstetrics and Gynecology, University of Michigan, Ann Arbor, Michigan; 2Department of Anesthesiology, University of Michigan, Ann Arbor, Michigan; 3College of Medicine, Central Michigan University, Mount Pleasant, Michigan; 4Medical School, University of Michigan, Ann Arbor, Michigan

Study Objective: Patients with centralized pain syndromes, characterized by widespread pain and co-occurring somatic symptoms, report a higher incidence of failure to respond to traditional therapies for chronic pelvic pain (CPP). Thus, we sought to evaluate the prevalence of widespread pain in women with CPP and examine differences in pelvic pathology, pain severity, function, and morbidity according to degree of widespread pain.

Design: Retrospective cohort study.

Setting: Tertiary CPP referral clinic.

Patients: New patients with CPP.

Intervention: All new CPP patients complete a battery of validated questionnaires, including a pain body map. The body map was divided into five regions and the degree of widespread pain was defined as localized (0–1 regions), moderate spread (2–3 regions), and widespread (4–5 regions). Validated measures of pain (pain severity, interference, dyspareunia, dysmenorrhea), mood (depression, anxiety), pain exacerbation (by physical activity, visceral stimuli, and environmental stress), and pain morbidity (fatigue, sleep impairment) were collected.

Measurements and Main Results: The study included 298 women with CPP, of which 156 (52.3%) reported a history of surgically confirmed endometriosis. Based on the pain body map, 43.6% (n = 134) moderate spread, and widespread (4–5 regions). Validated measures of pain (pain severity, interference, dyspareunia, dysmenorrhea), mood (depression, anxiety), pain exacerbation (by physical activity, visceral stimuli, and environmental stress), and pain morbidity (fatigue, sleep impairment) were collected.

Conclusion: Degree of widespread pain is associated with pain severity and multiple measures of pain morbidity, while surgically confirmed endometriosis had limited association. Identifying patients with widespread pain may suggest a component of central pain amplification and help guide treatment recommendations.

Elaqolix Treatment in Women with Heavy Menstrual Bleeding Associated with Uterine Fibroids: Efficacy and Safety Results From a Phase 2B Study


Study Objective: To evaluate safety and efficacy of elagolix, an oral, non-peptide, gonadotropin-releasing hormone antagonist, with/without add-back therapy in women with heavy menstrual bleeding (HMB) associated with uterine fibroids (UF).

Design: This was a double-blind, randomized, 6-month, placebo-controlled, parallel group phase 2b study (NCT01817530).

Setting: Outpatient setting in clinic/office.

Patients: Premenopausal women with HMB (>80 mL/month menstrual blood loss [MBL]) associated with UF.

Intervention: Efficacy/safety was evaluated in 2 cohorts: elagolix 300 mg twice daily in cohort 1 and 600 mg once daily in cohort 2. Each cohort had 4 arms: placebo, elagolix alone, and 2 elagolix add-back arms (Low dose [LDA], 0.5 mg estradiol [E2]/0.1 mg norethindrone acetate [NETA], or standard dose [SDA], 1.0 mg E2/0.5 mg NETA).

Measurements and Main Results: The primary endpoint was a composite measure of the percentage of women during the last 28 days of treatment with ≤80 mL MBL assessed by the alkaline hematin method and ≥50% reduction in MBL from baseline. Adverse events, endometrial health (tissue biopsy and transvaginal ultrasound), and changes in bone mineral density (BMD) were assessed.

In Cohort 1, 259 women were randomized and treated; 80% completed treatment. Cohort 1 responses for the primary endpoint were 92% elagolix alone, 85% elagolix + LDA, 79% elagolix + SDA, and 27% placebo (all p < .001 vs. placebo). Elagolix treatment alone was associated with hot flushes and a decrease in BMD; add-back therapy attenuated these hypoestrogenic effects in a dose-dependent manner. At month 6, the most common endometrial biopsy category from women in elagolix groups was normal quiescent minimally stimulated endometrium. All groups had a decrease in endometrial thickness (mean change from baseline to month 6 in mm: elagolix alone = 0.52, elagolix + LDA = 1.33 (p < .05 vs. placebo), elagolix + SDA = 0.56, placebo = 2.1). Similar efficacy and safety results were observed in Cohort 2.

Conclusion: Elagolix with or without add-back significantly reduced MBL in UF-associated HMB. Add-back therapy attenuated the hypoestrogenic effects of elagolix. There were no adverse endometrial findings.
by mid-June 2017. Preliminary results suggest women undergoing a minimally invasive hysterectomy have adequate pain control by 2 weeks postoperatively, many not requiring any narcotic use for pain management.

172 **Open Communications 14 – Pelvic Pain**

(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

**Medical Treatment of Ectopic Pregnancy in a Tertiary Hospital in Brazil**

Falcão-Junior JOA, Carpio DAS, Pais LR, Fonseca EC, Paula SOC, Geo MS. Obstetrics and Gynecology, Mater Dei Hospital, Belo Horizonte, Minas Gerais, Brazil

**Study Objective:** Evaluate the use of methotrexate (MTX) in the treatment of ectopic pregnancy in the emergency unit of a tertiary hospital in Brazil.

**Design:** Retrospective study.

**Setting:** Emergency care unit of a tertiary hospital.

**Patients:** We retrospectively evaluated the patients treated at our emergency unit as of 8/27/2016 for a period of 56 months and selected those who were diagnosed with ectopic pregnancy and treatment with MTX.

**Intervention:** Patients received a single dose of MTX (50 mg IM) with the possibility of a reaplication. Serial analysis of serum β-HCG.

**Measurements and Main Results:** We included 84 patients with ectopic pregnancy (EP) treated with MTX. Mean age of the patients was 32.04 years. Ranging from 22 to 43 years. Only 3 patients had a history of previous ectopic pregnancy and 11 patients were classified as multiparous (parity > 3). B-HCG values at diagnosis ranged from 49.5 to 21707.36 IU. Only 6 patients had initial quantitative B-HCG levels above 5000 IU and 65 (76.47%) of the cases presented values below 1500 IU. Serial follow-up of B-HCG varied from 2 to 12 analyses, (median - 5). The use of a second dose of MTX was used in 10 patients and in 2 of these patients it was necessary laparoscopy for the definitive treatment. We performed 14 laparoscopic surgeries and 2 laparotomies in MTX treatment failures. In 68 patients the treatment was successful (80.95%). No serious complications were observed in this group of patients.

**Conclusion:** The MTX treatment of ectopic pregnancy was well accepted and fairly satisfactory in our emergency unit. Its application is only possible with an adequate diagnostic structure and a unique commitment between the medical team and patients, which allows easy access of the patient to the treatment unit and close monitoring of the patient until the complete resolution of the pathological process.

173 **Open Communications 14 – Pelvic Pain**

(2:15 PM - 3:15 PM)

3:08 PM – GROUP B

**Refractory Pudendal Pain and Pelvic Floor Dysfunction Caused by Intrapelvic Nerve Entrapment: a Review of 50 Consecutive Cases**

Lemos N, ¹ Papillon-Smith J, ¹ Moretti-Marques R, ² Fernandes G, ² Girao M, ² Solnik M J. ¹ Obstetrics and Gynecology, University of Toronto, Toronto, Ontario, Canada; ² Obstetrics and Gynecology, Universidade Federal de São Paulo, Vila Clementino, São Paulo, Brazil

**Study Objective:** To report the outcomes of 50 patients undergoing laparoscopic nerve root decompression for refractory pudendal nerve pain and pelvic floor dysfunction at our center.

**Design:** Retrospective cohort study.

**Setting:** Tertiary care hospital in Sao Paulo, Brazil.

**Patients:** 50 consecutive patients with a diagnosis of pelvic nerve entrapment.

**Intervention:** Patients with a diagnosis of pelvic nerve entrapment underwent laparoscopic nerve root decompression. Visual analogue scale (VAS) scores were used to assess pain severity at each patient visit. A paired t-test was used to compare preoperative VAS-scores to VAS-scores at the last post-operative visit. A 50% reduction on VAS score and/or a significant reduction in the use of analgesics was considered a successful outcome.

**Measurements and Main Results:** 50 patients underwent laparoscopic nerve root decompression during the study period. Etiologies of the nerve entrapments, the nerves involved, and the clinical and surgical data are displayed in tables 1 & 2. Success rate – at least a 50% improvement in pain scores was 86.3%. The mean interval between symptom onset and correct diagnosis was 4.5 years, with patients undergoing a mean of 1.2 previous ineffective surgeries for treatment of their symptoms. Following nerve decompression, 52.9% of patients experienced neuropathic pain, lasting on average 4.1 months. 19.6% of patients experienced a post-decompression motor deficit, lasting on average 2.6 months. Perioperative complications included one pudendal nerve transection, one obturator nerve tear, one ureteral injury, 2 cases of genitofemoral neuropathy, 2 cases of urinary retention, one incisional hernia, one rectovaginal fistula and one case of pyriformis muscle adhesions.

**Etiology and localization of nerve entrapments**

<table>
<thead>
<tr>
<th>Etiology</th>
<th>n</th>
<th>Entrapped nerves</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endometriosis</td>
<td>19</td>
<td>Pudendal</td>
<td>4</td>
</tr>
<tr>
<td>Fibrosis</td>
<td>5</td>
<td>S2, S3, or S4 nerve roots (Rt)</td>
<td>11</td>
</tr>
<tr>
<td>Pyriformis</td>
<td>4</td>
<td>Obrutator (Lt)</td>
<td>1</td>
</tr>
<tr>
<td>Vascular</td>
<td>20</td>
<td>Sciatic (Lt)</td>
<td>6</td>
</tr>
<tr>
<td>Schwannoma</td>
<td>2</td>
<td>Sciatic&amp;Pudendal (Rt)</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>Sciatic&amp;Pudendal (Lt)</td>
<td>9</td>
</tr>
</tbody>
</table>

**Clinical Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>39.1</td>
<td>37.5</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>Follow-up (mos)</td>
<td>13.3</td>
<td>7.3</td>
<td>14.7</td>
<td></td>
</tr>
<tr>
<td>Pre-op VAS score</td>
<td>8.7</td>
<td>10</td>
<td>2.1</td>
<td>&lt;0.000000001</td>
</tr>
<tr>
<td>Post-op VAS score</td>
<td>2.2</td>
<td>1</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Operating time (min)</td>
<td>171</td>
<td>152</td>
<td>90.6</td>
<td></td>
</tr>
<tr>
<td>Previous Surgeries</td>
<td>1.2</td>
<td>1</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Diagnostic Gap (years)</td>
<td>4.5</td>
<td>4</td>
<td>3.9</td>
<td></td>
</tr>
</tbody>
</table>

*paired t-Test, mos-months, VAS-Visual analogue scale, min-minutes.

**Conclusion:** Laparoscopic detrapment of intrapelvic nerve root decompression of the lumbosacral plexus yields satisfactory and reproducible results. The diagnosis and treatment of intrapelvic nerve entrapment is poorly understood by physicians. Awareness must be raised to provide patients with a more timely diagnosis and treatment, and to avoid ineffective surgical procedures.
**Choosing the Route of Hysterectomy: the Patient’s Perspective**

*van der Does L, Kazi N, Baxi RP, Haworth L. The Center for Innovative Gyn Care, Rockville, Maryland*

**Study Objective:** Laparoscopically-assisted hysterectomy offers benefits of less invasive surgery without increased risk, yet 45% of women undergo open surgery. The study objective is to explore the patient decision-making process when choosing the route of hysterectomy.

**Design:** Sequential mixed method design, utilizing a retrospective chart review and a mail survey of the same patient population. Hysterectomy route was verified via corresponding survey identifiers.

**Setting:** Suburban community hospital.

**Patients:** Patients (N = 3,878) who underwent laparoscopic or open hysterectomy between 2011–2013.

**Intervention:** N/A.

**Measurements and Main Results:** Response rate = 12%. Of the 464 respondents, 38% underwent open hysterectomy and 62% underwent laparoscopic. Of the open respondents, 63% indicated the route of hysterectomy “didn’t matter” or they “didn’t know about other surgical options,” compared to 28% of the laparoscopic group. The top three preoperative concerns for both groups were: pain, going under anesthesia, and time off from regular activities. 55% of the open group and 35% of the laparoscopic group indicated their surgeon was their primary Ob/Gyn. 47% of open respondents indicated they were not given alternatives to open hysterectomy. Approximately 80% of both groups did not feel the need to seek a second opinion; the primary reason was trust in their Ob/Gyn. Only 1% of the open group engaged in on-line research about surgical options, compared to 8% of the laparoscopic group. In both groups, 96% indicated they were satisfied with the “surgeon’s explanation of the surgery,” yet 60% of the laparoscopic group and 23% of the open group did not correctly identify the type of hysterectomy they underwent.

**Conclusion:** The outcomes of this study point to a need for improved patient-doctor collaboration in the informed consent process. In order to provide patients with the highest quality of care, it is imperative for Ob/Gyn surgeons to offer patients all treatment options including referral to gyn surgical specialists when appropriate.

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**Off-Axis Vs. on-Axis Training of Laparoscopic Skills**

*Stauber M,1 Abittan B,2 Nimaroff M,2 Stanford University, Stanford, California; 1Hofstra Northwell School of Medicine, Hempstead, New York*

**Study Objective:** The advantages of laparoscopic simulators to enhance surgical skills have been well documented. Examples of trainers include box trainers with a webcam and desktop monitor or large high-cost virtual reality simulators. These options provide rigid setups that place the viewing monitor directly opposite the surgeon (on-axis). However, during the course of advanced laparoscopic surgery this monitor position is not always possible and off-axis setup is often used. This study aims to establish the need for off-axis training of laparoscopic skills through the use of a novel modular virtual reality simulator.

**Design:** This was a multicenter cross-sectional study.

**Setting:** Two large academic centers.

**Patients:** Ob/Gyn residents, physicians, and graduate students.

**Intervention:** Participants had varying experience with laparoscopic surgery. Subjects used the simulator to pull a virtual string taut and cut it in the center. The simulator scored performance using time to complete the task and the accuracy of the cut. Each participant performed a practice trial followed by four scored trials in each axis, once with the monitor on-axis and once with the screen off axis, 90 degrees to the left of the subject.
Measurements and Main Results: Six novices (<10 surgeries) and 4 experienced (≥10 surgeries) were recruited. A one-way ANOVA was taken for both scenarios with the independent variable as the subject’s experience and dependent variable the score of the product of time to completion and accuracy. For on-axis trials, experienced subjects performed slightly better than novices [F = 3.22, p = 0.077]. For off-axis trials experienced subjects did not see a further drop in performance, whereas novice subjects showed markedly decreased performance [F = 5.02, p = 0.023].

Conclusion: This supports the recommendation that novice surgeons consider training in both on-axis and off-axis scenarios to better acquire advanced laparoscopic skills. Accordingly, trainers should be adapted to present a range of scenarios.

Table 1. Populations characteristics

<table>
<thead>
<tr>
<th>Prior Program,</th>
<th>Fellowship,</th>
<th>p value (CI 95%)</th>
<th>T test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ave, SD</td>
<td>Ave, SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Yr</td>
<td>45.69 ± 7.05</td>
<td>46.27 ± 8.15</td>
</tr>
<tr>
<td>Surgery</td>
<td>Min</td>
<td>150.57 ± 42.54</td>
<td>119.4 ± 31.7</td>
</tr>
<tr>
<td>Duration</td>
<td>Blood Loss</td>
<td>192.78 ± 160.51</td>
<td>120 ± 105.74</td>
</tr>
<tr>
<td>Hospital Stay</td>
<td>days</td>
<td>2.76 ± 0.82</td>
<td>2.28 ± 1.04</td>
</tr>
</tbody>
</table>

a higher complication rate was observed. Further prospective research is warranted to study these findings and generalizability to larger populations.

Table 2. Complications and reinterventions

<table>
<thead>
<tr>
<th>Prior Program, total, %</th>
<th>Fellowship, total, %</th>
<th>p value (CI 95%)</th>
<th>Chi-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complication</td>
<td>0, 0</td>
<td>11, 8.7</td>
<td>0.02, (1.05, 15.24)</td>
</tr>
<tr>
<td>Reintervention</td>
<td>0, 0</td>
<td>4, 2.8</td>
<td>0.2, (3.82, 7.56)</td>
</tr>
</tbody>
</table>

Influence of Resident Involvement in Obstetrics and Gynecology Surgery on Surgical Outcomes: Systematic Review and Meta-Analysis

Boagie O, Zuckerman SL, Suter N, How J, Sey M. 1Department of Obstetrics and Gynecology, Ottawa Hospital Research Institute, University of Ottawa, Ottawa, Ontario, Canada; 2Vanderbilt University Medical Center, Nashville, Tennessee; 3Department of Surgery, University of Alberta, Edmonton, Alberta, Canada; 4Department of Obstetrics and Gynecology, McGill University, Montreal, Quebec, Canada; 5Department of Medicine, University of Western Ontario, London, Ontario, Canada

Study Objective: To systematically review evidence for the influence of resident participation in Obstetrics and Gynecology surgery on (1) operative time, (2) estimated blood loss and (3) perioperative complications.

Design: The study was developed according to the PRISMA guideline and registered with the PROSPERO International Prospective Register of Systematic Reviews (ref. CRD42016050428 at http://www.crd.york.ac.uk/PROSPERO) on October 31, 2016.

Setting: PUBMED, EMBASE, Cochrane, and Web of Science databases were searched from date of database inception to October 2016. Gray literature including abstracts from medical education conferences were manually searched for the preceding 5 years.

Fig. 1. PRISMA flow diagram.
Patients: Studies assessing the relationship between resident participation in surgery and surgical outcomes were included, adhering to the following criteria: 1. Studies involved Ob/Gyn surgery, 2. Randomized control trials, cohort or case control studies, 3. Length of surgery, estimated blood loss intraoperative or postoperative complications were reported 4. English full-text, 5. Minimum of 10 patients and 6. Patients were >18 years of age.

Intervention: Pertinent study characteristics were extracted independently by two reviewers. Quality assessment was performed using the Newcastle Ottawa Scale.

Measurements and Main Results: The meta-analysis included 40,968 patients. Surgeries performed only by attending surgeons were faster (mean difference: 18.20 min, 95% CI: 22.82,13.58 min) (Fig. 2), while surgeries with resident involvement were associated with an increased risk of blood transfusion (RR 1.23, 95% CI: 1.08, 1.41).

There were no observable differences in risk of estimated blood loss, wound infection, urologic injury, vисcus injury, and return to the operating room.

Summary of outcomes of the studies included in the meta-analysis:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Summary Effect (95% CI) surgeries with resident involvement vs. surgeries without resident involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Time (min)</td>
<td>MD: -18.20 (-22.82, -13.58)</td>
</tr>
<tr>
<td>Estimated blood loss (cc)</td>
<td>MD: -15.01 (-30.29, 0.27)</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>RR: 1.23 (1.08, 1.41)</td>
</tr>
<tr>
<td>Surgical wound infection</td>
<td>RR: 1.03 (0.90, 1.17)</td>
</tr>
<tr>
<td>Urologic injury</td>
<td>RR: 1.27 (0.95, 1.71)</td>
</tr>
<tr>
<td>Return to the operating room</td>
<td>RR: 1.10 (0.97, 1.26)</td>
</tr>
<tr>
<td>Viscus injury</td>
<td>RR: 1.14 (0.75, 1.74)</td>
</tr>
</tbody>
</table>

Significant heterogeneity (I2 > 50%) was present in 1 of 7 outcomes, which persisted during sub group analyses by surgery type and study quality.

Conclusion: Resident participation in Obstetrics and Gynecology surgeries is associated with longer operative time and increased risk of blood transfusion, however other perioperative complications are not increased. Residency training programs should continue to strive to improve surgical safety.

Design: In this retrospective cohort study, the American College of Surgeons National Surgical Quality Improvement Project (ACS NSQIP) database was utilized to determine route of hysterectomy, and associated ASA class. The analysis included abdominal, vaginal, total laparoscopic, and laparoscopic assisted vaginal routes of hysterectomy. Routes of hysterectomy were also grouped as either abdominal or minimally invasive for analysis. Multinomial logistic regression was used to model route of hysterectomy as a function of patient covariates, including ASA class, age, race and ethnicity, and body mass index. (Canadian Task Force Classification II-2)

Setting: A national database that uses validated, risk-adjusted, outcomes-based program to measure and improve the quality of surgical care.

Patients: The analysis included 117,919 patients from the NSQIP database.

Intervention: This study examined using the American Society of Anesthesiologists physical status score as a predictor of patient health. By doing so the study sought to determine if patient health was an independent cause for decision of route of hysterectomy.

Measurements and Main Results: Patients with ASA classification of 3 or 4–5 had significantly decreased odds of undergoing a minimally invasive approach for hysterectomy, (odds ratio [OR] 0.81, 95% confidence interval [CI] 0.77 to 0.85 and OR 0.42, 95% CI 0.37 to 0.48, respectively). Secondary outcome analysis revealed that BMI over 30 kg/m2 was associated with significantly lower odds of undergoing a minimally invasive hysterectomy (OR 0.87, 95% CI 0.85 to 0.89).

Conclusion: Patients with increased pre-operative risk as defined by high ASA classification are less likely to undergo a minimally invasive hysterectomy for benign indications.

179 Open Communications 15 – Surgical Education  
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Implementation and Validation of a Retropitoneal Dissection Curriculum

Youaou AA, Frecker H, Satkunaratnam A, Shore EM. Obstetrics and Gynecology, Minimally Invasive Surgery, St. Michael’s Hospital, University of Toronto, Toronto, Ontario, Canada

Study Objective: Competency-based education requires educators to use simulation training to increase residents’ exposure to various procedures. The ability to identify the ureter surgically is a fundamental skill for gynecologists. Our goal was to validate a comprehensive curriculum for laparoscopic retroperitoneal dissection (LRD).

Design: Prospective observational study.

Setting: Tertiary academic centre.

Patients: Novice gynecologic surgeons (PGY 3–5) were recruited.

Intervention: A comprehensive curriculum to teach laparoscopic ureterolysis was designed encompassing didactic and technical skill components using a previously developed pelvic model. Subjects underwent pre- and post- curriculum multiple-choice questionnaires (MCQ) to evaluate the knowledge component. Pre- and post- performance on the model was video-recorded. As part of the technical component, participants received constructive feedback on how to perform LRD from expert surgeons. Participants were video-recorded performing LRD in the operating room within 3 months of the curriculum. All videos were blindly assessed by an expert using the objective structured assessment of technical skills (OSAT) tool.

Measurements and Main Results: Thirty novice surgeons were recruited. Knowledge of ureteric anatomy and injury was high at baseline (mean MCQ pre 6.55 ± 1.50) but improved following the curriculum (mean MCQ post 8.03 ± 1.12, p < .001). The improvement in technical scores on the model was statistically significant (mean OSAT pre-curriculum 25.50 ± 3.20, mean OSAT post-curriculum 30.07 ± 2.97, p < .001). Video recordings were completed for 23 participants performing LRD in the operating room. There was a significant correlation between intraoperative OSAT scores and post-training OSAT scores (r = 0.46, p = 0.03). The majority of residents (81%, n = 21/26) were more comfortable completing a retroperitoneal dissection under supervision as a result of participating in the curriculum. Residents...
felt that this model would be useful to enhance skills acquisition prior to performing the skill in the operating room (65%, n = 17/26).

**Conclusion:** A comprehensive retroperitoneal dissection curriculum showed improvement in cognitive knowledge and technical skills, which translated to competent performance in the operating room.

### Table 1

Spearman’s correlation coefficients between corresponding VR and dry lab drills, and benchmark scores for VR drills

<table>
<thead>
<tr>
<th>VR Drill</th>
<th>Dry Lab Drill</th>
<th>Spearman’s correlation coefficient (r)</th>
<th>p-value</th>
<th>Benchmark Score for VR Drill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dots and Needles 1</td>
<td>Big Dipper</td>
<td>0.66</td>
<td>&lt;.01</td>
<td>83%</td>
</tr>
<tr>
<td>Peg Board 2</td>
<td>Tower Transfer</td>
<td>0.61</td>
<td>.0003</td>
<td>92%</td>
</tr>
<tr>
<td>Ring and Rails 2</td>
<td>Roller Coaster</td>
<td>0.49</td>
<td>.006</td>
<td>74%</td>
</tr>
<tr>
<td>Suture Sponge 2</td>
<td>Train Tracks</td>
<td>0.71</td>
<td>&lt;.01</td>
<td>74%</td>
</tr>
<tr>
<td>Vertical Defect Suturing</td>
<td>Figure of Eight</td>
<td>0.73</td>
<td>&lt;.01</td>
<td>19%</td>
</tr>
<tr>
<td>Overall Score</td>
<td>Overall Score</td>
<td>0.87</td>
<td>&lt;.01</td>
<td></td>
</tr>
</tbody>
</table>

### Open Communications 15 – Surgical Education

(2:15 PM - 3:15 PM)

**Correlation of Virtual Reality Simulation and Dry Lab Robotic Technical Skills**

**Newcomb LK, Bradley MS, Truong T, Comstock B, Li YJ, Siddiqui NY. Obstetrics and Gynecology, Duke University Medical Center, Durham, North Carolina; CSATS, Seattle, Washington**

**Study Objective:** To determine whether a set of virtual reality (VR) surgical simulation drills have correlative validity when compared to the validated Robotic Objective Structured Assessment of Technical Skills (R-OSATS) dry lab simulation drills.

**Design:** Prospective methods comparison study.

**Setting:** Academic teaching hospital.

**Patients:** Residents of all levels, fellows, and faculty surgeons from the departments of Obst/Gyn, General Surgery, and Urology.

**Intervention:** Participants completed five VR drills on the daVinci Si Skills Simulator as well as five R-OSATS dry lab drills. VR drills were selected to test similar metrics as the dry lab drills.

**Measurements and Main Results:** We evaluated 20 residents, 6 fellows, and 4 faculty totaling 30 participants. Participants were randomized to the order of completion (VR drills first or dry lab drills first). VR drills were scored automatically by the simulator. Dry lab drills were recorded, reviewed by three blinded experts, and scored using the R-OSATS assessment tool to create individual drill scores and 5-drill summary scores per participant. Spearman correlation coefficients were calculated comparing simulator scores and R-OSATS scores for the same surgeon. The contrasting-groups method was used to determine the minimum competence “benchmark” score for each VR drill. The correlation for overall summary scores between VR and dry lab drills was strong (r = 0.87, p < .01). Each of the five VR drills was also found to have a statistically significant correlation to its corresponding dry lab drill (Table 1). The performance on VR drills confirmed construct validity with faculty and fellows consistently performing significantly better than residents (median VR scores: 437 for faculty, 408 for fellows, 311 for residents; p < .01).

**Conclusion:** We selected a core set of VR drills that reliably correlate with validated dry lab R-OSATS drills. Because dry lab drills require significant time and effort from the evaluators, this set of VR drills could serve as an ancillary method of determining trainee competency.

### Table 1

Spearman’s correlation coefficients between corresponding VR and dry lab drills, and benchmark scores for VR drills

<table>
<thead>
<tr>
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<td>0.73</td>
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<td>Overall Score</td>
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<td></td>
</tr>
</tbody>
</table>

### Open Communications 15 – Surgical Education

(2:15 PM - 3:15 PM)

**3:08 PM – GROUP B**

Examining the Forgetting Curve and How It Affects Surgical Skills Education

**Liu B, Lee P. Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada**

**Study Objective:** To determine whether there is a “Forgetting Curve” in surgical skills education, which is a graphical representation of how knowledge decays over time that has been largely ignored in surgical literature.

**Design:** Prospective cohort study.

**Setting:** A Canadian tertiary, university-affiliated referral centre.

**Patients:** Gynecology residents during their Urogynecology rotation from October 2016 to April 2017.

**Intervention:** N/A.

**Measurements and Main Results:** The residents were evaluated on their performance during a vaginal hysterectomy (VH). Each resident was marked by the staff physician or fellow using a pre-validated Objective Structured Assessment of Technical Skills (OSATS) Global Rating Scale (GRS) and Checklist during their first VH of the rotation as a baseline. Every subsequent time a VH was performed by a resident and evaluated, we noted the time that had elapsed since the resident’s previous VH. The resident’s GRS and Checklist scores were then normalized in relation to their baseline score. The results were analyzed using a linear correlation coefficient, and hypothesis testing of the significance of the correlations was performed.

The four residents performed a total of 23 VH procedures. A moderate negative linear correlation was found between time since last VH and OSATS Checklist scores (r = -0.44, p < .05) and GRS results (r = -0.51, p < .05).

**Conclusion:** We found a significant, negative linear correlation between the time since last performing a VH and OSATS scores. This data supports the theory that the phenomenon of the Forgetting Curve applies to surgical training.

### Wednesday, November 15, 2017

### Open Communications 16 – Research & Science

(2:15 PM - 3:15 PM)

**181 Vaginal Hysterectomy Outcomes; Complications and Analysis of Risk Factors for 30-Day Readmission**

**Saeed H, Rubinfield I, Sangha R. Henry Ford Hospital, Detroit, Michigan**

**Study Objective:** Vaginal hysterectomy is the preferred minimally invasive route for hysterectomy. Literature suggests low infectious morbidity. We sought to analyze our outcomes and assess risk factors for readmission.

**Design:** Retrospective review of database.

**Setting:** National Surgical Quality Improvement Project database (NSQIP)

**Patients:** Women who underwent vaginal hysterectomy, between 2005 and 2015.

**Intervention:** Vaginal hysterectomy.

**Measurements and Main Results:** We queried 11 years of the National Surgical Quality Improvement Project (NSQIP) Participant Use File (PUF), 2005–2015. CPT codes for vaginal, including laparoscopic assisted vaginal
hysterectomy were chosen. Data was analyzed in R with univariate followed by multivariate analysis. There were 17646 cases with 466 readmissions (2.6%). Complication rate was low (0.01%) with low rates for pulmonary embolism (0.01%) and wound infection (0.02%). The mean total length of stay was 1.35 days with 1.7% of patients returning to the operating room. Readmissions were younger were more likely to be diabetic (p < 0.001), they also had higher ASA scores (p < 0.001). Similar patterns were noted with smoking history, dyspnea and frailty index.

Conclusion: Vaginal hysterectomy demonstrates low complication rates. Wound infection is not a significant contributor to readmission in these patients unlike in other routes of hysterectomy. Preoperative optimization of functional status and medical conditions like diabetes will further reduce readmission risk in women undergoing vaginal hysterectomy.

183  Open Communications 16 – Research & Science (2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Nrf2 Contributes to Cisplatin Resistance via Suppressing the Iron Export Related Gene SLC40A1 in Human Ovarian Cancer Cells
Bao L, Wu J, Yi X. Department of Gynecology, Obstetrics and Gynecology Hospital Fudan University, Shanghai, China

Study Objective: Overexpression of Nrf2 contributes to cisplatin resistance in ovarian cancer. Solute carrier family 40 member 1 (SLC40A1), as an iron exporter, possesses many putative Nrf2 binding sites. In this study, we aim to elucidate that SLC40A1 may function as one potential downstream gene of Nrf2.

Design: In vitro study.

Setting: A university-based tertiary obstetrics and gynecology hospital.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Two pairs of cisplatin-sensitive (A2780 & COC1) and cisplatin-resistant (A2780cp & COC1/DDP) ovarian cancer cells were used to detect the expression of Nrf2 and SLC40A1. Elevated level of Nrf2 along with reduced level of SLC40A1 was detected in cisplatin-resistant ovarian cancer cells. While overexpression of Nrf2 leaded to increased level of SLC40A1 in cisplatin-resistant ovarian cancer cells. Further, chromatin immunoprecipitation and dual-luciferase reporter assay revealed that Nrf2 could directly inhibit the transcription of SLC40A1.

Besides, overexpression of SLC40A1 was able to reverse cisplatin resistance induced by Nrf2 and decrease the intracellular iron concentration, while knockdown of SLC40A1 restored cisplatin resistance and increased the intracellular iron concentration. Desferal, as an iron chelator, was found to overcome cisplatin resistance through iron deprivation in cisplatin-resistant ovarian cancer cells. Its function was boosted when combined with brusatol, an Nrf2 inhibitor. On the other side, FecI3 treatment could decrease cisplatin sensitivity through iron overload in cisplatin-sensitive ovarian cancer cells.

Conclusion: This is the first study demonstrating that Nrf2 can transcriptionally suppress the expression of SLC40A1. Iron overload induced by SLC40A1 may result in cisplatin resistance in ovarian cancer. Targeting iron metabolism may be a new therapeutic strategy to reverse drug resistance in ovarian cancer treatment.

184  Open Communications 16 – Research & Science (2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Harvey LFB, Abramson VG, Alvarez J, Destephano C, Hur H-C, Lee K, Mattingly P, Park B, Piszczek C, Seifi F, Stuparich M, Yunker A. 1Department of Obstetrics and Gynecology, Vanderbilt University Medical Center, Nashville, Tennessee; 2Division of Hematology and Oncology, Vanderbilt University Medical Center, Nashville, Tennessee; 3Advocate General Lutheran Hospital, Park Ridge, Illinois; 4Mayo Clinic Florida, Jacksonville, Florida; 5Beth Israel Deaconess Medical Center, Boston, Massachusetts; 6Indiana University School of Medicine, Indianapolis, Indiana; 7Columbia University Medical Center,
Objective: Since publication of the Suppression of Ovarian Function Trial (SOFT) data, some with premenopausal breast cancer have been recommended to undergo bilateral oophorectomy to facilitate breast cancer treatment with aromatase inhibitors. Our objective is to describe the procedures performed, intra-abdominal findings, and surgical pathology of this population.

Design: Retrospective cohort. Canadian task force classification II-3.


Patients: 127 women with premenopausal breast cancer were included after 775 records from January 2013 to March 2016 were reviewed.

Intervention: N/A.

Measurements and Main Results: The mean age of patients was 45.8. Fourteen (11%) carried BRCA mutations. Twenty-five patients (20%) carried other mutations, including multiple variants of uncertain significance. There was variation in surgical approach. Thirty-five percent underwent concurrent hysterectomy. Other concomitant procedures included midurethral sling placement, appendectomy, and hysteroscopy. Sixty-four (50.3%) had pelvic washings. Three had complications (transfusion, wound cellulitis, and vaginal cuff dehiscence). Thirteen patients (10%) had ovarian pathology on surgical specimen. This included metastatic tumor, serous cystadenomas, endometriomas, and Brenner tumor. Eight patients (6%) had Fallopian tube pathology, including 3 serous tubal intraepithelial cancers. Of specimens from the uterus, 1 endometrial adenocarcinoma and 1 multi-focal endometrial intraepithelial neoplasia were noted. The number of patients seen by gynecologic surgeons in the FPRN for this indication increased by nearly 400% from 2013 to 2015.

Conclusion: Gynecologists may increasingly treat this population as oncologists adopt aromatase inhibitors for treatment of premenopausal breast cancers. Our data suggest this group is at risk for other cancers, precancerous conditions, and previously unrecognized metastatic disease. Notably, of the three serous tubal intraepithelial cancers found, 2 were in women negative for BRCA. The gynecologist serving these patients may consider careful abdominal survey, pelvic washings, endometrial sampling and serial sectioning of fallopian tube specimens for a thorough evaluation.

Objective: Oestrigen-Induced Angiogenesis and Implantation Contribute to the Development of Paramyoma after Laparoscopic Morcellation


Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan

Obstetrics and Gynecology, School of Medicine, National Yang-Ming University, Taipei, Taiwan

Study Objective: Iatrogenic parasitic myomas (PMs), caused by intra-corporeal power morcellation during laparoscopy is gradually increasing. However, the pathogenesis and medical treatment of PMs remain largely un elucidated.

Analysis of Risk Factors for Readmission after Hysterectomy: Use of a National Database

Sanghu R., Saeed H., Rubinfeld J., Henry Ford Hospital, Detroit, Michigan

Study Objective: There is a paucity of predictive work done to help risk assess and stratify patients potential for readmission hysterectomy. We sought to further explore the risk of readmission after hysterectomy.

Design: Retrospective review of database.

Setting: National Surgical Quality Improvement Project database (NSQIP).


Intervention: Hysterectomy (any approach).

Measurements and Main Results: We queried 11 years of the National Surgical Quality Improvement Project (NSQIP) Participant Use File (PUF), 2005-2015. CPT codes for hysterectomy were chosen. Data was analyzed in R with univariate followed by multivariate analysis. There were 2636 readmissions and 81322 non-readmitted patients (rate of 3.1%). There were significant differences based on route of surgery (p < .001), with the majority 51.4% being open, and least after vaginal route (13.9%). Readmissions were younger (mean age 47.1 vs 48.0, p < .001), had more associated procedures based on work rvu (mean 16.9.1 vs 17.2, P < .001), were more likely to be diabetic (5.1% insulin and 6.9% oral hypoglycemic, vs 2.0% and 5.7% in non readmitted, P < .001), they also had higher ASA scores. Similar patterns were noted with hypertension, COPD, CHF, smoking history, dyspnea, functional status, steroid use, operative times, wound class.

Conclusion: Improved prediction of readmission risk will facilitate discussion and informed consent with families, as well as empower quality improvement projects targeted on risk factor modification or escalation of readmission prevention interventions.
**Abstracts / Journal of Minimally Invasive Gynecology 24 (2017) S1–S201**

**Dissemination of Leiomyomas Following Minimally Invasive Surgery and Tissue Morcellation – a Case Series**

**Stockwell EL, 1 Khoo T, 1 Kowalski LD. 1 Women’s Specialty Care, Las Vegas Minimally Invasive Surgery, Las Vegas, Nevada; 2 Nevada Surgery & Cancer Care, Las Vegas, Nevada**

**Study Objective:** This report is a case series that describes differing presentations of abdominopelvic leiomyomatosis following minimally invasive surgery with morcellation. Leiomyomatosis peritonealis disseminata (LPD) is a rare disease in which multiple smooth muscle tumor nodules spontaneously stud the pelvic and peritoneal surfaces, often giving the appearance of metastatic ovarian or peritoneal carcinoma. A disease similar to LPD has been described due to iatrogenic seeding of the peritoneal cavity during morcellation of leiomyomas at the time of minimally invasive surgical procedures. Another variant, benign metastasizing leiomyomas (BML), can imbed in distant organs.

**Design:** Case series.

**Setting:** Private gynecologic oncologic practice.

**Patients:** Three women in their 40s were diagnosed with abdominopelvic leiomyomatosis following laparoscopic myomectomy in two cases and laparoscopic hysterectomy of a large fibroid uterus in the other. All patients presented with pelvic pain. Imaging studies of the first patient revealed multiple pelvic and intraabdominal solid masses. At surgery, leiomyomatosis was found in fifteen different locations, including omentum and pelvic peritoneum. Preoperative CT of the second patient showed a conglomerate of small intraabdominal nodules involving the liver. At laparotomy, disseminated leiomyomatosis was identified and all nodules were resected, including a resection of the right lobe of the liver. In the final case, leiomyomatosis involved the right pararenal tissues and the left kidney, requiring partial nephrectomy.

**Intervention:** Each woman underwent diagnostic laparoscopy converted to laparotomy and tumor debulking surgery. The two women with a uterus also underwent hysterectomy.

**Measurements and Main Results:** Final pathology demonstrated benign disseminated leiomyomas in all cases.

**Conclusion:** We conclude that great care should be taken to place all fibroid tissue in a containment system prior to tissue extraction at the time of minimally invasive surgery. Extensive exploration at the end of extraction should also be performed to identify and remove any residual tissue fragments.
Study Objective: To explore the short-term impacts of melatonin on rats after whole ovarian cryopreservation and transplantation (WOCP&TP) and its mechanisms.

Design: Rats after WOCP&TP were randomly divided into three groups with 10 rats respectively: no melatonin group, low-dose group (25 mg/kg), High-dose group (50 mg/kg). Melatonin was injected i.p. for 2 or 4 days respectively. The control group underwent sham operation and was given saline solution.

Setting: Animal Experiment Efficacy Evaluation Center, School of Pharmacy, Fudan University, Shanghai, China.

Patients: Lewis rats aged 8–10 weeks weighing 180-200g.

Intervention: Ovarian function was assessed by hormone levels and the ovarian morphology with follicle count. The anti-inflammatory ability of melatonin was assessed by MPO in ovarian tissue and the serum levels of IL-6, TNF-α and NF-kB. The antioxidant capacity of melatonin was assessed by SOD and MDA in ovarian tissue. The anti-apoptotic ability of melatonin was assessed by immunohistochemistry and TUNEL assay.

Measurements and Main Results: After both 2 days and 4 days of WOCP&TP, there was significant difference in the ovarian function, the antioxidant index, the anti-inflammatory index and the apoptotic rates compared three transplantation groups to control group (p < .05). After both 2 days and 4 days of WOCP&TP, there was significant difference in every detective index compared high-dose group to no melatonin group (p < .05). While compared low-dose group to no melatonin group, significant difference only could be seen after 4 days of WOCP&TP (p < .05). There was significant difference compared high-dose group to low-dose group (p < .05). Significant difference also could be seen in high-dose group and low-dose group compared the index after 2 days with the index after 4 days (p < .05).

Conclusion: Melatonin could protect the ovarian function after WOCP&TP with dose and time dependent, which may be achieved by its antioxidation, anti-inflammation and anti-apoptosis.

WEDNESDAY, NOVEMBER 15, 2017

190 Open Communications 17 – Laparoscopy (3:25 PM - 5:05 PM) 3:25 PM – GROUP A

Quantifying Critical Components Predictive of Surgical Complexity and Operative Times for Total Laparoscopic Hysterectomy – a Multicenter Study

Pacis MM,1 Lenihan JP,2 Abi Khalil E,1 Huynh TQ,3 Rieger MM,4 Breen MT,2 Makai G,6 Moawad G,4 Stetter C,3 Kanselman AR,4 Harkins G1.1 Department of Obstetrics and Gynecology, Penn State Health Milton S. Hershey Medical Center, Hummelstown, Pennsylvania; 2Department of Obstetrics and Gynecology, Multicare Health Systems, Tacoma, Washington; 3Department of Obstetrics and Gynecology, The George Washington University, Washington, District of Columbia; 4Department of Obstetrics and Gynecology, Christiana Care Health System, Newark, Delaware; 5Department of Women’s Health, University of Texas Dell School of Medicine, Austin, Texas; 6Department of Public Health Sciences, Penn State College of Medicine, Hershey, Pennsylvania

Study Objective: To develop a method quantifying predictors of surgical complexity as correlated with operative times. To determine if surgical approach, conventional (TLH) versus robotic (RATLH), affects operative time given similar complexity factors.

Design: Retrospective multicenter cohort study.

Setting: Two academic tertiary care centers and two community health systems specializing in minimally invasive gynecologic surgery.

Patients: Women ages 20 to 68 undergoing either TLH or RATLH for benign indications between December 2011 and January 2017.

Intervention: Data were collected for 350 patients, and grouped according to hysterectomy approach – 200 underwent TLH and 150 had RATLH. Parameters considered to influence surgical difficulty for total laparoscopic hysterectomy included uterine size and shape, adhesions, body mass index (BMI), parity, prior cesarean section, ovarian cyst, and specimen morcellation. Subcriteria were scaled, then added, generating a complexity score (CS).

Specific factors including larger uterine size (p < .001), prior cesarean sections (p = .003), ovarian cystectomy (p = .003), and morcellation (p < .001) contributed to increasing operative times for both approaches. Averages in uterine shape and higher BMI significantly increased operative time for TLH (p = .003, p = .03), but not RATLH (p = .22, p = .63). Extensive adhesiolysis significantly increased operative times for RATLH (p = .004), but not TLH (p = .52). Surgical trainee participation increased operative times in both groups (p < .001).

Conclusion: Implementing a scoring method can predict surgical complexity as a function of operative time for TLH and RATLH. Factors that significantly impact operative times include greater uterine weights, prior cesarean delivery, ovarian cystectomy, and morcellation. A robotic approach may decrease operative times for similarly complex cases compared with TLH.
191 Open Communications 17 – Laparoscopy
(3:25 PM - 5:05 PM)
3:32 PM – GROUP A

30-Day Readmission Rates in Same Day Versus Postoperative Day One Discharges in Women
Undergoing Laparoscopic Hysterectomy
Sheyn D.1 El-Nashar S.1 Mangel J.1 Mahajan S.1 Pollard R.2 1University Hospitals Cleveland Medical Center, Cleveland, Ohio; 2MetroHealth Medical Center, Cleveland, Ohio

Study Objective: To determine whether same day discharge is associated with higher rates of hospital readmission within 30 days of laparoscopic hysterectomy compared to discharge on post-operative day one.

Design: Retrospective Cohort Study.

Setting: American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database.

Patients: Women undergoing total or supra-cervical laparoscopic hysterectomy with or without adnexal surgery from 2010 to 2015 for benign indications.

Intervention: 9,377 women were identified with a total length of stay of zero days and 30,094 were identified with a length of stay of one day. Women who underwent emergency surgery and surgery for prolapse or incontinence were excluded.

Measurements and Main Results: A total of 969 (2.5%) of women were readmitted after laparoscopic hysterectomy. Women who were discharged on the same day as surgery were less likely to be readmitted compared to women who were discharged on post-operative day one, 178 (1.9%) vs 791 (2.6%), p < .001. Stepwise multivariable logistic regression showed that discharge on post-operative day one was associated with an increased risk of readmission, (OR = 1.36, 95%CI: 1.15–1.60). The final model also showed that readmission risk was higher in African Americans (OR = 1.24, 95%CI: 1.05–1.48), systemic steroid users (OR = 1.75, 95%CI: 1.14–2.69), women with dysmenorrhea (OR = 1.53, 95%CI: 1.08–2.17), and women with pre-existing coagulopathy (OR = 3.04, 95%CI: 1.95–4.74). Surgical factors associated with increased readmission rates were American Society of Anesthesiology class greater than 2 (OR = 1.38, 95%CI: 1.16–1.65) and operative time over 160 minutes (OR = 1.48, 95%CI: 1.28–1.70).

Conclusion: Discharge on post-operative day zero after laparoscopic hysterectomy is not associated with increased rates of hospital readmission within 30 days of surgery compared to discharges on post-operative day one.

192 Open Communications 17 – Laparoscopy
(3:25 PM - 5:05 PM)
3:39 PM – GROUP A

“The Mandarin Eight” - a New Specific Technique of Laparoscopic Surgical Treatment of Deep Infiltrating Endometriosis
Zhang Z, Zhai Y, Wang S, Wang W, Zhang Z. Gynecology & Obstetrics, Beijing Chao-Yang Hospital, Capital Medical University, Beijing, China

Study Objective: To evaluate the feasibility and efficiency of a new laparoscopic surgery technique of deep infiltrating endometriosis (DIE).

Design: Retrospective analysis.

Setting: Tertiary care university hospital in Beijing.

Patients: 84 Women who underwent “the Mandarin Eight” resection of DIE lesions or conventional excision/ablative techniques for treatment of DIE from January 2012 to January 2017.

Intervention: “the Mandarin Eight” resection (once find DIE lesions, first using monopolar to draw a Chinese character “eight” which is bounded by inferior margin of ureter and superior margin of uterosacral ligament at the same side, then performing the resection in this specific area with clear anatomy) (Figure 1) of DIE lesions or conventional excision/ablative to treat DIE.

Measurements and Main Results: 84 patients met the inclusion criteria, of which 43 (51%) underwent “the Mandarin Eight” resection (ME) and 41 (49%) underwent conventional techniques (CT). There was no difference in patient’s BMI, ASRM (American Society for Reproductive Medicine) stage and general population information between two groups. The groups had similar level of surgical assistant. Indications included dysmenorrhea (35/43 in ME, 27/41 in CT), pelvic pain (12/43 in ME, 18/41 in CT) and sexual pain (9/43 in ME, 15 in CT group). The visual analog scale (VAS) of all symptoms in two groups were significantly lower postoperatively (p < .001). But only the postoperative VAS of dysmenorrhea was significantly lower in ME group than CT group. The visible residual lesions by naked eyes rate and recurrence rate (include pain and clinical findings) was significantly lower in ME group compared with CT group (0 of 43 patients versus 30 of 41 patients; p < .001; 4 of 43 patients versus 11 of 41 patients; p = .035).

<table>
<thead>
<tr>
<th>pre/postoperative symptoms’ VAS comparison</th>
<th>mean preoperative VAS*</th>
<th>mean postoperative VAS</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>“the Mandarin Eight” resection</td>
<td>dysmenorrhea</td>
<td>6.46 ± 2.36</td>
<td>1.46 ± 1.62</td>
</tr>
<tr>
<td></td>
<td>pelvic pain</td>
<td>6.09 ± 2.26</td>
<td>0.73 ± 0.91</td>
</tr>
<tr>
<td></td>
<td>sexual pain</td>
<td>3.71 ± 1.25</td>
<td>1.14 ± 0.90</td>
</tr>
<tr>
<td></td>
<td>dysmenorrhea</td>
<td>7.63 ± 1.71</td>
<td>2.93 ± 1.62</td>
</tr>
<tr>
<td></td>
<td>pelvic pain</td>
<td>6.89 ± 1.78</td>
<td>1.61 ± 1.61</td>
</tr>
<tr>
<td></td>
<td>sexual pain</td>
<td>4.87 ± 1.46</td>
<td>1.87 ± 1.55</td>
</tr>
</tbody>
</table>

* VAS: Visual Analog Scale

<table>
<thead>
<tr>
<th>treatment efficiency comparison</th>
<th>“the Mandarin Eight” resection</th>
<th>conventional techniques</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>visible residual lesion by naked eyes</td>
<td>0 (43)</td>
<td>30 (41)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>recurrence*</td>
<td>4</td>
<td>11</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

* recurrence included pain and clinical findings.

Conclusion: ME was feasible and can effectively release pain symptoms. It is a safe alternative to traditional approaches in DIE treatment and offers the additional benefits of lower recurrence rate which is very important to describe the success of treatment.
193 Open Communications 17 – Laparoscopy (3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Incisional Outcomes of Umbilical Versus Suprapubic Minilaparotomy for Tissue Extraction
Griffith KC, Clark NV, Mushinski AA, Gu X, Aja MO, Brown DN, Einarsen JJ, Cohen SE. Obstetrics & Gynecology, Tufts Medical Center, Boston, Massachusetts; Minimally Invasive Gynecologic Surgery, Brigham & Women’s Hospital, Boston, Massachusetts; Minimally Invasive Gynecologic Surgery, Massachusetts General Hospital, Boston, Massachusetts

Study Objective: To assess incisional outcomes following umbilical compared to suprapubic minilaparotomy for tissue extraction.

Design: Retrospective cohort study and follow-up survey.

Setting: Two large academic medical centers.

Patients: Women who underwent laparoscopic hysterectomy or myomectomy with umbilical or suprapubic minilaparotomy for tissue extraction between 2014 and 2016.

Intervention: Medical record review and follow-up survey.

Main Results: A total of 374 women underwent laparoscopic hysterectomy or myomectomy with minilaparotomy: 289 (77.3%) with an umbilical minilaparotomy (UM) and 85 (22.7%) with a suprapubic minilaparotomy (SM). Women who had a UM compared to an SM were similar in age (43.4 ± 8.9 vs. 43.7 ± 7.0, p = .78), BMI (27.9 ± 7.3 vs. 27.7 ± 6.2, p = .83), and procedure type (55.4% hysterectomy vs. 62.4% hysterectomy, p = .25). The mean minilaparotomy size and spermatic cord weight was less for the UM compared to the SM group (3.3 ± 0.8 cm vs. 4.2 cm ± 0.6, p < .01, and 473 ± 357 grams vs. 683 ± 476 grams, p < .01, respectively).

Conclusion: Incisional outcomes are similar for umbilical compared to suprapubic minilaparotomy for tissue extraction during laparoscopic hysterectomy or myomectomy.

194 Open Communications 17 – Laparoscopy (3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Does 3D Laparoscopy Improve Vaginal Cuff Suture Time? A Randomized Controlled Trial
Aja MO, Radnicki M, Larsen C, Goggins E, Cox M, Mushinski A, Manoucheri E, Cohen S, Einarsen J. Division of Minimally Invasive Gynecologic Surgery, Department of Obstetrics, Gynecology and Reproductive Biology, Brigham and Women’s Hospital, Boston, Massachusetts; Department of Obstetrics and Gynecology, Odense University Hospital, Odense, Denmark; Robotic & Minimally Invasive Surgical Research Unit, Copenhagen University Hospital - Herlev Hospital, Herlev, Denmark

Study Objective: Compare the 3-D visual system to traditional 2-D laparoscopic visualization for the laparoscopic closure of the vaginal cuff during total laparoscopic hysterectomy by novice surgeons.

Design: Randomized controlled trial.

Setting: Two tertiary-care academic centers.

Patients: 51 patients undergoing total laparoscopic hysterectomy.

Intervention: Cases were randomized to a 2-D or 3-D vision system with cuff closure performed by a senior resident or MGIS fellow.

Measurements and Main Results: 27 (52.9%) cases were allocated to cuff closure with the 2D system and 24 (47.1%) cases to closure with the 3D vision system. Patient baseline characteristics were similar between the vision systems. Prior cuff closure experience was similar between novice surgeons using 2D vs 3D vision. Mean vaginal cuff closure time was not significantly different between 2D and 2D vision (10.1 mins for 2D vs 12 mins for 3D, p = .31). With multiple linear regression, cuff closure time remained similar between 2D and 3D vision after controlling for OR time, BMI, hospital location, surgeon experience, prior surgery, and follow-up. An additional 24 seconds was added to cuff closure time with each 1 kg/m2 increase in BMI, after controlling for the factors above (p = .006).

Conclusion: We did not demonstrate any benefits of 3D vision system for the task of laparoscopic suturing. This study may be limited by inclusion of only residents and fellows, and future studies would be useful to detect benefits in other surgeon groups.
Effect of Length of Stay on Infection and Readmission Following Laparoscopic Hysterectomy

Schiff LD,1 Strassel PD,2 Dizon AM,1 Carey ET,1 Moulder JK,1 Louie M.1
1Minimally Invasive Gynecologic Surgery, Obstetrics and Gynecology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina; 2Epidemiology, Gillings School of Global Public Health at the University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Study Objective: To assess the effect of length of stay on postoperative outcomes of infection and readmission following laparoscopic hysterectomy.

Design: Retrospective cohort study of prospectively collected quality improvement data.

Setting: American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database and NSQIP targeted data files, including patient information and 30-day postoperative outcomes from over 500 hospitals as well as procedure-specific risk factors and outcomes in a subset of participating hospitals.

Patients: Women undergoing laparoscopic hysterectomy, identified by Current Procedural Terminology codes, for benign conditions from 2014 to 2015 were eligible for inclusion. Patients with gynecologic cancer, whose surgery was performed by a non-gynecology specialist, who were discharged >1 day after surgery, or who were not in the targeted data files were excluded.

Intervention: 30-day post-operative infection and readmission were compared between women discharged the same day after laparoscopic hysterectomy and those discharged on post-operative day 1.

Measurements and Main Results: Multivariable logistic regression was used for analysis of 14,059 patients adjusting for demographic, medical comorbidities, surgical history, and procedure variables. After adjusting for patient demographics and both medical and procedure variables, no significant differences in the odds of surgical site infection or urinary tract infection were seen among patients with same day discharge, aOR 0.80 (95% CI 0.54, 1.17), p = .25, and aOR 0.95 (95% CI 0.69, 1.21), p = .74, respectively. Same day discharge may be associated with reduced odds for readmission, aOR 0.73 (95% CI 0.52, 1.03), p = .07.

Conclusion: There is no significant difference in risk of infection or 30-day readmission following same day discharge and discharge post-operative day one after laparoscopic hysterectomy. Laparoscopic hysterectomy patients may be discharged on the same day of surgery without increasing post-operative infections or readmissions.

Effect of Body Mass Index on Reoperation Following Hysterectomy

Dizon M,1 Strassel PD,2 Schiff LD,1 Louie M,1 Carey ET,1 Moulder JK,1
1Obstetrics and Gynecology, University of North Carolina, Chapel Hill, North Carolina; 2Epidemiology, Gillings School of Global Public Health, Chapel Hill, North Carolina

Study Objective: Assess association of body mass index (BMI) on risk of reoperation following hysterectomy.

Design: Retrospective cohort study of prospectively collected surgical quality improvement data.

Setting: American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database, containing voluntarily submitted patient demographic and perioperative information, and 30-day postoperative outcomes from over 500 hospitals and the targeted data files, which includes procedure-specific risk factors and outcomes available for a subset of participating hospitals.

Patients: Patients undergoing abdominal, vaginal, or laparoscopic hysterectomy, identified with Current Procedural Terminology (CPT) codes, for benign conditions from 2014–2015 were eligible. Patients with cancer, with surgery not performed by a gynecologist, not in the targeted files, or who were missing BMI were excluded.

Intervention: Patients undergoing hysterectomy were compared with respect to 30-day postoperative reoperation and BMI.

Measurements and Main Results: 28,487 patients met inclusion criteria. Multivariable logistic regression was used for analysis; BMI was treated as a quadratic variable. After adjusting for patient and surgical characteristics, compared to a BMI of 24 kg/m², increased BMIs of 29 (aOR 0.83, 95% CI 0.74, 0.94, p = .003), 34 (aOR 0.75, 95% CI 0.61, 0.92, p = .005) and 39 (aOR 0.73, 95% CI 0.56, 0.95, p = .02) were significantly associated with a lower odds of reoperation. However, a low normal BMI of 18.5 was associated with increased odds of reoperation (aOR 1.33, 95% CI 1.12, 1.58, p = .001).

Conclusion: Patient characteristics and medical and surgical factors contribute to reoperation after hysterectomy in this large sample. Contrary to previous data, increasing BMI, independent of medical and surgical factors,
is associated with decreased odds of reoperation after hysterectomy, while low normal BMI is associated with increased odds of reoperation. Further investigation to identify perioperative strategies for mitigating this risk is required to improve the safety of hysterectomy.

**199** Open Communications 17 – Laparoscopy
(3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Administration of Pre-Operative Gabapentin to Patients Undergoing Laparoscopy: a Prospective Double-Blind, Placebo-Controlled Randomized Trial
Benton A.1, Riley K.2, Deimling T.3, Pacis M.1, Kunselman A.3, Sester C.2, Harkins G.3, 1Minimally Invasive Gynecologic Surgery, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania; 2Obstetrics and Gynecology, University of Washington, Seattle, Washington; 3Public Health Sciences, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania

Study Objective: To determine the influence of immediate pre-operative gabapentin on postoperative pain in patients undergoing laparoscopy for benign gynecologic indications.

Design: Prospective double-blind, placebo controlled randomized trial.

Setting: Academic tertiary care hospital.

Patients: One-hundred-nine gynecologic patients undergoing laparoscopy between June 2015 and January 2016.

Intervention: Patients received pre-operative gabapentin (300 mg) or placebo, and pain scores were assessed at 2, 4, 6 and 8 hours post-operatively as well as post-operative days 1–7.

Measurements and Main Results: We randomized 109 patients to receive pre-operative gabapentin or placebo. They were stratified based on a history of chronic pelvic pain. There was no difference between the groups in terms of age, body mass index, gravidity, parity, or past surgical history. Post-operative pain was assessed using the numeric pain rating scale (NRS), rated as 0–10, and the visual analog scale (VAS), rated as 0–100. These values were adjusted for morphine dose received. There was no significant difference in pain scores at any of the immediate post-operative hours and no significant difference in amount of narcotics used.

A secondary analysis based on procedure, hysterectomy or operative laparoscopy, showed no significant difference in pain scores. There was also no significant difference in pain scores on post-operative days one through seven.

Table 1. Total narcotic doses

<table>
<thead>
<tr>
<th>Hour</th>
<th>Gabapentin Mean (mg)*</th>
<th>Placebo Mean (mg)*</th>
<th>Gabapentin vs. Placebo Difference (mg)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–2</td>
<td>8.1</td>
<td>8.3</td>
<td>-0.2</td>
</tr>
<tr>
<td>2–4</td>
<td>1.4</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>4–6</td>
<td>0.9</td>
<td>1.6</td>
<td>-0.7</td>
</tr>
<tr>
<td>6–8</td>
<td>0.7</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>14.3</td>
<td>14.7</td>
<td>-0.4 (p 0.88)</td>
</tr>
</tbody>
</table>

*Data presented as morphine equivalent doses.

Conclusion: A single dose of pre-operative gabapentin did not significantly decrease post-operative pain in gynecologic patients undergoing laparoscopy for benign indications.

**200** Open Communications 17 – Laparoscopy
(3:25 PM - 5:05 PM)

4:43 PM – GROUP C

Minilaparotomy Versus Laparoscopic Myomectomy after Cessation of Power Morcellation: Rate of Wound Complications
Dubin AK.1, Weil J.1, Udaltsova N.2, Zaritsky EF.3, Yamamoto MP.4, 1Division of Research, Kaiser Permanente Northern California, Oakland, California; 2Obstetrics and Gynecology, Kaiser Permanente Northern California, Oakland, California; 3Obstetrics and Gynecology, Kaiser Permanente San Leandro, San Leandro, California

Study Objective: After the FDA statement regarding electronic morcellation devices, gynecologic surgeons are performing laparoscopic and robotic myomectomies with minilaparotomy incisions for tissue morcellation and removal. No data exists focusing on the superficial wound complications as a result of these larger incisions. The objective of this study is to compare the rate of wound complications for myomectomy via minilaparotomy vs laparoscopic or robotic myomectomy.

Design: Retrospective cohort study.

Setting: Kaiser Permanente Northern California.

Fig. 1. Flowchart illustrating assembly of cohort of women who had a myomectomy for uterine leiomyoma for benign indications, Kaiser Permanente Northern California, 2011–2014.
Operative and post-operative characteristics by myomectomy surgery type, Kaiser Permanente Northern California, 2011–2014

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Laparoscopic/Robotic (LR) n = 135 (33.3%)</th>
<th>Minilaparotomy + Laparoscopic/Robotic with Minilaparotomy for Morcellation (MM) n = 270 (66.7%)</th>
<th>Statistical test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Time (min): Median (Q1, Q3)</td>
<td>169.5 (122.0, 223.0)</td>
<td>125.0 (98.0, 162.0)</td>
<td>.01*</td>
</tr>
<tr>
<td>Estimated Blood Loss (mL): Median (Q1, Q3)</td>
<td>100 (50.0,150.0)</td>
<td>100 (50.0, 300.0)</td>
<td>.01*</td>
</tr>
<tr>
<td>Incision Length (cm): Median (Q1, Q3)</td>
<td>n/a</td>
<td>5.0 (4.0, 6.0)</td>
<td></td>
</tr>
<tr>
<td>Operative Complications: n (%)</td>
<td>1 (0.7%)</td>
<td>1 (0.4%)</td>
<td>1.00†</td>
</tr>
<tr>
<td>Transfusions: n (%)</td>
<td>4 (3.0%)</td>
<td>14 (5.2%)</td>
<td>.31‡</td>
</tr>
<tr>
<td>Hospital readmissions: n (%)</td>
<td>5 (3.7%)</td>
<td>11 (4.1%)</td>
<td>.86‡</td>
</tr>
<tr>
<td>ER visits-general: n (%)</td>
<td>20 (14.8%)</td>
<td>31 (11.5%)</td>
<td>.34‡</td>
</tr>
<tr>
<td>ER visits-wound specific: n (%)</td>
<td>0 (0.0%)</td>
<td>4 (1.5%)</td>
<td>.31†</td>
</tr>
<tr>
<td>Clinic visits for wound care: n (%)</td>
<td>41 (30.4%)</td>
<td>58 (21.5%)</td>
<td>.05‡</td>
</tr>
<tr>
<td>Aftercare for surgical wound: n (%)</td>
<td>40 (29.6%)</td>
<td>60 (22.2%)</td>
<td>.10‡</td>
</tr>
<tr>
<td>Overall wound complications: n (%)</td>
<td>2 (1.5%)</td>
<td>7 (2.6%)</td>
<td>0.72‡</td>
</tr>
<tr>
<td>Subcategories of Wound Complications: n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellulitis</td>
<td>0 (0.0%)</td>
<td>1 (0.4%)</td>
<td>1.00†</td>
</tr>
<tr>
<td>Seroma</td>
<td>2 (1.5%)</td>
<td>2 (0.7%)</td>
<td>.60‡</td>
</tr>
<tr>
<td>Hematoma</td>
<td>0 (0.0%)</td>
<td>1 (0.4%)</td>
<td>1.00‡</td>
</tr>
<tr>
<td>Skin Separation</td>
<td>0 (0.0%)</td>
<td>2 (0.7%)</td>
<td>.56‡</td>
</tr>
<tr>
<td>Wound infection</td>
<td>0 (0.0%)</td>
<td>1 (0.4%)</td>
<td>1.00‡</td>
</tr>
<tr>
<td>Post-procedure wound complication</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td></td>
</tr>
</tbody>
</table>

*p-value for comparison calculated by Wilcoxon rank-sum test.
† p-value for comparison calculated by Fisher’s exact test.
‡ p-value for comparison calculated by chi-square test.

There was no significant difference between the wound complications by myomectomy surgery subcategories (LR: 1.5% vs LRM: 0.0% vs ML: 3.1%; p = .54).

Overall wound complications by myomectomy surgery subcategories, Kaiser Permanente Northern California, 2011–2014

<table>
<thead>
<tr>
<th></th>
<th>Laparoscopic/Robotic with Power Morcellation (LR) n = 135 (33.3%)</th>
<th>Laparoscopic/Robotic with Minilaparotomy for Morcellation (LRM) n = 46 (11.4%)</th>
<th>Minilaparotomy (ML) n = 224 (55.3%)</th>
<th>Statistical test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Wound complications: n (%)</td>
<td>2 (1.5%)</td>
<td>0 (0.0%)</td>
<td>7 (3.1%)</td>
<td>.54*</td>
</tr>
</tbody>
</table>

*p-value for comparison calculated by Fisher’s exact test.

The LR group demonstrated a significantly shorter median length of stay (LR: 5.0 hours vs MM: 23 hours; p < .01).

Patients: Women >18 years underwent myomectomy via complete laparoscopic/robotic approach compared to myomectomy performed through, or with aide of minilaparotomy; January 2011 through December 2014.

Intervention: Myomectomy via laparoscopic/robotic approach, complete minilaparotomy and laparoscopic/robotic-assisted by a minilaparotomy for morcellation purposes only.

Measurements and Main Results: 405 cases were included after exclusion criteria were met. 270 were classified as minilaparotomy myomectomy (MM) which included minilaparotomy (ML, n = 224) and laparoscopic/robotic myomectomy aided by minilaparotomy for specimen retrieval (LRM, n = 46). 135 cases were classified as complete laparoscopic or robotic myomectomy (LR).

There was no significant difference between the groups’ patient morbidity, including the primary outcome of wound complications. The MM group experienced a shorter procedure time (125 minutes vs. 169.5 minutes, p < .01). There were 2 (1.5%) wound complications in the LR group and 7 (2.6%) in the MM group (p = .72). There were no significant differences in the subcategories of wound complications (cellulitis, seroma, hematoma, skin separation, wound infection, post-procedure wound complication).

Conclusion: Compared with minilaparotomy myomectomy, laparoscopic/robotic myomectomy is associated with a shorter hospital stay and longer operating time, but no reduction in wound complication or other patient morbidity.

201  Open Communications 17 – Laparoscopy (3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Association of Body Mass Index and Complications Following Hysterectomy

Moulder JK,2 Strassle PD,2 Louie M,1 Carey ET;1 Schiff LD;1 Dizon AM1,3
1 Obstetrics and Gynecology, University of North Carolina–Chapel Hill, Chapel Hill, North Carolina; 2Epidemiology, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, North Carolina

Study Objective: Assess effect of body mass index (BMI) on odds of complications following hysterectomy

Design: Retrospective cohort study of prospectively collected surgical quality improvement data

Setting: American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database, containing voluntarily submitted patient demographic and perioperative information, and 30-day postoperative outcomes from over 500 hospitals and the targeted data files, which include procedure-specific risk factors and outcomes available for a subset of participating hospitals.

Patients: Patients undergoing abdominal, vaginal, or laparoscopic hysterectomy, identified with Current Procedural Terminology (CPT) codes, for
benign indications from 2014–2015 were eligible. Patients with cancer, with surgery not performed by a gynecologist, not in the targeted files, or who were missing BMI were excluded.

**Intervention:** Patients undergoing hysterectomy were compared with respect to BMI and 30-day postoperative complications (as recorded by NSQIP: cardiac, gastrointestinal, genitourinary, infection, respiratory, vascular, reoperation, readmission, death).

**Measurements and Main Results:** 28,487 patients met inclusion criteria. Multivariable logistic regression was used for analysis; BMI was treated as a quadratic variable. After adjusting for patient and surgical characteristics, compared to a BMI of 24 kg/m², no significant differences in the odds of complication were seen among patients with increased BMI of 34 (aOR 0.95, 95% CI 0.87, 1.03), 39 (aOR 0.97, 95% CI 0.87, 1.07) or 45 (aOR 1.04, 95% CI 1.04, 1.18). However, a low normal BMI of 18.5 was associated with slightly increased odds of complications (aOR 1.09, 95% CI 1.01, 1.17).

**Conclusion:** Contrary to previous data, increasing BMI, independent of medical and surgical factors, does not appear to be associated with increased odds of postoperative complications. However, low normal BMI may be associated with increased odds of complications and future research should investigate reasons for this association.

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**202 Open Communications 17 – Laparoscopy**

**4:57 PM – GROUP C**

**Association between Patient Depression Level and Hysterectomy Satisfaction**

Rossick A, Wegienka G, Sangha R. Henry Ford Hospital, Detroit, Michigan

**Study Objective:** In the U.S., hysterectomy is the most common non-obstetrical surgery for women. However, there have been few investigations into understanding factors, such as depression, related to procedure satisfaction.

**Design:** Prospective Cohort Study.

**Setting:** Henry Ford Health System.

**Patients:** Women planning hysterectomy for non-cancer indications.

**Intervention:** Hysterectomy by any route.

**Measurements and Main Results:** Methods: Women who had planned to have a hysterectomy at Henry Ford Health System in Detroit for non-cancer reasons, were recruited via telephone for longitudinal study. These are data from 121 women who had their surgery ≥6 months ago. Women reported procedure satisfaction (response of “agreed” or “strongly agreed” vs. “neither agree nor disagree”, “disagree” or “strongly disagree” with the following: “I was satisfied with my decision.”) within 14 days prior to surgery and at 1, 4, and 6-weeks, and 3 and 6-months post-surgery. The Patient Health Questionnaire-9 (PHQ-9) was used to measure depression severity. Wilcoxon signed-rank tests were used to assess associations between PHQ-9 scores and satisfaction at each time-point.

**Results:** Average participant age was 46.7 years (SD = 8.4, range = 30–64 years) and 49.6% self-identified as Black. Mean ± SD PHQ-9 scores at each time point were: 6.2 ± 6.0, 4.0 ± 4.4, 3.4 ± 3.9, 3.2 ± 3.7, 3.7 ± 5.0, and 3.4 ± 4.9. Percentages of women who reported being satisfied at each time point are: 95%, 77.7%, 72.7%, 76.0%, 76.0% and 76.9%. PHQ-9 depression scores were associated with post-surgical satisfaction only at 1-week and 3-months post-surgery (p < .001). Mean depression scores for “satisfied” versus “unsatisfied” participants were: 1 week, 3.6 (SD = 4.4) versus 6.0 (SD = 4.7); and 3 months, 3.18 (SD = 4.6) and 6.3 (SD = 5.4).

**Conclusion:** Recruitment and follow-up are ongoing, thus analyses will continue with a larger sample size as these preliminary data suggest depression may be associated with procedural satisfaction in the early post-surgical period.
tackling the posterior bladder wall to the psoas muscle, is a key approach.

**Objective:** To describe the robotic surgical management of bilateral UE.

**Clinical information:** A 33 year-old G0 recurrent Stage IV endometriosis presented with bilateral ureteral strictures and infertility.

**Results:** No evidence of bilateral ureteral strictures and leak 2 month post-operative by CT-urogram.

**Conclusion:** Key of successful management in bilateral ureteral endometriosis is following the principles of ureteroneocystostomy.

**206 Video Session 1 – Robotics (11:00 AM - 12:00 PM)**

**11:21 AM – GROUP A**

**Diaphragmatic Endometriosis (DE) Surgical Techniques for the Right Side – What We Have Learned after 31 Cases**

Ribeiro DM,1 Rib GM,1 Santos TP,1 Chamie L,2 Serafini P,3 Weerbe E.3

1Hospital São Luiz; Morumbi, São Paulo, Brazil; 2Chamie Imagem da Mulher, São Paulo, Brazil; 3Clinica Huntington, São Paulo, Brazil

Among thirty-one cases operated since 2007, we chose two that could represent the current techniques used for treating DE - even though all patients had excellent results, with no signs of recurrence of symptoms.

We believe that ablation with any kind of energy is the gold standard treatment for superficial lesions with or without partial infiltration of diaphragmatic musculature. For the treatment of our patients laparoscopy robotic-assisted (LRA) technology was used.

In cases where lesions were deep or had already caused fenestration in the diaphragm surface or that are affecting the central tendon of the diaphragm, we preferred resection followed by reconstruction, applying the video assisted thoracoscopic(VAT) technique associated with LRA.

This video shows how to obtain maximum visualization of the diaphragmatic surface and the importance of VAT, avoiding iatrogenic nerve plexus and vascular injuries, providing new information of others residual endometriotic lesions in the thoracic cavity.

**207 Video Session 1 – Robotics (11:00 AM - 12:00 PM)**

**11:32 AM – GROUP B**

**Uterus Transplantation: Robotic Surgeon Perspective**

Fornalik H, Fornalik N. Surgical Oncology, Goshen Center for Cancer Care, Goshen, Indiana

We demonstrate dissection of deep uterine vessels during robotic radical nerve-sparing hysterectomy. We discuss advantages and disadvantages of utilization of robotic platform for deep pelvic surgery. Potential benefits of adaptation of robotic technique to uterine harvesting from live donor are discussed. Relevant aspects of anatomy and modifications to technique of uterine harvesting to enhance transplant vasculature are demonstrated. Level of experience and skill set needed for likely success are discussed. The tutorial is enhanced by diagrams.

**208 Video Session 1 – Robotics (11:00 AM - 12:00 PM)**

**11:39 AM – GROUP B**

**Robotic Uterosacral Ligament Suspension Following Ureteral Neocystotomy**

Mehandru N,1 Yi F. Advanced Gynecology Surgery and Pelvic Pain, Dignity Health-St. Joseph’s Hospital and Medical Center, Phoenix, Arizona; 2Department of Medical and Surgical Gynecology, Mayo Clinic Hospital-Phoenix, Phoenix, Arizona

Introduction: 56 year old G3P3 presents with recurrent vaginal vault prolapse and pelvic pain. She had a prior robotic sacrocolpopexy complicated by a subsequent right vesicovaginal fistula, which was repaired by performing a ureteral neocystostomy and partial takedown of the sacrocolpopexy. On exam, she had pain on palpation of mesh remaining at the apex of the vagina.

**Purpose/Methods:** To demonstrate removal of painful mesh and correction of recurrent vaginal vault prolapse following right ureteral neocystotomy through robotic uterosacral ligament suspension (USLS).

**Results:** Significantly improved pain and resolution of prolapse.

**Discussion/Conclusion:** USLS was chosen in order to maintain the vaginal axis and avoid excessive tension on the right ureter, which was encased in adhesive scar tissue from the initial robotic sacrocolpopexy. Deviation of the vaginal axis posteriorly via sacrosphinctus ligament suspension may inadvertently lead to neoureteral obstruction. Partial removal of mesh was performed due to pain symptoms.

**209 Video Session 1 – Robotics (11:00 AM - 12:00 PM)**

**11:46 AM – GROUP B**

**Robotic-Assisted Uterine Artery Ligation via the Posterior Approach for Huge Myomecny**

Chang J, Liu W-M. Department of Obstetrics and Gynecology, Taipei Medical University Hospital, Taipei, Taiwan

The objective of this video is to demonstrate the techniques and surgical landmarks of uterine artery ligation via the posterior approach in Robotic-assisted myomectomy. We present a case of a 38 year-old woman with a large myoma at the uterine fundus. The posterior approach was selected in this case because the myoma obstructed our access to the lateral approach. We will explain this approach step by step, combined with visual labels. Moreover, the benefits of uterine artery ligation will be discussed briefly.

**210 Video Session 1 – Robotics (11:00 AM - 12:00 PM)**

**11:53 AM – GROUP B**

**Patient-Specific Approach to Positioning during Robotic Surgery**

Chandler J, Mihalov LS. Virginia Mason Medical Center, Seattle, Washington

The objective of our video is to demonstrate the patient-specific approach to Trendelenburg positioning for robotic-assisted pelvic surgeries in our institution. Robotic-assisted pelvic surgery is typically performed with the patient in steep Trendelenburg, or an incline of 20–30 degrees. The negative physiological impact of steep Trendelenburg has been demonstrated in a number of studies. Our technique limits the degree of incline to the amount needed to provide adequate exposure to the target anatomy.

**TUESDAY, NOVEMBER 14, 2017**

**211 Video Session 2 – Endometriosis (12:10 PM - 1:10 PM)**

**12:10 PM – GROUP A**

**A Neuroanatomical Approach to the Resection of Peritoneal and Deeply Infiltrative Endometriosis**

Hudgens JL,1 Cooper JA,2 Lang TG,3 Pasic RP,3 ‘Department of Ob/Gyn, University of Mississippi, Jackson, Mississippi; 2Department of Ob/Gyn, University of Louisville, Louisville, Kentucky
The purpose of this video is to present the neuroanatomical location of the plexus pelvinus (inferior hypogastric plexus), Superior hypogastric nerves and the postganglionic sympathetic nerve fibers. We will also demonstrate how to apply this knowledge to the nerve-sparing resection of peritoneal and deeply infiltrative endometriosis.

We believe that in patients with endometriosis, removal of affected tissue is an important part of treatment, with or without hysterectomy. We demonstrate efficient technique for removing affected peritoneum in the setting of a total laparoscopic hysterectomy. Ureteral and parametric anatomy are demonstrated, as well as appropriate dissection technique.

Video Session 2 – Endometriosis
(12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Bladder Endometriosis: Surgical Principles
Lozada Y, Ghazi A, Carrillo JF. Obstetrics and Gynecology, University of Rochester School of Medicine and Dentistry, Rochester, New York

Urinary tract endometriosis is uncommon but can significantly impact patient’s quality of life. It affects approximately 1% of women with this disease. The bladder is the most commonly affected urinary tract site. Patients often present with bothersome urinary tract symptoms that may mimic interstitial cystitis or a persistent infection. Although medical treatment has been described, the benefits are short-lived. Surgical resection of bladder lesions has been shown to be superior for symptom alleviation and has less risk of recurrence. Our video describes important pearls and perioperative considerations to keep in mind when surgically treating bladder endometriosis (BE). Three patients who underwent robotic partial cystectomy are presented. We emphasize the importance of comprehensive anatomic knowledge, and the proper technique for resection of bladder lesions. We also provide a meticulous yet concise stepwise guide for effectively managing patients with BE.

Video Session 2 – Endometriosis
(12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Peritoneal Pockets: Tips for Complete Excision
Stuparich MA, Lee TTM. Department of Obstetrics, Gynecology, and Reproductive Sciences, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania

Pelvic peritoneal pockets were first described in 1927 and are also known as Allen-Masterson pockets, Allen-Masterson windows, or deep retraction pockets. Two leading theories exist to explain their formation. First, the pockets may result from peritoneal irritation or invasion by endometriosis that causes scarring and retraction. Alternatively, a retraction pocket may exist primarily and endometriosis may grow on the altered peritoneal surface. Peritoneal pockets should be excised when visualized. Knowledge of the anatomy in the pocket location is imperative as complete pocket removal may require ureterolysis or mobilization of the bowel. The lesion should be circumscribed as anatomy and pathology allow. Traction and countertraction as well as constant tissue manipulation with the assisting hand increase the efficiency of dissection. Maintenance of hemostasis is important to prevent obscuring of tissue planes.

Video Session 2 – Endometriosis
(12:10 PM - 1:10 PM)

12:31 PM – GROUP A

Laparoscopic Hysterectomy with Extended Peritoneectomy for Endometriosis
Fogelson NS, Rosenfield R. Pearl Women’s Center, Portland, Oregon

This video demonstrates technique for performing a bilateral pelvic sidewall peritoneectomy as part of a total laparoscopic hysterectomy, in the setting of extensive stage 1 endometriosis. The patient is a 42 year old G2P1 with a history of multiple ablative surgeries for endometriosis and pelvic pain. She has persistent dysmenoreah and is seeking definitive treatment.

Video Session 2 – Endometriosis
(12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Minimizing Ovarian Damage When Resecting Endometriomas
Zakhari A,1 Papillon-Smith J,1 Solnik MJ,1 Muri F,1,2 McGill University Health Centre, Montreal, Quebec, Canada; 3Mt. Sinai Hospital, Toronto, Ontario, Canada

Endometriomas are commonly encountered in clinical practice, and at times resection is warranted for patients seeking fertility or who are symptomatic from their presence. A desire to definitively resect the lesion is often tempered with concern over excessive collateral damage to healthy ovarian tissue during surgery. Several surgical techniques can be employed to minimize damage to surrounding normal tissue while ensuring adequate hemostasis. These techniques include the use of dilute injectable vasopressin, endoloop closure of raw ovarian edges, hemostatic agents such as Surgiflo or Surgicel, suturing the ovary, and focused bipolar electrosurgery.

Video Session 2 – Endometriosis
(12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Endometriosis and Uterine Anomalies
Melnyk A, Rindos N. Lee TTM. Department of Obstetrics, Gynecology, and Reproductive Sciences, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania

The purpose of this video is to review the management of endometriosis in the setting of uterine anomalies. A patient with a uterine anomaly has a
high probability of having additional genitourinary malformations, including ectopic ureters. She also will likely have an abnormal blood supply to the uterus. This has great implications for surgeons, who need to navigate through the pelvis and be aware of all of the potential anatomical variations that may be present. A uterine malformation can also pose a challenge to manipulation of the uterus, and the surgeon must be resourceful in these situations. This video will review these principles with two cases: a laparoscopic right hemicystectomy and excision of endometriosis in the setting of an obstructed, noncommunicating rudimentary horn, and a laparoscopic hysterectomy and right salpingo-oophorectomy, bilateral ureterolysis, and excision of endometriosis in the setting of a didelphys uterus.

218 Video Session 2 – Endometriosis
(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Robotic en-Bloc Excision of DIE of the Urinary Tract
Schröder MN1, Patel T2, Mikhail E1. Obstetrics and Gynecology, University of South Florida, Tampa, Florida; 2Urology, University of South Florida, Tampa, Florida

To describe a surgical approach of hysterectomy and bladder reconstruction for advanced endometriosis of the urinary tract.

Design: Stepwise demonstration of the technique with narrated video footage.

Setting: Deep infiltrating endometriosis of the urinary tract can obstruct anatomical planes which can make a hysterectomy challenging. The patient case presented involves deep infiltrating endometriosis of the bladder and ureter, which caused ureteral obstruction.

Interventions: Typical surgical approach was modified due to presence of obstructing endometriotic implants. Due to obliteration of the vesicouterine pouch, dissection of the paravesical and pararectal spaces was performed to identify the uterine arteries at its origin off the internal iliac. Bladder mobilization was performed by dissection down to the space of Retzius. Bladder mobilization and psoas hitch was needed to facilitate ureteric reimplantation.

Conclusion: In cases of advanced endometriosis of the urinary tract, radical en-block resection may be needed.

TUESDAY, NOVEMBER 14, 2017

219 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Laparoscopic Ureteroneocystostomy Following UV Fistula in Ectopic Kidney
Puntambekar S, Puntambekar S, Manchekar M, Parikh K, Mehta M. Galaxy Care Laparoscopy Institute-Pune, Pune, Maharashtra, India

Ureteroneocystostomy with contralateral psoas hitch was performed in an operated case of Total Laparoscopic Hysterectomy with Left Ectopic Pelvic Kidney in a patient presenting with Uretero-Vaginal Fistula. In this case, the left pelvic kidney and ureter were anatomically completely malrotated leading to distorted anatomy. The conventional principles of surgery for ureteric injury based on the length of the ureter could not be applied here. Retrograde tracing of the cut end of the ureter was done. Bladder was mobilised anteriorly and fixation of the bladder to the psoas muscle on the contra-lateral side was done followed by Lich-Gregoir ureteral reimplantation technique. The conventional style of ipsilateral psoas hitch would lead to kinking of the short length of the ureter and hence abandoned. The surgical principles of a watertight and tension-free vesicoureteral anastomosis were followed. This procedure is reproducible and is associated with low morbidity and has maintained adequate success rate.

220 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Laparoscopic Sacrocolpopexy with Prior Transvaginal Mesh
Palvia V, Gonzalez Rios A, Ephraim S, Lucente V. The Institute of Female Pelvic Medicine & Reconstructive Surgery, St. Luke’s University Health Network, Bethlehem, Pennsylvania

A 69-year-old female with recurrent vaginal vault prolapse underwent a laparoscopic sacrocolpopexy. She had a prior hysterectomy and prior pelvic floor repair which included transvaginal mesh. In light of her recurrent prolapse, she was consented for laparoscopic sacrocolpopexy. Our main objective is to describe proper surgical technique and dissection in a patient with a history of prior transvaginal mesh who is undergoing laparoscopic sacrocolpopexy. We aim to promote this procedure and mitigate any concerns regarding peritoneal dissection and mesh placement in a patient with prior mesh.

221 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

A Modification of Sacrocolpopexy in the Setting of a Pelvic Kidney
Davidson ERW, Ashburn J, Paraiso MF. Cleveland Clinic, Cleveland, Ohio

An ectopic kidney occurs due to abnormal renal ascent during embryologic development. The objective of this video is to demonstrate a sacrocolpopexy modification for a known right-sided pelvic kidney in a patient with recurrent prolapse less than one year after vaginal native tissue repair. After patient-centered counseling, she opted for laparoscopic sacrocolpopexy. Intraoperatively, the pelvic kidney was overlying the sacrum precluding the right-sided pre-sacral space and retroperitoneal dissection. The rectosigmoid colon and rectum were dissected off the sidewall and posterior vagina. After bladder dissection and vaginal mesh attachment, the sacral arm was tacked to the anterior longitudinal ligament. A pelvic kidney may be a rare finding in a patient desiring prolapse repair. Options for treatment if a right-sided pelvic kidney is found depend on preoperative counseling and include (1) left-sided sacrocolpopexy; (2) endoscopic uterosacral ligament colpopexy, and (3) vaginal prolapse repair with native tissue or graft augmentation.

222 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Reconstruction of the Distal Ureter Following an Extensive Resection of Ureter for Stage IV Endometriosis
Mehta M, Puntambekar S, Chitale M, Puntambekar S, Parikh H. Galaxy Care Laparoscopy Institute-Pune, Pune, Maharashtra, India

The ileal ureter is a reasonable option for long-term ureteral reconstruction with preserved renal function in carefully selected patients. The procedure has a high success rate, and with few postoperative complications and requires a thorough knowledge of pelvic anatomy. We had an operated case of Total Laparoscopic Hysterectomy for Grade 4 Endometriosis with completely transected distal 2/3rd of the ureter leading to a temporary cutaneous ureterostomy. The patient was referred to us from another centre six weeks post surgery. This video step-wise demonstrates the interposition of ileum in the ureter. The Distal loop of ileum is mobilized and trimmed to match the diameter of the ureter. Ileum is a suitable substitute of ureter
due to its rich blood supply and peristalsis, thus maintaining the natural vesico-urinary anti-reflux mechanism. Urinary drainage was satisfactory and the renal function and configuration was maintained well post surgery.

223 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Minimally Invasive Cystoscopic Suture Excision
Pollard RR, Petrikovets A, Henderson W. Urogynecology, MetroHealth Medical Center, Cleveland, Ohio

The patient is a 40yo G3P3 with a history of endometriosis, pelvic organ prolapse, and stress urinary incontinence. Patient underwent a total laparoscopic hysterectomy, retropubic midurethral sling, laparoscopic uterosacral ligament suspension using two ethibond sutures. Cystoscopy was normal at the end of the procedure. It was felt that this was likely due to diverticulitis after Colorectal was consulted. Three months postoperatively, patient underwent a sigmoid resection. This was complicated by a cystotomy which was repaired via mini-laparotomy. Cystoscopy revealed a normal bladder with a water tight closure. During recovery and for the next several months, patient complained of urinary urgency and frequency. She failed a trial of anti-cholinergic medication and subsequently underwent an in office cystoscopic evaluation - revealing what appeared to be an ethibond suture. Conclusion: This is a simple, reproducible technique for excision of sutures and other foreign bodies from the bladder.

224 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Natural Orifice Transluminal Endoscopic Surgery (NOTES) of Hysterectomy and Bilateral Salpingo-Oophorectomy for Female to Male Transgender Men
Jung L-Y, Lee Y-J, Chao H-T, Wang P-H, Chen Y-F. 1Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei City, Taiwan; 2Department of Medicine, National Yang-Ming University, Taipei City, Taiwan

Hysterectomy is the most common procedure in department of gynecology. The indication varies. Here, we focused on female to male transgender men. Traditionally, we may perform vaginal hysterectomy, abdominal hysterectomy, total laparoscopic hysterectomy or laparoscopic assisted vaginal hysterectomy for them. Vaginal hysterectomy is advantageous in transgender men due to testosterone induced small uterus. However, because of low parity and testosterone use, the vagina quality is not good, and it makes vaginal hysterectomy more difficult. Here we present natural orifice transluminal endoscopic surgery (NOTES) of hysterectomy and bilateral salpingo-oophorectomy. This technique initiated like vaginal hysterectomy but offered better surgical field in the pelvic cavity. Therefore, it is good for checking bleeding and reduces blood loss. This surgery could also enhance cosmetic benefits which transgender men doesn’t need to explain abdominal scar. In conclusion, NOTES hysterectomy is feasible for female to male transgender men.

225 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

A Non-Traditional Route to the Vaginal Hysterectomy: the Döderlein-Kröning Hysterectomy
Thomas D, Hallner B. Obstetrics and Gynecology - Division of Female Pelvic Medicine and Reconstrcutive Surgery, Louisiana State University Health Sciences Center New Orleans, New Orleans, Louisiana

Approximately 590,000 hysterectomies are performed annually in the United States. Indications for hysterectomy include leiomyomas, endometriosis and uterine prolapse. Although vaginal hysterectomy is the preferred hysterectomy route, only 22% of all hysterectomies are performed via the transvaginal route. The Heaney vaginal hysterectomy technique is the traditional surgical method taught and performed. This method does have its limitations, one of which includes decreased visualization of vascular pedicles. In 1906, Döderlein-Kröning described a vaginal hysterectomy technique that removes the uterus through an anterior colpotomy.

The purpose of this video is to demonstrate an alternative and safe vaginal hysterectomy technique using the Döderlein-Kröning approach to serve as an educational tool for gynecologist of all levels.

226 Video Session 3 – Urogynecology
(2:15 PM - 3:15 PM)

3:08 PM – GROUP B

NOTES Surgery: Internal Cervical Mass Removal
Klithemeres C, Blazek K, Niraj B, Gau X. Obstetrics and Gynecology, Baylor College of Medicine, Houston, Texas

This is a video utilizing natural orifice transluminal endoscopic surgery for an enlarged 9 cm cervical mass. The patient was referred for a complaint of mass effect symptoms with enlarged cervical mass. She desired definitive surgical management. Initially the mass was presumed to be a fibroid, but an MRI revealed a Nabothian cyst. It was unable to be removed laparoscopically due to limited visualization of the cyst. When approached vaginally, it was easily identifiable in the cervical canal. Complete excision was possible using a single-site platform through the vaginal introitus. The cyst was drained, then completely excised. A Cook catheter was used to create pressure in the cervical canal using the vaginal balloon, which was removed 72 hours later. The patient has since recovered completely and is asymptomatic.

TUESDAY, NOVEMBER 14, 2017

227 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Hysteroscopic Removal of Embedded IUD Fragment Using Fluoroscopic Needle Localization
Tan J, Levine M. Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, New York

Embedded intrauterine device (IUD) fragments are challenging to locate and remove in a minimally invasive fashion. Fluoroscopy is regularly used by other specialties for localization of foreign bodies. We present the case of a 29 year old P1 with six months of pelvic pain after removal of a ParaGard IUD and imaging consistent with an embedded IUD fragment in the cervix. This video describes a novel technique using c-arm fluoroscopy and three spinal needles to localize the fragment in the cervix. After visualizing the fragment in three-dimensional space, a hysteroscope is used to remove the embedded IUD fragment. Patient tolerated the procedure well and there were no complications.

228 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Hysteroscopic Resection of a Complete Vagino-Cervico-Uterine Septum
Khurana R, Dash BB, Sharma A, Mittal P, Sandeep M, Kaur G. Ob/Gyn, Rejoice Infertility and Gynecologic Laparoscopy Clinic-Delhi, Delhi, India

This is a video utilizing natural orifice transluminal endoscopic surgery for an enlarged 9 cm cervical mass. The patient was referred for a complaint of mass effect symptoms with enlarged cervical mass. She desired definitive surgical management. Initially the mass was presumed to be a fibroid, but an MRI revealed a Nabothian cyst. It was unable to be removed laparoscopically due to limited visualization of the cyst. When approached vaginally, it was easily identifiable in the cervical canal. Complete excision was possible using a single-site platform through the vaginal introitus. The cyst was drained, then completely excised. A Cook catheter was used to create pressure in the cervical canal using the vaginal balloon, which was removed 72 hours later. The patient has since recovered completely and is asymptomatic.
A rare case of secondary infertility with recurrent pregnancy loss, diagnosed with a complete vagino-cervico-uterine septum. The patient conceived after resection of septum and was followed up till 28 weeks of pregnancy. This video demonstrates technique of hysteroscopic correction of the complete septum, both uterine and vaginal part by using resectoscope with collins knife. The advantage of hysteroscopic resection of vaginal septum over trans-vaginal technique is due to better magnification leading to better hemostasis and precise division of septum.

229 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Intrauterine Device Removal in Early Pregnancy via “See and Treat” Hysteroscopy
Sirota I, Tomita S, Borovitch A, Obstetrics and Gynecology, Weill Cornell Medicine, New York-Presbyterian Queens, New York, New York; Obstetrics, Gynecology and Reproductive Sciences, Icahn School of Medicine at Mount Sinai, New York, New York; Obstetrics and Gynecology, Bellinson Hospital, Petah Tikva, Israel

Intrauterine device (IUD) removal in early pregnancy, when the patient desires to continue the pregnancy and IUD strings are not apparent, is a challenging condition. Pregnant women with an embedded IUD in the uterine cavity are at high risk of adverse obstetrical outcomes such as early and late miscarriages, chorioamnionitis, premature rupture of membranes, and preterm delivery. Several studies have demonstrated that hysteroscopy can be advantageous in this framework. This video shows that “see and treat” hysteroscopy without the need of anesthesia and cervical dilation is a safe and feasible minimally invasive surgical approach for removal of an embedded intrauterine device within the uterine cavity in early pregnancy.

230 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Hysteroscopic Resection of Complete Uterine Septum Under Ultrasound Guidance
Aguirre AG, Roy KJ, Minimally Invasive Gynecologic Surgery, Banner University Medical Center Phoenix, Phoenix, Arizona; Arizona Gynecology Consultants, Phoenix, Arizona

This video demonstrates the steps taken during resection of uterine and vaginal septum. The vaginal septum was removed vaginally, Cystoscopy was performed to assess integrity of the bladder prior to removal of the vaginal septum. Diagnostic vaginoscopy then revealed the location of each cervix within the vagina. Both uterine cavities were explored under ultrasound guidance. In this video we are able to demonstrate simultaneous ultrasonographic and hysteroscopic footage of the procedure.

231 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Hysteroscopic Myomectomy with Intra-Myoma Vasopressin
Gandhi AR, Imudia A, Obstetrics and Gynecology, University of South Florida, Tampa, Florida

Large subserosal myomas are amenable to hysteroscopic resection. However, extremely vascular myomas can disrupt visualization and require higher volume use of distension fluid, occasionally resulting in premature procedure termination and necessitating a second procedure. This video highlights the use of a cystoscopic Laborie needle to inject dilute vasopressin into the myoma prior to hysteroscopic resection. This technique allows adequate visualization, minimizes fluid deficit, and facilitates complete resection at the initial surgery.

232 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

Hysteroscopic Treatment of Cystic Adenomyosis
Smorgik N, Naor M, Maymon R, Schneider D, Yakinin Z, Pansky M. Department of Obstetrics and Gynecology, Assaf Harofe Medical Center, affiliated with the Sackler Faculty of Medicine, Tel Aviv University, Beer Yaakov, Israel

Cystic adenomyoma is a rare variant of adenomyosis, often associated with pelvic pain and dysmenorrhea. The most common surgical treatment for cystic adenomyoma is laparoscopic resection. However, the hysteroscopic approach may allow for an alternative minimally invasive surgical approach. In this video, we describe a technique for hysteroscopic treatment of cystic adenomyoma using simultaneous trans-rectal ultrasound. The use of the trans-rectal ultrasound enables the identification of the location of the cystic adenomyoma, which cannot be otherwise visualized on the hysteroscopic inspection of the uterine cavity.

233 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Vaginoscopy: Tips and Tricks for the Novice
Klebanoff J, Mukai GE. Obstetrics and Gynecology, Christiana Care Health System, Newark, Delaware

We present a case of a 57 year-old patient with postmenopausal bleeding who underwent hysteroscopy in the office as well as the operating room. The patient was taken to the operating room due to the need for hysteroscopic morcellation. The video objective is to demonstrate the technique, and provide helpful tips, for performing vaginoscopic hysteroscopy. We provide a brief history of vaginoscopy and provide an overview of the current literature regarding its efficacy and acceptability.

Goals for viewer: Understand the technique(s) for successful office based vaginoscopic hysteroscopy.

234 Video Session 4 – Hysteroscopy
(3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Foreign Body Removal & Polypectomy Following Hysteroscopic Tubal Occlusion
Borudulin O, Hill A. Department of Obstetrics & Gynecology, University of Arizona College of Medicine Phoenix, Phoenix, Arizona

The purpose of this video is to highlight a former method of hysteroscopic contraception, via silicone tubal occlusion. This method, which rose to favor in the 1970's-1980's, has become less favored with advances in laparoscopic techniques and long acting reversible contraceptives. However, there is a paucity of video demonstrating how these plugs are inserted and removed. Additionally, this patient had a fragment of her IUD remaining inside the uterine cavity and attached to the silicone plug itself, which we removed. This case video demonstrates how the tubal occlusion material may appear on ultrasound and hysteroscopically, and the difficulty associated with removal of hysteroscopic plugs. In addition, we also demonstrate use of vaginoscopy technique in order to decrease OR time and length of the case, and lastly, we demonstrate removal of a polyp using simple hysteroscopic graspers.
Cystic Adenomyosis Arising after Laparoscopic Myomectomy
Patzkowsky K, Fritton K. Gynecology, Johns Hopkins Hospital, Baltimore, Maryland

An unusual case of cystic adenomyosis presenting eleven months after laparoscopic myomectomy as a complex cystic intracavitary mass. The mass was successfully treated via hysteroscopic resection.

Hysteroscopic Intrauterine Adhesiolysis Using the Blunt Spreading Dissection Technique with a Double Action Forceps
1Department of Ob/Gyn, Third Xiangya Hospital of Central South University, Changsha, Hunan, China; 2Department of Ob/Gyn, Baylor College of Medicine, Houston, Texas

Study Objective: We propose a novel technique for hysteroscopic adhesiolysis (HA) using double action forceps in a spreading motion to dissect the layer between the anterior and posterior uterine walls. To the best of our knowledge, this technique has not been previously reported.

Patient: A 36 year old G3P1A2 with amenorrhea for 5 months following elective surgical termination of a 7w4d intrauterine pregnancy with no cyclic lower abdominal pain. The endometrial cavity could not be identified either by hysteroscopy or ultrasound.

Measurement and Main Results: The uterine cavity was successfully restored using the blunt spreading dissection technique.

Conclusion: HA using blunt spreading dissection technique to restore the anatomic layer of the uterine cavity is a simple, effective and safe hysteroscopic skill, particularly when the endometrial lining is indistinct under transabdominal ultrasound monitoring and exploration of the uterine cavity hysteroscopically has failed.

Essure® Complication: Myometrial Insertion of Microinsert
Woo JJ. Obstetrics & Gynecology Riverside Regional Medical Center, Newport News, Virginia

A G3P2 with satisfied fertility had an uncomplicated Essure® procedure. The routine 4-month hysterosalpingogram revealed the right microinsert was improperly placed. The appearance was concerning for cornual or fallopian tube perforation. The patient had requested the entire device be removed, even if definitive management meant a total laparoscopic hysterectomy. After a succession of hysteroscopic and laparoscopic evaluations, no perforation was appreciated. Several unsuccessful attempts were made to remove the device by operative hysteroscopy. Due to the patient’s request, the previously consented and discussed total laparoscopic hysterectomy was completed at this time.

On dissection, the microinsert was noted to have embedded into more than 50% of the myometrium.

One theory is that the device was not catheterized into the tubal ostium, but into a gland opening of adenomyosis.

Our thought process and surgical skills are demonstrated through this unusual case presentation. Educational points are reviewed at the end of the video.

Targeted Hysteroscopic Resection of a Spontaneous Missed Abortion
Wu CQ, Kamencic H. Obstetrics, Gynaecology and Reproductive Sciences, University of Saskatchewan, Regina, Saskatchewan, Canada

Case presentation: 38 year-old gravida 6 para 1 female with four consecutive first trimester spontaneous pregnancy losses. Early ultrasound in the pregnancy revealed a missed spontaneous abortion at 7-weeks gestation, for which she chose surgical management.

Background: Current standard of care for surgical management of spontaneous abortions involves suction dilatation and curettage. The FDA-approved MyoSure tissue removal system (Hologic, Inc., Bedford, MA) is a suction-based hysteroscopic morcellation device that relies on mechanical energy delivered through a tubular cutter.

Objective: To assess the feasibility and efficacy of targeted hysteroscopic resection for a missed spontaneous abortion.

Procedure: We demonstrate the case of successful evacuation of a missed spontaneous abortion using targeted hysteroscopic resection. There were no complications and minimal blood loss. Patient’s recovery was unremarkable.

Conclusion: Targeted hysteroscopic resection is a safe and effective method in the surgical management of first trimester missed spontaneous abortions.

Applying Hand-Assisted Laparoscopic Surgery to Benign Gynecology
Farag S, Frazzini Padilla P, Tuexen G, Sprague ML, Zimberg SE.
1Gynecology, Cleveland Clinic Florida; 2Florida Atlantic University Charles E. Schmidt College of Medicine, Boca Raton, Florida

Hand-assisted laparoscopic surgery (HALS) has been used in colorectal surgery, urology, gynecologic oncology, and benign gynecologic surgery. The method introduces modification of the surgeon’s hand into the abdomi-
nal cavity at the time of conventional laparoscopy, allowing for tactile feedback while maintaining high definition laparoscopic magnification. Advantages of using HALS include shortened learning curve of laparoscopic surgical procedures and decreased conversion to laparotomy. Additionally, when compared to laparotomy, HALS results in decreased blood loss, morbidity, post-operative pain and narcotic usage, and length of hospital stay. The objectives of this video are to present the surgical setup for HALS and specific techniques including uterine manipulation, organ retraction, ureteral identification, tissue extraction, blunt dissection, and suturing through the HALS port.

241 Video Session 5 – Laparoscopy
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Laparoscopic Repair of Posterior Cervical Perforation
Touhia T,1, Carey E,1, Obstetrics and Gynecology, Jennie Stuart Medical Center, Hopkinsville, Kentucky; 1Obstetrics and Gynecology, University of North Carolina, Chapel Hill, North Carolina

Uterine Perforation is a known complication during D&E. The risk of uterine perforation increases with increasing gestational age. Identification of this complication is critical. The location of the perforation could be in the cervical portion or lower uterine segment which could be challenging to repair. We present a case of uterine perforation during D&E of a twin gestation at 20 weeks. The laceration is located in the cervical portion of the uterus and this was repaired laparoscopically. The steps necessary for a safe laparoscopic repair are highlighted including retroperitoneal dissection and clear identification of the ureter and the uterine artery. Some valuable techniques are demonstrated including uterine stitch to provide uterine manipulation and access to the posterior cul-de-sac as well as a backhand stitch during the laparoscopic repair of the laceration. This video shows that laparoscopic repair of a cervical or lower uterine segment perforation is safe and feasible.

242 Video Session 5 – Laparoscopy
(3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Laparoscopic Transperitoneal Para-Aortic Lymphadenectomy
Tsunoda AT,1 Azvedo RBB,2 Andrade CEMC,1 Linhares JC,1 Ribeiro R,1 1Gynecologic Oncology, Hospital Erasto Gaertner and Instituto de Oncologia do Paraná, Curitiba, PR, Brazil; 2Surgical Oncology, Instituto de Hematologia e Oncologia de Curitiba, Curitiba, Brazil; 1Barretos Cancer Hospital, Curitiba, Brazil

Laparoscopic transperitoneal para-aortic staging lymphadenectomy remains a challenging procedure, currently associated to a long time learning curve. This video demonstrates a feasible and reproducible technique, performed and taught in more than 500 surgical cases. Some principles are included: application of a regular 4 ports placement, 30 degree scope, peritoneal window transparietal suspension stitches, adequate exposure and identification of anatomical landmarks, and taking the aorta as a major vertical reference point. These combined technical key elements may reduce some of the major difficulties faced by the surgeons during this surgical procedure.

243 Video Session 5 – Laparoscopy
(3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Laparoscopic Adnexectomy Due to a Giant Adnexal Cyst
Ribeiro R,1 Rebollo JC,1 Tsunodama FK,1 Brandalize GG,2 Tsunoda AT. 1Gynecologic Oncology, Hospital Erasto Gaertner and Instituto de Oncologia do Paraná, Curitiba, PR, Brazil; 2Red Cross Hospital, Curitiba, Brazil

A massive adnexal simple cyst without signs of extra gonadal spread was diagnosed in an 18y.o. patient. This video aims to describe the feasibility of a laparoscopic approach without peritoneal spillage or contamination of the abdominal wall. A 3 cm suprapubic incision was performed, and the content of the cyst was evacuated after placing a purse string suture, with ablominal wall protection. A regular laparoscopic pelvic approach was then performed. IP ligament and utero-ovarian ligaments were safely approached, with regular permanent instruments, including a bipolar forceps. The right adnexa was completely removed through the previous incision. This procedure seems to be a feasible and safe option to approach giant simple cystic adnexal masses.

244 Video Session 5 – Laparoscopy
(3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Laparoscopic Resection of Multiple Parasitic Fibroids
Ajao MO, Einarsson J. Division of Minimally Invasive Gynecologic Surgery, Department of Obstetrics, Gynecology and Reproductive Biology, Brigham and Women’s Hospital, Boston, Massachusetts

Parasitic fibroids occur when fibroids grow and derive their blood supply separate from the uterus. This is usually secondary to uterine surgery with tissue dissemination. Available data on this rare condition has been limited to small case series and case reports. While the parasitic growths can be asymptomatic, they often present with pain, pressure, urinary frequency and compressive bowel symptoms. When these fibroids are large or symptomatic, surgical resection should be performed. This video demonstrates resection of the multiple parasitic fibroids following minimally invasive hysterectomy.

245 Video Session 5 – Laparoscopy
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

Total Laparoscopic Hysterectomy with Uterine Didelphys
Blazek KK, Chohan L, Ob/Gyn, Baylor College of Medicine, Houston, Texas

This is a video showing total laparoscopic hysterectomy with uterine didelphys. The patient is a 41yo G4P3013 with a known uterine didelphys who presented with abnormal uterine bleeding, leiomyomata, and dysmenorrhea. She had failed medical treatment and desired surgery. Her hysterectomy was successfully performed laparoscopically. The video discusses pertinent anatomy related to uterine didelphys and helpful surgical tips for performing laparoscopic hysterectomy in a patient with uterine didelphys.

246 Video Session 5 – Laparoscopy
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Total Laparoscopic Hysterectomy in Patient with Bilateral Kidneys Transplant
Al Sawah E, Mikhail E. University of South Florida/Morsani College of Medicine, Tampa, Florida

Background: Laparoscopic hysterectomy (LH) is a frequent modality of treatment of abnormal uterine bleeding and uterine fibroid. Attention to anatomy is critical in patients with renal transplant. Case: 41 year-old G4P0, with history of bilateral kidneys transplant, chronic pelvic pain, abnormal uterine bleeding, and large uterine fibroids, that failed medical management and uterine artery embolization. MRI was done for mapping the relationship between the uterus with fibroids and both kidneys present in the pelvis. Total LH, bilateral salpingectomy and cystoscopy were performed.
Intervention: Careful selection of ports placement in relation to transplanted kidneys and utilizing minimal number of ports will help reducing the chance of injury to kidneys and improve efficacy of LH.

Conclusion: Laparoscopic hysterectomy can safely be performed in patients with renal transplantation with great attention to the port placement. We were able to successfully complete the LH without complication or injury to transplanted kidneys.

247 Video Session 5 – Laparoscopy (3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Canal of Nuck Cyst Resection: a Laparoscopic Approach
Sexter MB, Wong HM. Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Canal of Nuck cysts are an evagination of parietal peritoneum that follows the round ligament into the inguinal canal. The typical presentation is that of a painless groin mass. The surgical management of these masses is rarely reported in the literature. Most available reports describe an open approach. We present a laparoscopic approach that involves dissection of the peritoneum using a carbon dioxide laser. The cyst is dissected from it’s peritoneal enclosure. It is followed to it’s base towards the processus vaginalis and excised away from the round ligament. The defect is subsequently sutured closed laparoscopically, taking care to avoid critical structures while obliterating the potential space. This approach allows for direct visualization of the contents of the inguinal canal, completion with concurrent pelvic procedures and is minimally invasive in nature.

248 Video Session 5 – Laparoscopy (3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Surgical Management of Bladder Deep Infiltrating Endometriosis (DIE)
Rosas P, Cortez JP, Calabrese G, Uzal M, Viglierchio VT. Gynecology, Hospital Italiano Buenos Aires, Buenos Aires, Capital Federal, Argentina

To describe the surgical technique of laparoscopic partial cystectomy in a patient with bladder DIE. Endometriosis is defined as the presence of endometrial-like tissue outside the uterus, affects up to 15% of women of reproductive age. Three types of endometriosis are recognized: superficial endometriosis, ovarian endometriosis and deeply infiltrating endometriosis (DIE). Endometriosis expanding and invading the urinary tract is a rare occurrence found in 1–2%. The present case is a 35-year-old female with dysmenorrhea, dysuria (without haematuria) and dyspareunia. The patient had received hormonal treatment prior to surgery with combined contraceptives, progestagens and even GnRH without improvement of symptoms. A Pelvic MRI performed pre-surgical diagnosis. In the following video we analysed the clinical case and show the surgical technique.

249 Video Session 5 – Laparoscopy (3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Tricks of the Trade: Navigating the Obliterated Cul-De-Sac
Peters A, Lee TTM. Obstetrics, Gynecology and Reproductive Sciences, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania

Complete obliteration of the posterior cul-de-sac as a result of pathology such as pelvic inflammatory disease or severe endometriosis can pose substantial challenges to the laparoscopic surgeon. Thorough understanding of retroperitoneal anatomy is required to overcome the adhesive disease involving the adnexa, rectosigmoid colon and the posterior cervico-uterine wall. In this video, we will outline a systematic approach to navigate the obliterated cul-de-sac. Key strategies focus on normalization of distorted pelvic anatomy in three major steps: 1) release of the recto-uterine fibrosis via lateral to medial dissection through the Okabayashi space, 2) ligation of the uterine artery at its vascular origin from the internal iliac artery to minimize bleeding, and 3) complete ureterolysis throughout the avascular planes of the pelvis to avoid risk of injury.

250 Video Session 5 – Laparoscopy (3:25 PM - 5:05 PM)

4:43 PM – GROUP C

Total Laparoscopic Hysterectomy and Bilateral Salpingo-Oophorectomy for a 6095-Gram Fibroid Uterus in a Jehovah’s Witness
Stedhoff MT,1 Louie MY,2 Misal M,1 Moulder JK.2 Obstetrics & Gynecology, Cedars-Sinai, Los Angeles, California; 2Obstetrics & Gynecology, University of North Carolina, Chapel Hill, North Carolina

A 49 year-old woman elected to proceed with hysterectomy for a massively enlarged fibroid uterus. CT scan estimated its maximum dimension at 32 cm. The patient chose a minimally invasive approach after discussion of risks and benefits of laparotomy and laparoscopy, including morcellation. Intraoperatively the uterus extended into the paravesical spaces bilaterally and posterior cul-de-sac, from caudal to the cervix and superiorly to the liver edge. Following laparoscopic hysterectomy, the uterus was removed through a mini-laparotomy at the umbilicus with scalpel morcellation. Blood loss was estimated at 1400 mL, of which 1200 mL was returned via cell salvage. She was discharged home POD1. She did well from hysterectomy itself but re-presented with an obstruction from small bowel adherence to the umbilical mini-laparotomy incision. This case adds to the literature describing the complexity in laparoscopic removal of the massively enlarged uterus and illustrates complications associated with alternative extraction techniques.

251 Video Session 5 – Laparoscopy (3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Laparoscopic Management of Perforated IUDs
Chao L, Rindos N, Mansuria S. Obstetrics, Gynecology, and Reproductive Sciences, Magee-Womens Hospital, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania

Perforated IUDs are a rare, but serious complication of one of the most common office gynecologic procedures, occurring between 0 and 1.3 per 1000 patients. It commonly presents with pelvic pain and unexpected pregnancy. Diagnostic tools include a thorough history and physical along with the use of pelvic ultrasound and abdominal/pelvic x-ray. The purpose of this video is to illustrate the laparoscopic management of perforated IUDs with two case presentations. The first case is of a perforated IUD found embedded in the retroperitoneum, requiring a ureterolysis for removal. Advances in laparoscopic technique and skill have allowed gynecologic surgeons to successfully remove intra-abdominal IUDs without laparotomy and laparoscopic management is the preferred and recommended first-line treatment in symptomatic patients.
Primary Laparoscopic Pyeoplasty after Accidental Ureteral Section during Deep Endometriosis Surgery
Escalona JR,1 Gaston D,1 Heredia F,1 Hinostroza M,1 1Departamento de Ginecología y Obstetricia, Universidad de Concepcion, Concepción, Biobío, Chile; 2Servicio de Ginecología y Obstetricia, Hospital Las Higueras, Talcahuano, Chile

We present a case of accidental ureteral section during a deep endometriosis surgery. After hysterectomy a primary laparoscopic pyeoplasty was performed with cystoscopy assistance. The purpose of this video is to show the laparoscopic management of such complication and to stress the need of urological training for the general gynecologist.

Laparoscopic Sacrospinous Ligament Transection for the Treatment of Pudendal Neuralgia
Bastuero D, Myers E, Vlasagar S. Carolinas Health Care System, Charlotte, North Carolina

Objective: To illustrate a stepwise approach to sacrospinous ligament transection for the treatment of pudendal neuralgia. To describe a novel technique using liposomal bupivacaine for additional postoperative relief. Pudendal neuralgia is a neuropathic condition that may be treated conservatively and surgically. When conservative measures have failed, laparoscopic sacrospinous ligament transection is an alternative that may be performed to treat neuropathic pain. This video will illustrate a stepwise approach on both live and cadaveric patients to outline relevant pelvic anatomy related to the sacrospinous ligament and pudendal nerve, as well a laparoscopic approach for sacrospinous ligament transection. The use of liposomal bupivacaine will also be demonstrated to illustrate an option for additional postoperative relief.

Conclusion: Laparoscopic sacrospinous ligament transection is a feasible surgical option when conservative options have failed in treating pudendal neuralgia. The novel use of liposomal bupivacaine to bathe the pudendal nerve provides additional postoperative pain relief.

Wednesday, November 15, 2017

Laparoscopic Single-Site Repair of Cesarean Scar Defects
Ma Y,1 Huang F,2 Zhou T,1 Awdal C,1 Shandong Provincial Qianfoshan Hospital, Jinan, Shandong, China; 2Obstetrics and Gynecology, Inova Fairfax Hospital, Falls Church, Virginia

We present a case of caesarean scar defect—the repair of it by laparoscopic single-site surgery. There are no guidelines for the treatment of intermenstrual bleeding caused by CSD.
Nevertheless, multiple techniques had been proposed for the repair of CSD including laparoscopic excision, resectionctomy treatment, vaginal revision, and endometrial ablation. To our knowledge, this is the first reported case of a laparoscopic single-site CSD repair. The surgical result was excellent. Postoperatively, the patient’s symptoms resolved and she is asymptomatic. We believe that Laparoscopic Single-Site repair of cesarean scar defects is feasible and consider in patients who desire a minimally invasive approach with excellent cosmetic results.

Single-Site Robotically-Assisted Laparoscopic Uterosacral Ligament Vaginal Vault Suspension
Radke SJ, Boyd S, Furr R. University of Tennessee College of Medicine, Chattanooga, Tennessee

We present the case of a 63 year old female with stage III apical pelvic organ prolapse who had a successful pelvic floor suspension surgery using robotically-assisted single-site laparoscopy. Since she was also experiencing post-menopausal bleeding, a hysterectomy was performed as well. To resolve the prolapse, we opted to perform a vaginal vault suspension to the uterosacral ligaments using FiberWire. We chose this suture due to its permanency, low tissue reactivity, and good handling. We utilized the DaVinci Si system in the single-site modality to minimize incisions and maintain cosmesis. The operation was successful without complications.
Background: The incidence of adnexal masses in pregnancy is estimated to be 1% to 4%. Surgical intervention is required, in particular in the setting of potential malignancy, ovarian torsion, or mass adversely affecting the pregnancy. Single-Incision Laparoscopic surgery (SILS) averts the potential morbidity of multiple trocar insertions including less bleeding and pain, as well as better cosmetic outcome and tissue retrieval.

Objective: To describe the SILS technique for 26 weeks pregnancy patient with 17 cm ovarian cyst.

Clinical Information: A 21 yo G2P0 at 26 weeks pregnant with 17 cm ovarian cyst requested cystectomy presented with 4 days worsening abdominal pain.

Interventions and Results: Ovarian cyst was drained without leakage and exteriorized intact in an open laparotomy fashion through a umbilical incision. SILS cystectomy for large ovarian cyst in pregnancy is not only possible, but leads to better outcomes.

Conclusion: Single-incision laparoscopic cystectomy in pregnancy is feasible, safe and simplified.

258 Video Session 6 – Single-Port Laparoscopy
(11:00 AM - 12:00 PM)

11:39 AM – GROUP B

Single-Site Laparoscopic Interval Debulking Surgery for Late Stage Ovarian Cancer
Chen G. Obstetrics and Gynecology, Chongqing Southwest Hospital, Chongqing, China

A lady, aged 45, the pathological findings by MRI directed biopsy was High Grade Ovarian Serous Papillary Cystadenocarcinoma with Omentum involved.

Diagnosis: High Grade Ovarian Serous Papillary Cystadenocarcinoma.

Stage: IIIc.

Therapy: After 2 cycles Taxane+Cisplatin Chemotherapy, we performed Single-Site Laparoscopic Interval Debulking Surgery.

259 Video Session 6 – Single-Port Laparoscopy
(11:00 AM - 12:00 PM)

11:46 AM – GROUP B

Robotic-Assisted Single- Incision Repair of Cesarean Scar Defect and Evacuation of Broad Ligament Hematoma
Kliethermes CJ, Blazek KK, Zou S, Zhang Y, Guan X. Ob/Gyn, Baylor College of Medicine, Houston, Texas

This is a video showing localization, debridement, and repair of a cesarean scar defect with associated broad ligament hematoma. The patient is a 37 year old G4P3013 with history of cesarean section x3 who presented with pelvic pain and abnormal uterine bleeding following D&C for a missed abortion. Perforation of the cesarean scar defect during D&C was suspected. Hysteroscopy and single-incision robotic-assisted laparoscopy was performed. Bladder adhesions were taken down and the cesarean scar defect was repaired. The video discusses operative technique.

260 Video Session 6 – Single-Port Laparoscopy
(11:00 AM - 12:00 PM)

11:53 AM – GROUP B

External Iliac Vein Injury and Repair During Single-Site Laparoscopic Radical Hysterectomy and Lymphadenectomy

Wang Y, Li Y, Xu H, Liang Z. Obstetrics and Gynecology, Southwest Hospital of Third Military Medical University, Chongqing, China

Study Objective: We describe a case of external iliac vein injury, sustained during single-site laparoscopic hysterectomy and Lymphadenectomy for cervical cancer which was managed laparoscopically.

Patient: A 45-year-old woman diagnosed with cervical cancer Ib1 underwent a single-site radical hysterectomy and pelvic lymphadenectomy with common laparoscopic instruments.

Intervention: An inadvertent injury caused by laparoscopic harmonic scalpel occurred to the external iliac vein. The hole was repaired by applying figure-of-eight suture intracorporeal sutures with 4-0 Prolene.

Measurements and Main Results: Estimated blood loss during the repair is no more than 100 ml. The subsequent surgery was completed uneventfully.

Conclusions: Major vascular complications following single-site laparoscopic procedures can be safely administered laparoscopically. Although specific instrumentations for single-site surgery have been introduced to improve surgical ergonomy, conventional endoscope and straight Instruments may be as effective as well in experienced hands.

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261 Video Session 7 – Laparoscopy
(12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Surgical Management of a C-Section Scar Ectopic
Liu L, Winner BA, Biest SW. Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri

Cesarean scar pregnancies are clinically rare but have the potential for significant morbidity. Given the high rate of cesarean sections on a national and global level, cesarean scar pregnancies may be encountered more frequently. Limited evidence suggests that cesarean scar pregnancies are better managed with surgical intervention than with medical therapy. However, the surgeon may encounter challenges including dense adhesive disease and the risk of hemorrhage. In this video, we provide a detailed laparoscopic approach to removal of the pregnancy and repair of the uterine defect. Emphasis is placed on maintaining hemostasis, avoiding surrounding organ injury, and ensuring complete excision. Techniques of blunt dissection, injection of dilute vasopressin, bladder insufflation, and laparoscopic suturing are utilized in this case scenario. When used together, these techniques will enable an optimal outcome.

262 Video Session 7 – Laparoscopy
(12:10 PM - 1:10 PM)

12:17 PM – GROUP A

The Use of Laparoscopic Internal Iliac Artery Ligation in Morbidly Adherent Placenta
Kuriya A, Scattolon S, Leyland N. Obstetrics and Gynecology, McMaster University, Hamilton, Ontario, Canada

Internal iliac artery ligation has been shown to reduce uterine hemorrhage in obstetrical patients. The purpose of this video is to demonstrate the benefits of this technique to reduce hemorrhage in patients with morbidly adherent placenta. The case is a of a 35 year old female who underwent an interval total laparoscopic hysterectomy for an undiagnosed placenta increta. While various techniques exist to reduce obstetrical hemorrhage, internal iliac artery ligation is a simple and efficacious procedure that can be used in adjunct or as a sole treatment in these cases.
The Bermuda Triangle—An Easy Description of the Retroperitoneal Vascular Anatomy
Leaf C, Rubio V, Villegas J. Obstetrics and Gynecology, Laparoscopic Surgery Department, StarMedica Hospital, Chihuahua, Mexico

Hysterectomy is the most common surgical procedure around the world; in the USA around 400–600 procedures are done yearly.

The total laparoscopic hysterectomy has become one of the most common used techniques in the USA.

The purpose of this video is to describe “The Bermuda’s Triangle” as an anatomical description of the retroperitoneal vascular anatomy.

On the pelvic side wall an inverted triangle is formed from the IP ligament, the uterine artery, and the ureter; At the central portion of the triangle, using the Harmonic scalpel, a window into the retroperitoneal space is gained, allowing access to the retroperitoneal vascular structures (vascular, urinary and nerves).

The vascular and ureter structures are visualized. The internal iliac artery has a bifurcation and becomes into superior vesical artery and uterine artery.

The utero ovaric ligament and the ureter; At the central portion of the triangle, the pelvic side wall an inverted triangle is formed from the IP ligament, and the ureter. The ureter pathway is safely visualized.

The uterine arteries are clamped at the base in a very easy and safe style.

Laparoscopic Excision of a Large Degenerating Cystic Parasitic Adenomyoma
Handal-Orfece RC, Noel N, Lei L, Hendessi P. Obstetrics and Gynecology, Boston Medical Center, Boston University School of Medicine, Boston, Massachusetts

Traditionally, laparotomy was considered the standard of care for resection of most pelvic masses greater than 10 cm. With the advancement of laparoscopy and the skill level of minimally invasive surgeons, low risk patients with large benign appearing pelvic masses are more frequently being considered as good candidates for minimally invasive surgery. This is the case of a premenopausal patient with a 20 cm simple appearing cystic mass, who presented with severe abdominal pain and was taken to the operating room for surgical management. The video outlines and identifies the pertinent anatomy, vital structures, landmarks, and surgical techniques used to safely and effectively resect a precariously positioned large cystic parasitic adenomyoma using a minimally invasive approach.

Laparoscopic and Hysteroscopic Management of a Cervical Ectopic Pregnancy
Tan J, Martin C, Abu Kuder E. Obstetrics & Gynecology, George Washington University, Washington, District of Columbia

Introduction: Cervical ectopic pregnancy is a rare but serious condition. Management of cervical ectopic pregnancy varies by institution depending on surgical expertise and availability of interventional radiology.

Video Presentation: Our patient was treated for a 6 week cervical ectopic pregnancy. The patient had failed methotrexate therapy and desired a definitive but fertility-sparing procedure. We successfully removed this cervical ectopic pregnancy at our institution with laparoscopic bilateral uterine artery ligation, temporary uterine tourniquet, and hysteroscopic resection of the cervical ectopic pregnancy.

Conclusion: A laparoscopic and hysteroscopic approach to cervical ectopic pregnancy could be considered if experienced laparoscopic surgeons are available and if interventional radiology services are not readily available.
This surgery was conducted with only 5 mm ports, but with the addition of a transversus abdomen plane block, which may have been a risk factor in hernia development. Further study of this procedure is indicated, and closure of 5 mm ports may be indicated after TAP block. For incarcerated port site small bowel hernia, indocyanine green-enhanced fluorescence may be used to assess bowel viability after reduction.

WEDNESDAY, NOVEMBER 15, 2017

269 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Laparoscopic Approach of Paracolpium and Pelvic Floor Endometriosis

Oliveira MAP,1 Raymundo TS,1 Pereira TD,1 Reis P, Jr.,1 Brandão AS.2
1Gynecology, State University of Rio de Janeiro, Rio de Janeiro, Brazil;
2Clinica Radiologica Felipe Mattoso, Rio de Janeiro, Brazil

This video demonstrates the laparoscopic approach to treat deep infiltrative endometriosis of the rectum, paracolpium and pelvic floor muscle. It points out surgical tips and important anatomic landmarks in order to safely resect all the disease.

270 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Stepwise Approach to the Rectovaginal Endometriotic Nodule

Suen MWH, Bougie O, Arendas K, Singh SS. Department of Obstetrics & Gynecology, University of Ottawa, Ottawa, Ontario, Canada

Endometriosis is a common disorder, and the most severe form is deeply infiltrating endometriosis. Surgical excision of deeply infiltrating endometriosis affecting the rectovaginal septum is challenging; the surgeon must perform complete excision of disease without inadvertent injury to nearby structures. This educational video presents a safe and effective stepwise approach to excision of the rectovaginal endometriotic nodule with a focus on demonstrating important anatomy and surgical principles. The four steps include optimizing visualization, developing the pararectal spaces, mobilizing the rectovaginal space and lastly, excising the endometriotic nodule. By following this approach, safe excision of the rectovaginal nodule can be achieved.

271 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

The “Lie” Ovarian Cystectomy Technique for Management of Endometriomas

Kroft J, Sector M, Lie K. Obstetrics and Gynaecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

The objective of this video is to show a less traumatic technique for ovarian cystectomy of endometriomas, the goal of which is to decrease blood loss and preserve ovarian reserve. The video highlights the technique, which uses the carbon dioxide laser (although any cutting device can be used), traditional laparoscopy graspers, and micro-bipolar cautery. The principles demonstrated are: the importance of dissecting the cyst from the ovary in the correct plane; the use of adequate traction and counter traction to protect the ovarian tissue; and the minimization of cautery.

272 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Laparoscopic Excision of Cystic Adenomyoma

Hattiangadi R, Arden D. Obstetrics and Gynecology, Kaiser Permanente Los Angeles Medical Center, Los Angeles, California

We present a case of laparoscopic excision of a cystic adenomyoma, as well as excision of endometriosis and adenomyosis, in a 34 year old G2P0020 with history of endometriosis and recurrent pregnancy loss. The video correlates pre-operative imaging with intraoperative surgical findings. We discuss the utility of T1-hyper-intensity in identifying areas of hemorrhage, which can be characteristic of cystic adenomyomas if found within the uterine myometrium. Additionally, the video demonstrates surgical technique in the excision of endometriosis implants, laparoscopic myomectomy including administration of a dilute vasopressin solution to minimize intraoperative blood loss, identification and careful dissection along the plan between the myometrium and the mass and how this differs between myomectomy and adenomyomyectomy, as well as laparoscopic suturing for closure of the uterine incisions. In this particular patient, the intervention not only succeeded in improving her dysmenorrhea, but also helped her to spontaneously conceive.

273 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Ureterolysis with Severe Endometriosis Treated by Laparoscopy

Nakajima S, Andou M, Oyama K, Kojima R, Shirane A, Ebisawa K. Obstetrics and Gynecology, Kurashiki Medical Center, Kurashiki, Okayama, Japan

In cases of severe endometriosis, identifying and separating the ureter from hard adhesions can be very difficult. This study was conducted to review strategies for handling the ureter in cases of endometriosis. Strategies: Adhesion is strongest between the uterine cervix, uterosacral ligaments, and rectum. The approach to the ureter should therefore be started more from the external or cranial side of the cul-de-sac. After identifying the ureter, it is dissected from the posterior leaf of the broad ligament. In some cases, the course of the ureter runs closer to the uterine cervix than usual. At the time of total laparoscopic hysterectomy, we cut the anterior layer of the vesicouterine ligament, as required. We show the strategies in this video.

Conclusion: To safely perform the operation for severe endometriosis, knowledge of how to identify the ureter and perform safe ureterolysis is important. Understanding some approaches to the ureter is very useful.

274 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Endometriosis: Obliteration of the Cul-de-Sac

Elison R, Mohling SL. Department of Obstetrics and Gynecology, University of Tennessee College of Medicine, Chattanooga, Tennessee

Endometriosis is a debilitating disease affecting 1 in 10 women. Laparoscopy remains the gold standard for diagnosis and surgical management of disease. Multiple studies have demonstrated the benefits of excision over fulguration of endometriosis. This video explores the surgical challenges of operating in the patient with advanced endometriosis and obliteration of the cul-de-sac. The surgical procedure is performed with robotic-assisted laparoscopy and explores the techniques of surgical management.
including treatment of pain, preservation of fertility, restoration of anatomy, resection of deeply infiltrative disease, excision of all visible endometriosis, and finally, prevention of adhesions. This case involves lysis of extensive adhesions, excision of endometriosis, dissection between the colon and the uterus, excision of an endometrioma, myomectomy and appendectomy.

275 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

Endometriosis Presenting in a Transgender Male
Cook A, Hopton E. Vital Health Institute, Los Gatos, California

This video highlights the importance of evaluating postmenopausal chronic pelvic pain patients for endometriosis by presenting an unusual case of peri-toneal endometriosis in a transgender male patient. A 25-year-old nulligravida transgender male presents with a long history of debilitating chronic pelvic pain, despite previous hysterectomy, bilateral salpingo-oophorectomy, and long-term testosterone therapy. Peritoneal endometriosis is visualized laparoscopically involving the posterior cul-de-sac and rectal serosa, and is excised. The histopathology confirms the presence of peritoneal endometriosis in the aforementioned areas. The patient’s recovery is uneventful. At 4 week and 9 month follow-up, the patient reports resolution of his pelvic pain and an improved quality of life. While postmenopausal patients with a history of incompletely treated deep endometriosis and estrogen replacement therapy (ERT) are at highest risk of disease recurrence, even superficial endometriosis in an absence of ERT can continue to present symptoms in select patients.

276 Video Session 8 – Endometriosis
(2:15 PM - 3:15 PM)

3:08 PM – GROUP B

Complete Endometriosis Excision Surgery: Goals and Basic Principles
Gupta N, Furr RS. Minimally Invasive Gynecologic Surgery, University of Tennessee College of Medicine, Chattanooga, Tennessee

We are presenting the surgical procedures involved in an endometriosis excision surgery. We prefer the use of conventional laparoscopy while performing endometriosis excision. This video will teach the dissection techniques utilized while excising endometriosis from pelvic side wall, posterior cut-de-sac, right diaphragm and other basic procedures involved like appendectomy, chromopertubation and oophoropexy. We routinely perform these procedures with every endometriosis excision surgery, in order to provide symptom relief to the patient and prevent recurrence. The principles of traction, countertraction, alternate use of energy application and blunt dissection are highlighted.

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277 Video Session 9 – Robotics
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

How to Perform Robotic Single-Site Myomectomy
Moon H-S. Department of Obstetrics & Gynecology, Robotic Surgery Center, College of Medicine, Ewha Womans University, Seoul, Republic of Korea

I performed robotic single-site myomectomy. The patient was 43 years old, and she had 7 cm sized, one intramural myoma in the anterior wall of the uterus. She tried to have a baby for 5 years but she couldn’t. She was transferred to my hospital. There is some know-hows. Incised uterine walls covering the myoma were pushed out by the bipolar forceps repeated with electrocauterization, just like peeling an orange. Instead of assistant doing the myoma traction, surgeon pushed myoma downwards to cut the anterior margin between the wall and myoma capsule, and pushed myoma upwards to cut the posterior margin with an adequate power. Uterine myometrium was sutured layer by layer for more than 3 layers, using continuous running 0-V Loc sutures with a twisted needle driver. The serosa was closed by baseball suture with some tension to avoid bleeding. Robotic single-site myomectomy is safe and feasible.

278 Video Session 9 – Robotics
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Robotic-Assisted Transabdominal Cerclage: A Triplet Pregnancy
Smith RB, Aguirre A, Mourad J. Minimally Invasive Gynecology, University of Arizona College of Medicine Phoenix at Banner University Medical Center Phoenix, Phoenix, Arizona

This video demonstrates a robotic-assisted transabdominal cerclage in a triplet pregnancy. The case presented is a 33-year-old gravida 6 para 0 with a history of cervical insufficiency and failed transvaginal cerclage, with a spontaneous trichorionic triamniotic triplet pregnancy who desired abdominal cerclage. The patient underwent a needless robotic-assisted transabdominal cerclage at 11 weeks gestation. She subsequently carried the triplet pregnancy to 35 weeks and was delivered by scheduled primary cesarean section. This video includes the step-by-step description of the surgical procedure including important anatomic landmarks, detailed description of the instruments used, and surgical technique employed including a posterior knot placement. The purpose of this video is to demonstrate this unique surgical case of a robotic-assisted transabdominal cerclage for a triplet pregnancy with a subsequent successful pregnancy carried to 35 weeks gestation.

279 Video Session 9 – Robotics
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Nerve-Sparing Single-Site Robotic Radical Hysterectomy Plus Pelvic Lymphadenectomy: A Single Center Experience
Vizza E,1 Chifalo R,2 Cutillo G,1 Mancini E,1 Baiocco E,1 Vincenzoni C,1 Zampa A,1 Bifulco A,1 Barletta F,1 Corrado G,1 1Department of Experimental Clinical Oncology, Gynecologic Oncology Unit, “Regina Elena” National Cancer Institute, Rome, Lazio, Italy; 2Department of Human Pathology in Adulthood and Childhood “G. Barresi”, Unit of Gynecology and Obstetrics, University of Messina, Messina, Sicily, Italy; 3Department of Surgery, Gynecology and Obstetrics Unit, San Giovanni Addolorata Hospital, Rome, Lazio, Italy; 4Department of Obstetrics and Gynecology, Gynecologic Oncology Unit, Catholic University of Sacred Heart, Rome, Lazio, Italy

Patients with endometrial cancer FIGO stage II, cervical cancer FIGO stage IB1 or locally advanced cervical cancer with complete clinical response after neo-adjuvant chemotherapy were enrolled in a prospective cohort trial to evaluate the feasibility and the safety of robotic single-site radical hysterectomy (RSSH) plus pelvic lymphadenectomy. In “Regina Elena” National Cancer Institute of Rome, between April 2014 and November 2016 twenty patients were included in our study. 3 and 17 patients underwent type B1 and C1 RSSH respectively plus pelvic lymphadenectomy using a Da Vinci Si Surgical Single-Site System®. No
Robotic-Assisted Metroplasty in a Patient with MRKH Syndrome

Radlde S, Furr R. Ob/Gyn, University of Tennessee College of Medicine, Chattanooga, Tennessee

We are presenting the case of a 46-year-old female diagnosed with MRKH syndrome. She had bilateral hypoplastic uterine horns with an undevolved cervical region. She previously underwent a McIndoe procedure secondary to vaginal agenesis. Her initial consultation was to determine if there was a way of restoring reproductive function. After a thorough discussion, she opted to proceed with a laparoscopic metroplasty. Patient was counseled extensively regarding the risks of the procedure and potential obstetric consequences if it was successful. We planned a two-step surgical approach. During the first step, we would reduce tension on the round ligaments by dissecting the uterine horns from the pelvic sidewalls and suturing them together in the midline. The second step would be the actual metroplasty. There were no postoperative complications. After 3 months, a normal uterine cavity was witnessed on ultrasound.

Robotic Repair of Uterine Defect Associated with Extra Uterine Menstruation

Eisenstein DJ, Zwaan OA. Women’s Health Division of Minimally Invasive Gynecologic Surgery, Henry Ford Health System, West Bloomfield, Michigan

Defect of the lower uterine segment or cervix after cesarean section is a well-identified entity, and ample evidence supports the minimally invasive approach as the optimal surgical strategy in its repair. We present an unusual case of a large defect in a patient presenting as amenorrhea, and demonstrate techniques for identification and repair with this clinical presentation.

Robotic Cystotomy for Pessary Extraction with Vescovaginal Fistula Repair

Goldshey WN, Metzinger DS. Department of Obstetrics and Gynecology, University of Louisville, Louisville, Kentucky

This video case presentation discusses the step-by-step robotic surgical approach to the removal of a pessary, via cystotomy, followed by vesicovaginal fistula and cystotomy repair. The case involves a 77-year-old woman who had a Gellhorn pessary placed 12 years prior, without further evaluation or removal, presenting with vaginal leakage of urine. Imaging, followed by cystoscopy, confirmed the pessary within the urinary bladder. A robotic approach to the foreign body extraction was then performed. A cystotomy was made for pessary removal. The vesicovaginal fistula was evaluated and closed in two layers, followed by a bladder closure in two layers. A pelvic drain was then inserted. The patient denied leakage of urine at her postoperative appointment. This robotic surgical approach demonstrates ease of dissection, a method for thorough anatomy surveillance, and a method for successful repairs in complicated urogynecologic cases.

A Simple Continuous Locking Suturing Technique of Myoma Traction for Easy Robotic Single-Site Myomectomy on Large-Sized Uterine Myomas

Lee SR, Jeong K. Obstetrics and Gynecology, Ewha Womans University Mokdong Hospital, Seoul, Republic of Korea

Gynecologists still face a challenge when performing robotic single-site myomectomy (RSSM) on large-sized myomas embedded in the deep myometrium, not only for the suturing of the myometrium but also for the traction of the myomas. We present a simple technique of myoma traction for easy RSSM. We performed a RSSM in a 32-year-old woman with a large uterine myoma of intramural type sized 8.7 cm. Our step-by-step continuous locking suturing with barbed suture material intracorporeally on the uterine myoma itself. Whenever the dissection between the myoma and myometrium is advanced, the next locking suture is made on the myoma. This enables much easier traction of a large-sized myoma with a spacious operation field, and it also offers an easier dissection between the myoma and myometrium. The traction of myoma in upward direction is especially challenging during single-port laparoscopy and our proposed technique can solve the problem with basic instruments.

Single-Site Robotic-Assisted Tubal Anastomosis

Wong IMK, Alvi FA, Milad MP. Obstetrics and Gynecology, Northwestern University, Chicago, Illinois

Although tubal ligation is the most common form of contraception used by couples today, up to 20% of women will experience regret and up to 5% of women will request reversal. Microsurgical laparoscopic tubal anastomosis, however, is technically challenging and requires significant expertise. Robotic surgery may provide multiple advantages over a traditional laparoscopic approach given its 3D view, magnified microarticulated instruments, hand movements with 7 degrees of freedom, and suppression of physical tremor. Single-site robotic surgery may avoid the complications of multiple incisions and further improve postoperative wound healing, which may be particularly relevant in patients at high risk of wound and laparoscopic entry complications. In this video, we present a case of a morbidly obese patient requesting tubal reversal, describe our technique for tubal anastomosis, and demonstrate the feasibility of single-site robotic-assisted laparoscopic tubal anastomosis.

Cystoscopy for the Gynecologist: “To Cysto or Not to Cysto”: That Is the Question

Kondrup JD, Sylvester B, Branning ML. Minimally Invasive Surgery, Lourdes Hospital, Binghamton, New York
Intra-operative cystoscopy is an essential tool for the surgical gynecologist. It can show bladder damage or total ureteral occlusion. It may not, however, show thermal damage as this may be delayed. It canals show if sutures are present in the bladder and occasionally you will find pathology. Cystoscopy is as easy as performing hysteroscopy. The O.R. (O.T.) set up takes only minutes.

I believe cystoscopy should be performed anytime the cervix is removed, during difficult LSH cases, during difficult endometriosis cases or any time the surgeon feels that damage to the urogenital system has occurred.

286 Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)
3:32 PM – GROUP A
Mastering Laparoscopic Single and Double-Layer Vaginal Cuff Closure
Ramirez CI, Mansuria S. Obstetrics and Gynecology, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania

Laparoscopic suturing can be challenging and vaginal cuff dehiscence rates are higher with laparoscopic cuff closure. Therefore, excellent surgical technique and a systematic approach is crucial for successful laparoscopic vaginal cuff closure. In this video, we demonstrate a step-by-step approach to performing a single and double-layer vaginal cuff closure. We review appropriate port placement, dissection of the bladder flap and rectal adhesions, completion of colpotomy using monopolar energy, placement of vaginal cuff suture for hemostasis and tissue alignment, and suturing a single and double-layer vaginal cuff closure. Mastery of laparoscopic vaginal cuff closure can be achieved by setting yourself up for success from the start of the case and by practicing this systematic approach.

287 Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)
3:39 PM – GROUP A
Prevention of Ureteral Injury in Gynecologic Laparoscopy
Liu L, Watson M, Magrina J, Magtibay P. Gynecology, Mayo Clinic, Phoenix, Arizona

This video will demonstrate the course of the ureter, identify common points of injury, and demonstrate techniques for avoidance of ureteral damage in laparoscopic gynecologic surgery. We will identify areas where the ureter is vulnerable to injury encountered during pelvic surgery. Common sites that will be reviewed are at the pelvic brim near the infundibulopelvic liga-ment during a salpingo-oophorectomy, at the ureteric arteries during hysterectomy, colpotomy and during vaginal cuff closure at the time of hysterectomy. Each zone of injury is highlighted, with tips for identifying and avoiding the ureter provided.

288 Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)
3:46 PM – GROUP A
Quick Achievement for Laparoscopic Intracorporeal Suture Technique: From Isolated Motions to Make the Suture in One Go in the K-Box Model
Kuo HHH. Chang Gung Memorial Hospital, Linko, Taoyuan City, Taiwan

Generally, people are confused about the terms of suturing, knotting, looping and needling holding/looping which lead to poor communication between tutors and trainees and low learning efficiency. In my opinion, making the suture includes four elements: needle holding: > needle driving: > looping: > make a knot. The first cycle completes a simple suture and the continuous suture is achieved when the cycle goes on. In this video, tips/
The objective of this video is to demonstrate a systematic, step-wise approach to performing a Laparoscopic Hysterectomy, in order to give surgeons of all skill sets, a standardized method to complete a Laparoscopic Hysterectomy in a safe and efficient manner.

Moving surgeons away from using the same procedural steps as an abdominal approach is key to giving surgeons a technique to successfully perform a Laparoscopic Hysterectomy.

Although most gynecologists will not encounter deep uterine vessels during their surgeries, it appears prudent that blood supply to the uterus be fully understood by all pelvic surgeons.

The video demonstrates pelvic vessels anatomy during nerve-sparing robotic radical hysterectomy. Vessels distal to common iliac artery and vein are dissected, isolated and labeled to enhance tutorial. Diagrams are used. Elements of robotic dissection technique are discussed and demonstrated.

Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Uterosacral Ligament Colposuspension After Laparoscopic Hysterectomy: A Procedure We Should All Be Able To Offer Our Patients
O’Hanlan KA, 1 Noblett KL. 1 Laparoscopic Institute for Gynecology and Oncology, Portola Valley, California; 2 Gynecology and Obstetrics, University of California, Riverside, California

Both General and Oncologic Gynecologists are called upon to address prolapse issues during hysterectomy for benign or malignant indications. The technique for Uterosacral Ligament (USL) Colposuspension is best begun by placement of permanent sutures 3 cm from the cervix, through each of the USL’s, while tented up by the intact uterus, after visualizing the ureters. Then, after the hysterectomy and vaginal closure are complete, these sutures are tensed, delineating the more distal USL for permanent suture placement. 1.5 cm from the cervix, which is then passed through the posterior and then anterior pubocervical fascia on each side and tied. Finally, the original sutures placed 3 cm from the cervix are passed through the more medial posterior and anterior vaginal fascia, and tied, lifting the vaginal apex. Cystoscopy is then performed to confirm ureteral patency.

Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Transient Uterine Devascularization for a Missed Abortion with Complete Placenta Previa on a Second Trimester Dilatation and Evacuation
Sandoval-Herrera C, Van-Dyk A, Para R. Division of Minimally Invasive Gynecology, Mount Sinai Hospital and Medical Center, Chicago, Illinois

Placenta previa has been a rise in the recent years to the increased ammount of cesarean sections. Placenta previa and sometimes even placenta accreta can be encountered in special situations. We present a case in need of a Dilatation and Evacuation due to Missed Abortion at 23 weeks and due to Trisomy 21. The pregnancy was complicated by complete placenta previa. A transient uterine devascularization was performed via the laparoscopic route. An estimated blood loss of only 100 cc was encountered during the Dilatation and evacuation.

Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Pelvic Vessels Anatomy: What Netter Doesn’t Show
Fornalik H, Fornalik N. Surgical Oncology, Goshen Center for Cancer Care, Goshen, Indiana

The purpose of the video is to demonstrate pelvic vessels anatomy including deep uterine vessels. Deep uterine vessels are often not pictured in textbooks or atlases. They are typically not isolated during benign gynecologic procedures or Wertheim type radical hysterectomy. The author has completed his gynecologic oncology fellowship never seeing deep uterine vessels.

Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)

4:43 PM – GROUP C

Vasopressin in Gynecological Procedures
Ngan FYT, 1 Papillon-Smith J, 2 Solnik MJ, 2 Matji A. 1 Gynecology, McGill University Health Centre, McGill University, Montreal, Quebec, Canada; 2 Gynecology-Minimally Invasive Surgery, Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada

Vasopressin is commonly used in numerous routine gynecological procedures in order to decrease blood loss. This video reviews its basic physiology, dosage, potential complications and administration. Furthermore, clinical scenarios where the use of vasopressin can be beneficial are demonstrated. These include hysteroscopic/laparoscopic myomectomies, laparoscopic cytectomies as well as laparoscopic managements of ectopic pregnancies (tubal, interstitial and caesarean scar pregnancies). Different vasopressin injection techniques are also explained throughout this video. In conclusion, not only does the use of vasopressin in gynecological surgeries decrease blood loss but it also helps in delineating surgical planes, and improves surgical visualizations.

Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Laparoscopic Training Using the Human “Mirror Neuron System”

When performing a surgery is not possible, can physicians still improve their technique by observing the surgery, watching a video, or imitating the surgery? This study was conducted to determine whether observation and imitation are effective training methods. Fifteen physicians who had never experienced laparoscopic surgery were randomly distributed into three groups: control, watching video, and performing air surgery. Each physician practiced performing five sets. In the control group, the total time was significantly shorter in the 2nd set. The time did not change significantly after the 2nd set. In the video group, the time shortened steadily each time. In the air surgery group, the time was shortened, despite the absence of physical objects. Through the use of the mirror neuron system, which is built-in genetically in pri-mates, a variety of skills can be developed, even when performing the actual surgery is not possible.

Video Session 10 – Basic Science, Research & Education (3:25 PM - 5:05 PM)

4:57 PM – GROUP C

Posterior Obliterated Cul-de-Sac Model: A Feasibility Study
Alsauden I, 1 Senapati S, 1 Tu F. 1 Obstetrics and Gynecology, University of Chicago, Chicago, Illinois; 2 Obstetrics and Gynecology, NorthShore University Health System, Evanston, Illinois
The objective of this video is to describe and demonstrate the use of a low-cost simulation model created for teaching dissection of an obliterated posterior cul-de-sac. 16 residents participated in this feasibility study. The participants watched a pre-test video that demonstrated techniques to be used while completing the simulation. Participants also took a survey querying past surgical experiences and specifically how comfortable they were with an obliterated posterior cul-de-sac dissection. After completing the simulation, a post-test survey was completed which again asked about comfort with this dissection as well as an assessment of the realism (face validity) of the model. All scores were collected on a Likert scale. Participants showed a statistically significant increase in comfort with posterior obliterated cul-de-sac dissection after a single 30 minute session from a mean Likert score of 1 (IQR 1–1.5) to 2.5 (IQR 2–3) p < .0001.

595 Video Session 10 – Basic Science, Research & Education
(3:25 PM - 5:05 PM)
5:04 PM – GROUP C

Routine Practice of Retroperitoneal Uterine Artery
Ligation at Its Origin: Its Role in Benign
Hysterectomies
Gupta N, Boren T, Depasquale S. University of Tennessee College of
Medicine, Chattanooga, Tennessee

This video presents the technique and benefits of performing retroperitoneal dissection and uterine artery ligation at its origin. We routinely perform uterine artery ligation at its origin before starting the hysterectomy. This allows MIGS fellows to gain knowledge of detailed anatomy of retroperitoneal space, attain confidence in performing this dissection and improve speed of dissection. This approach also decreases estimated blood loss, overall operative time and risk of ureteral injuries. It has also been shown to decrease the risk of conversion to open procedures and postoperative transfusions. MIGS trained surgeons when encountered with complicated cases like large fibroid uterus, endometriosis and difficult myomectomies can utilize this skill. This video demonstrates the technique to open and navigate the retroperitoneal space and isolate key vital structures in the space. We believe this technique is safe and effective for the patients, as well as beneficial for education of MIGS fellows.

WEDNESDAY, NOVEMBER 15, 2017

298 Video Session 11 – Laparoscopy
(3:25 PM - 5:05 PM)
3:25 PM – GROUP A

Ovarian Torsion During Third Trimester of Pregnancy: Laparoscopic Management
Heredia FM1, Stecher JF2, Bastos A3, Doneth GR, Hinostroza M,3
Escalona JR,2 Departamento de Obstetricia y Ginecologia, Universidad de
Concepcion, Concepcion, Biobío, Chile; 2Departamento de Obstetricia y
Ginecologia, Universidad Catolica de la Santisima Concepcion,
Concepcion, Biobío, Chile; 3Servicio Urgencia Maternidad, Clinica de la
Mujer Sanatorio Aleman, Concepcion, Biobío, Chile

This video shows a rare case of ovarian torsion during 33rd week of gestation managed laparoscopically. An open 10 mmHg pneumoperitoneum was performed in the subxyphoid area. Three auxiliary ports were placed after tilting the operation table to the left. Careful untwisting of the uteroovarian pedicle followed by an in-bag cyst aspiration and then cystectomy were done with minimal bipolar coagulation of the tumoral bed. Biopsy proved a benign serous cystadenoma. Baby was delivered uneventfully at 39 weeks, 6 weeks after this surgery was performed.

The purpose of this video is to demonstrate feasibility of a simple, safe and reproducible technique which requires basic training and instruments widely available.

299 Video Session 11 – Laparoscopy
(3:25 PM - 5:05 PM)
3:32 PM – GROUP A

Laparoscopic Abdominal Cerclage: Tips and Tricks
Pepin KJ, Clark NV, Einarsson J, Brigham and Women’s Hospital,
Boston, Massachusetts

30 year old G2P0200 with a history of recurrent 2nd trimester pregnancy loss presented for abdominal cerclage prior to attempting pregnancy for a third time. Her cerclage was placed without complication. We aimed to review advantages of abdominal cerclage placement, timing of placement and tips and tricks for successful placement of a laparoscopic abdominal cerclage, based on our institution’s 10 years of experience.

300 Video Session 11 – Laparoscopy
(3:25 PM - 5:05 PM)
3:39 PM – GROUP A

Laparoscopic Excision of Anterior Vaginal Wall
Prolapse Mesh Kit
Gupta N, Furr RS. University of Tennessee College of Medicine,
Chattanooga, Tennessee

This video presents the technique of laparoscopic excision of an anterior vaginal wall prolapse mesh kit. A 67-year-old female underwent repair of anterior compartment defect using transvaginal synthetic mesh in 2009. She complained of persistent vaginal pain and dyspareunia. We removed the central portion of the mesh vaginally, followed by laparoscopic excision of remaining 4 arms of the mesh. This video will demonstrate the anatomic relationship of the mesh and the key surgical principles followed during mesh dissection from the underlying tissue. Mesh was extracted successfully from both sides and resulted in resolution of patient’s symptoms on the follow up.

301 Video Session 11 – Laparoscopy
(3:25 PM - 5:05 PM)
3:46 PM – GROUP A

Resection of Abdominal Wall Mass
Aguirre AG, Mourad J. Minimally Invasive Gynecologic Surgery, Banner
University Medical Center Phoenix, Phoenix, Arizona

In this video we present the case of a postpartum patient with a pelvic mass suggestive of a degenerating, pedunculate fibroid. The patient underwent laparoscopy and was found to have a mass within the anterior abdominal wall, separate from the uterus and adnexa. Final pathology revealed desmoid tumor. Growth of these tumors is associated with the high estrogenic state of pregnancy and can have high recurrence rates if surgical margins are positive. We further present the use of ultrasound dissection with the Sonicision device.
Interstitial implantation accounts for 2–4% of ectopic pregnancies. The objectives of this presentation are to demonstrate a technique for laparoscopic management of ruptured interstitial ectopic pregnancy using cornual resection and repair with barbed delayed absorbable suture. A 26 year old female presented with lower abdominal pain. Ultrasound showed a right adnexal mass containing a gestational sac and complex free fluid. The patient was taken to OR for ruptured ectopic pregnancy. Palmer’s point entry into the left upper quadrant was utilized for port placement. The pregnancy, right tube, and cornua were transected using cautery without entry into the endometrial cavity. Hemostasis of repair was achieved with Vasopressin and two layers of running barbed suture. In conclusion, cornual resection and repair with barbed delayed absorbable suture is an appropriate technique for management of interstitial ectopic pregnancy. The advantage of barbed suture includes elevated and uniform tensile strength, allowing for excellent hemostasis.

303 Video Session 11 – Laparoscopy
(3:25 PM – 5:05 PM)

4:04 PM – GROUP B
Laparoscopic Adhesiectomy to Treat Isolated, Symptomatic Chlamydial Perihepatitis
Ayala NK, Glaser LM, Milad MP. Department of Obstetrics, Division of MIGS, Northwestern University Feinberg School of Medicine, Chicago, Illinois

Perihepatitis secondary to pelvic inflammatory disease (Fitz-Hugh-Curtis Syndrome) is a relatively common complication of PID and is reported during 2.7% of laparoscopic gynecologic procedures. However, it rarely occurs in isolation and without evidence of pelvic adhesive disease. In this case, we demonstrate the surgical management of a patient with isolated right upper quadrant and inspiratory pain. She had a treated chlamydial infection 3–6 months prior to the onset of her pain, prompting consideration of chlamydial perihepatitis. Diagnostic laparoscopy demonstrated a significant perihepatic adhesion burden and no pelvic disease. Adhesiectomy was performed using the Harmonic Scalpel. This method is reviewed and multiple dissection techniques are employed. Techniques to obtain adequate perihepatic visualization and hemostasis during adhesiectomy are discussed. Isolated, symptomatic perihepatic adhesions are an uncommon delayed presentation following pelvic inflammatory disorder. Once diagnosed, adhesiectomy with the Harmonic Scalpel is an effective technique for surgical management.

304 Video Session 11 – Laparoscopy
(3:25 PM – 5:05 PM)

4:11 PM – GROUP B
Laparoscopic Secondary Cytoreduction Followed by HIPEC for a Patient with Recurrent Ovarian Cancer
Karabuk E,1 Alkhan FA,1 Naki MM,1 Gungor M,1 Demirel C,2 Kose MF.1 1Acibadem Atakent Hospital University, Istanbul, Turkey; 2Memorial Antisheir Hospital, Istanbul, Turkey

Demonstration of laparoscopic hyperthermic intraperitoneal chemotherapy (HIPEC) after the laparoscopic cytoreduction on a patient with recurrent ovarian cancer. Patient and setting: 41 year old woman who had maximal debulking surgery for ovarian serous adenocarcinoma 13 months ago. After that standard chemotherapy was completed. Local recurrence was detected in PET CT and MRI; there were two nodules (15 × 10 mm and 10 × 8 mm) on the meso of sigmoid colon at routine control. Secondary cytoreductive surgery with HIPEC was planned and laparoscopic approach was preferred for surgery. Laparoscopic cytoreductive surgery combined with HIPEC is feasible and safe for curative treatment of strictly selected patients with ovarian malignancy and might reduce postoperative complications and length of hospital stay.

305 Video Session 11 – Laparoscopy
(3:25 PM – 5:05 PM)

4:18 PM – GROUP B
Laparoscopic Myomectomy of Infarcted Leiomyoma with Cutaneous Fistula
Zwain O, Eisenstein D. Women’s Health, Henry Ford Health System, West Bloomfield, Michigan

We are presenting a case of a patient with degenerated fundal fibroid with unusual cutaneous fistula extending from the fibroid into the umbilicus. The purpose of our video is to present unusual clinical presentation of a degenerated fibroid with cutaneous fistula extending from the fundal fibroids into the umbilicus, that was managed with minimally invasive surgical approach (laparoscopic myomectomy), the infarcted fibroid was contained within laparoscopic containment bag and delivered through the umbilical incision.

306 Video Session 11 – Laparoscopy
(3:25 PM – 5:05 PM)

4:29 PM – GROUP C
Laparoscopic Myomectomy Intracapsular with Preventive Uterine Artery Occlusion
Moratalla Bartolomé E, Martín Blanco C, López Carrasco I, Vegas Carrillo de Albornoz A, Salvaro A, Montero Pastor N, Cano ML. Obstetric and Gynecology, Hospital Universitario Madrid Monteprincipe, Boadilla del Monte, Madrid, Spain

We would like to report the case of a patient with 70 mm myoma. The aim of this video is to present the laparoscopic intracapsular myomectomy technique with uterine artery occlusion using endoscopic vascular clips. This method reduces blood loss during the surgery and the clips can be removed safe and easily. Furthermore it allows a better healing. For these surgical procedure, a 12 mm optical trocar is placed at umbilical position, two 5 mm port and a fourth trocar of 10 mm is inserted suprapublically. Once enucleation is done the myometrial wound is closed in layers with continuous barbed coated suture 2-0 V-loc 180. The myoma is removed through the suprapubic port with an electromechanical in-bag morcellation. We have done 154 procedures, 34 of these women achieved pregnancy after the surgery. No uterine ruptures or placenta accreta were found.
Laparoscopic Management of Missed Abortion in C-Section Uterine Scar

Escalon JR,1 Donetch G,2 Heredia F,3 Hinostroza M.1 1Departamento de Ginecología y Obstetricia, Universidad de Concepcion, Concepcion, Octava Region, Chile; 2Servicio de Ginecología y Obstetricia, Hospital Las Higueras, Concepcion, Octava Region, Chile

We present a case of missed abortion located on a C-section uterine scar. The purpose of this video is to show the laparoscopic management of this clinical situation.

Laparoscopic Isthmic Myomectomy with Diagnostic Hysteroscopy for Cervical Reconstruction

Ucal M, Rosas P, Crac P, Garcia Solchaga T, Viglierchio VT. Gynecology, Hospital Italiano Buenos Aires, Buenos Aires, Capital Federal, Argentina

A 37-year-old patient was referred to Hospital Italiano de Buenos Aires, diagnosed with large cervical isthmic myoma, found in the study by primary matrimonial sterility.

It presents hormonal profile within normal parameters, negative vaginal flow and transvaginal ultrasound with follicular counts without particularities. In Magnetic Resonance: uterus presents a voluminous cervical isthmic anterior myoma that also involves the lower portion of the uterine body. This myoma measures 76 x 76 x 88 mm, is intramural with great subserous growth and also displaces the cavity. Rest of the anatomy without particularities. It was decided to perform myomectomy by laparoscopy with hysteroscopic assistance.

C-Section Defect with Remnant Placenta: Laparoscopic Excision and Repair

Clark NV,1 Noel NL,2 Einarrsson JL.1 1Minimally Invasive Gynecologic Surgery, Brigham and Women’s Hospital, Boston, Massachusetts; 2Obstetrics and Gynecology, Boston Medical Center, Boston, Massachusetts

We present a unique case of a 39 year-old woman with a c-section defect that contained remnant placental tissue. The patient had a history of three prior low-transverse c-sections followed by a c-section scar implantation pregnancy. She presented with two years of abnormal bleeding and pelvic pain. A pelvic MRI showed a saccular dilation of the lower uterine segment consistent with a c-section defect. She underwent laparoscopic excision of the defect and repair. Pathology returned with remnant placental tissue from her pregnancy two years prior.
Virtual Poster Sessions

TUESDAY, NOVEMBER 14, 2017

311 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

9:45 AM – STATION A

An Assessment of the Global Health Interest in the Minimally Invasive Gynecologic Surgery Community and Perceived Barriers
Jan AG, Ito T, Gaskins J, Pasic R, Biscette S. University of Louisville, Louisville, Kentucky

Study Objective: To assess the global health interest within the minimally invasive gynecologic surgery community, and to identify perceived barriers and motivations.

Design: A modified survey approved by the institutional board review was distributed to AAGL members via email. Responses were collected over a 2-month period. Summary statistics and graphical depictions were utilized to describe the responses from the survey data. Chi-squared tests were used to test for differences in key outcomes in demographic predictors. Multi-variate logistic regression was used to control for confounding variables. A significance level of alpha 0.05 was used throughout.

Setting: Approximately 2 billion people have no access to basic surgical care and 17–18 million people die from conditions preventable by surgery. When appropriate, minimally invasive surgery would be the ideal method for underserved populations with limited access to care, requiring less recovery time and less complications.

Measurements and Main Results: 209 surgeons completed the survey. 51% of the participants responded they were extremely likely or very likely to participate in a medical mission abroad. Participants were motivated by fulfilling the true medical creed and personal altruistic goals, (70%, 56%, respectively). All but two motivators, (developing international contacts/ networking, P = .1834; and religious obligations/aspirations, P = .4177), reached statistical significance in univariate analysis.

The most common barriers were scheduling conflicts, and financial costs, (60%, 55%, respectively). Two out of ten perceived barriers reached statistical significance in univariate analysis, (family/social responsibilities, P = .0002; and personal safety, P = .0455).

Conclusion: Minimally invasive gynecologic surgeons are interested in participating in medical missions globally. Organizing fundraisers to decrease overall costs, allowing designated time for global health endeavors, and establishing a database through larger organizations such as the AAGL could be helpful in the future to promote surgeon efforts abroad.

312 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

9:45 AM – STATION B

ElncRNA1, a Long Noncoding RNA that is Transcriptionally Induced by Oestrogen, Promotes Epithelial Ovarian Cancer Cell Proliferation
Qiu J, Hua K-Q. Obstetrics and Gynecology Hospital, Fudan University, Shanghai, China

Study Objective: We previously identified a novel oestrogen (E2)-upregulated IncRNA, TC0101441, via microarray analysis. However, the detailed mechanism by which E2 upregulates TC0101441 and the role of TC0101441 in epithelial ovarian cancer (EOC) progression have not been elucidated. In the present study, we further analysed TC0101441, which we designated oestrogen-induced long non-coding RNA-1 (ElncRNA1), and investigate the function and underlying mechanisms of ElncRNA1 in E2-dependant EOC progression.

Design: Retrospective study, in vitro and in vivo study.
Setting: Obstetrics and Gynecology Hospital of Fudan University.
Patients: EOC patients admitted to the Obstetrics and Gynecology Hospital of Fudan University between 2014 and 2016.

Intervention: A serial of assays were performed to determine the mechanism by which E2 upregulates ElncRNA1. Clinically, ElncRNA1 expression in EOC tissues was examined. In vitro and in vivo functional assays were performed to elucidate the role of ElncRNA1 in E2-dependant EOC progression.

Measurements and Main Results: We showed that E2 transcriptionally upregulates ElncRNA1 through the oestrogen receptor α (ERα)-oestrogen response element (ERE) pathway using RNA stability assays, bioinformatics-based searches for ERE binding sites, chromatin immunoprecipitation (ChiP) assays and dual luciferase reporter assays. Clinically, ElncRNA1 levels are significantly higher in EOC tissues than in normal ovarian surface epithelium. In vitro and in vivo loss-of-function assays revealed that ElncRNA1 promotes EOC cell proliferation. This pro-proliferation effect of ElncRNA1 was partially mediated by the regulation of Cyclin D1/CDK4/CDK6 pathway.

Conclusion: These findings provide the first evidence that E2 upregulates ElncRNA1 at the transcriptional level through the ERα-ERE pathway and that this novel E2-upregulated IncRNA has an oncogenic role in EOC growth. The placement of ElncRNA1 in the E2-ERα-ERE-Cyclin D1/CDK4/CDK6 signalling pathway may provide greater insight into the effects of oestrogen on EOC progression from the perspective of IncRNA.

313 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

9:45 AM – STATION C

Evaluating Research Pipelines in Clinical Research for Minimally Invasive Gynecologic Surgery

Guidelines
Wright MR, Vassar M, Gordon J, Frye L, Po W, Babb C. OSU Obstgyn Department, Oklahoma State University Medical Center, Tulsa, Oklahoma; Clinical Research-Psychiatry & Behavioral Sciences, Oklahoma State University Center for Health Sciences, Tulsa, Oklahoma

Study Objective: To explore the integrity of the research pipeline in minimally invasive gynecologic surgery by evaluating the extent to which research gaps, identified from low and very low quality evidence (Level C) during CPG development, are being addressed by new and ongoing research catalogued in clinical trials registries. The secondary outcome is to determine if there are possible misappropriations of funding for ongoing clinical research for which there is already sufficient evidence (Level A).

Design: Cross-sectional study.
Setting: Academic hospital and associated center for health sciences.

Measurements and Main Results: We located guidelines from the AAGL’s website. For each recommendation based on low or very low quality evidence, a research question using the PICO framework (Population, Intervention, Comparison, and Outcome) was written to assist in searching trial registries. Key words from each PICO question were used to develop search queries for the trial registries. After the search queries were finalized, a search of both ClinicalTrials.gov and the World Health Organization’s International Clinical Trials Registry Platform was performed to locate new and ongoing studies. These studies were then screened for sensitivity and specificity based on each PICO question. Recommendations were organized based on level of evidence (A+C) and the number of new or ongoing clinical trials for each recommendation.

Conclusion: Results from this study can be used to inform research priority setting by showcasing areas of greatest need. Furthermore, areas where excess research is being conducted will be highlighted, and implications for research funding will be discussed.
315 Virtual Posters – Session 1  
(9:45 AM - 10:45 AM)

9:45 AM – STATION E

Ginger Root for the Prevention of Motion Sickness in Surgeons Performing Laparoscopic Surgery

Pham AD, Danci I, Balli K. Obstetrics and Gynecology, Loma Linda University Medical Center, Loma Linda, California

**Study Objective:** To prove that ginger root can mitigate the motion sickness induced by performing laparoscopic surgery.

**Design:** Randomized control trial, double blinded, drug, social/behavioral.

**Setting:** Loma Linda University, Medical Simulation Center.

**Patients:** We recruited a total of 19 students and residents to participate in our study. Study was IRB approved.

**Table 1. Study Population**

<table>
<thead>
<tr>
<th></th>
<th>Ginger Group</th>
<th>Placebo Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Males</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Females</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Residents</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Medical Students</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>

*Average age rounded to the nearest year.

**Intervention:** Ginger was over-encapsulated to look identical to the placebo pills. Subjects were then exposed to a standardized simulation to induce motion sickness. The simulation was executed using Simbionix’s LAP MENTOR™. Amount of motion sickness was then measured using the validated “Simulator Sickness Questionnaire” (Kennedy et al.). Participants then returned on a separate day (at least 3 days later). Participants were then double blindly randomized to ginger vs placebo. Participants were pre-medicated 1 hour in advance with 1100 mg ginger root vs placebo. Participants were run through the simulator a second time. The SSQ was then re-administered to measure any difference in motion sickness.

**Measurements and Main Results:** We compared the pre and post scores for both sample groups to test for any significant changes in mean scores after the intervention was administered. The ginger group had a significant decrease in mean total score of 5.625 (95% CI [0.834–10.416]; p-val: 0.0274).

The Placebo group showed a difference of 1.818 (95% CI [-1.386-4.022]; p-val 0.0274) which was not significant.

**Conclusion:** The limited sample size (n = 19) was more than enough to determine an effect size of at least one unit difference in mean score with 80% power. The ginger group showed significant decrease in total score while the placebo group showed no significant change in total score from pre and post measurements.

316 Virtual Posters – Session 1  
(9:45 AM - 10:45 AM)

9:45 AM – STATION F

Impact of Obesity on Uterine Artery Embolization and Hysterectomy Outcomes

McMillin MG, Yang X, Satpathi P, Kho KA. University of Texas Southwestern Medical Center, Dallas, Texas

**Study Objective:** To determine how obesity affects outcomes in uterine artery embolization and hysterectomy patients.

**Patients:** Patients undergoing uterine artery embolization (UAE) or hysterectomy from 2013–2016.

**Design:** Retrospective Cohort Study.

**Setting:** Academic Tertiary County Teaching Hospital.

**Patients undergoing uterine artery embolization (UAE) or hysterectomy from 2013–2016.**

**Intervention:** UAE and Hysterectomy.

**Measurements and Main Results:** 55 UAE and 89 hysterectomy were included for analysis. There were no differences seen in mean age or BMI when compared to hysterectomy patients (44 ± 5.5 v 43.1 ± 5.3 years, p = .30; 34.3 ± 11.1 v 32.9 ± 5.9 kg/m², p = .39). UAE patients were more likely to have ASA scores of 3 or greater (41.8% v 15.7%, p = .0005). 10 (18.1%) UAE patients had complications, and 19 (34.5%) experienced a clinical failure, with 6 ultimately having hysterectomy. Younger patients were more likely to experience a clinical failure after UAE, mean age 40.6 ± 4.7 v 45.8 ± 5.0 years (p = .02). 10 (11.2%) of hysterectomy patients had a major complication and 8 (9%) had minor complications. Of these patients, there was no difference in mean BMI or obesity compared to those without a complication (31.5 v 33.2 kg/m², p = .26, 61.1% v 66.1% p = .69).

**Conclusion:** In our patient population, higher BMI and higher ASA scores adversely affect outcomes in UAE patients but this trend is not observed in hysterectomy patients. Obesity in combination with other comorbidities may have a greater impact on UAE outcomes.
Influence of Race/Ethnicity on Route of Hysterectomy and Inpatient Surgical Complications

Bougie O, Singh SS, McCarthy EP. Ottawa Hospital Research Institute, University of Ottawa, Ottawa, Ontario, Canada; Harvard T.H. Chan School of Public Health, Boston, Massachusetts

Study Objective: To examine the association between race and (1) route of hysterectomy and (2) risk of inpatient surgical complications.

Design: A cross-sectional analysis of women who underwent hysterectomy during 2009–2013 using the Nationwide Inpatient Sample.

Setting: The Nationwide Inpatient Sample (NIS) is 20% stratified sample of all patient discharges from acute care hospitals in the United States designed to be nationally representative.

Patients: We identified 114,719 women age 18 and older who underwent elective hysterectomy for benign indications using International Classification of Diseases (ICD-9-CM) procedure and diagnostic codes.

Intervention: Our main factor of interest was race/ethnicity, categorized as: White, Black, Hispanic, Other or missing.

Measurements and Main Results: Compared to white women, black women had 0.55 (95%CI: 0.52–0.59) odds of receiving minimally invasive hysterectomy, adjusted for age, Median household income national quartile for patient ZIP Code, primary payer, hospital location/teaching status, Elixhauser comorbidity index, and indication for surgery. This finding remained consistent across household income quartile for patient ZIP Code, primary payer and diagnosis of fibroids.

In our sample of women, 6091 experienced a complication, representing 30,455 women nationwide. Compared to white women, the odds of black women experiencing a surgical complication was 1.03(95% CI: 0.93–1.13) after adjusting for age, median household income national quartile for patient ZIP Code, primary payer, hospital location/teaching status, Elixhauser comorbidity index, and route of surgery. This finding remained consistent across household income quartile for patient ZIP Code, primary payer and route of hysterectomy.

Conclusion: Among women who underwent hysterectomy for benign indications, black women were less likely to receive minimally invasive hysterectomy compared to white women. Future studies are needed to further explore the factors responsible for this possible racial disparity in hysterectomy options, which may include patients’ medical complexity, size of uterine fibroids, and limited training for surgeons to perform MIH in the presence of uterine fibroids.

S107

SLC40A1 Sensitized Human Ovarian Cancer Cells to Cisplatin by Blocking Autophagy

Bao L, Wu J, Yi X. Department of Gynecology, Obstetrics and Gynecology Hospital Fudan University, Shanghai, China

Study Objective: This study aimed to investigate the role of the iron export related gene, solute carrier family 40 member 1 (SLC40A1), in cisplatin resistance of epithelial ovarian cancer (EOC) and to explore the underlying mechanism.

Design: In vitro study.

Setting: A university-based tertiary obstetrics and gynecology hospital.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Expression of SLC40A1 in normal epithelial ovarian tissue and EOC tissue was examined by western blot and realtime PCR. Two pairs of cisplatin-sensitive (A2780 and COC1) and cisplatin-resistant (A2780cp and COC1/DDP) ovarian cancer cells were used to detect the expression of SLC40A1. SLC40A1 was overexpressed in normal epithelial ovarian tissue, while relatively lower in low-grade serous ovarian cancer, and the lowest in high-grade serous ovarian cancer.

317 Virtual Posters – Session 1 (9:45 AM - 10:45 AM)

9:45 AM – STATION G

SLC40A1 Sensitized Human Ovarian Cancer Cells to Cisplatin by Blocking Autophagy

Bao L, Wu J, Yi X. Department of Gynecology, Obstetrics and Gynecology Hospital Fudan University, Shanghai, China

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Setting: A university-based tertiary obstetrics and gynecology hospital.

Patients: N/A.

Intervention: N/A.

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318 Virtual Posters – Session 1 (9:45 AM - 10:45 AM)

9:45 AM – STATION H

Saline Infusion Sonography an “Indispensable Tool” or “Superfluous Trinket” in Diagnosis of Abnormal Uterine Bleeding in Comparison with Hysteroscopy

Agrawal S, Goenka S. Obstetrics & Gynecology, All India Institute of Medical Sciences, Raipur, Chhattisgarh, India

Study Objective: To review and summarize the current evidence-based literature on the role of saline infusion sonography in comparison to other available diagnostic methods in cases of abnormal uterine bleeding.

Design: A systematic search of literature on all material available on methods to diagnose AUB was performed from January 2001 till April 2017 using key words like abnormal uterine bleeding, saline Infusion sonography, sonohysterography, TVS in AUB, Hysteroscopy in AUB. Articles were included after assessing for quality and suitability for inclusion in the following order like systemic reviews, meta-analysis, guidelines, RCT, prospective cohort studies, observational studies, non systemic reviews and case series.

Setting: Department of Obstetrics & Gynecology, All India Institute of Medical Sciences Raipur Chhattisgarh.

Both chemo-sensitive ovarian cancer cell line A2780 and COC1 showed relatively higher level of SLC40A1 and lower intracellular iron compared with their corresponding chemo-resistant counterparts. Along with knockdown of SLC40A1 in A2780 and COC1, the intracellular iron increased, while cell viability and apoptosis rate decreased significantly. Along with SLC40A1
overexpression in A2780cp and COC1/DDP, the intracellular iron decreased, while cell viability and apoptosis rate increased significantly. Further, we examined the autophagy gene expression both in SLC40A1 knockdown and upregulated cells. Interestingly, autophagy-related gene Beclin 1 and Atg3 increased along with SLC40A1 upregulated both at mRNA and protein level. Moreover, the transmission electron microscopy examination showed that the autophagosome was blocked along with SLC40A1 overexpression.

Conclusion: This is the first study suggesting that the SLC40A1-mediated iron metabolism contribute to cisplatin resistance through blocking autophagy in EOC.

Table: Folicles in representative sections of ovaries in different groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of follicles</th>
<th>primary</th>
<th>secondary</th>
<th>antral</th>
<th>total number of follicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimized group (n=5)</td>
<td>79.8±7.0**</td>
<td>22.5±2.1*</td>
<td>9.8±1.0*</td>
<td>3.8±1.0**</td>
<td>118.0±6.9** (77.6%)</td>
</tr>
<tr>
<td>Conventional group (n=5)</td>
<td>66.3±5.9**</td>
<td>17.0±1.8**</td>
<td>7.5±1.3**</td>
<td>3.0±0.8**</td>
<td>94.5±7.3** (61.0%)</td>
</tr>
<tr>
<td>Control group (n=5)</td>
<td>104.8±6.7</td>
<td>28.3±3.5</td>
<td>12.5±1.7</td>
<td>7.0±0.5</td>
<td>152.5±11.6 (100%)</td>
</tr>
</tbody>
</table>

Compared to control group, *P<0.05, **P<0.01.

Of the 25 recipient POI rats, 5 rats were died. Fourteen rats began to recover ovarian function after 2 weeks of transplantation, with normal hormone levels after 4 weeks of transplantation.

Four in 14 rats were pregnant and delivered live births. One rat was given second time pregnancy and delivered live birth. The first generation of young rats gave birth of the second generation of rats. After mating, the second generation of young rats gave birth of the third generation of rats. No abnormalities were found in all the offsprings.

Conclusion: High rates of restoration of ovarian function and live birth rates were obtained following WOCP&TP to POI rat models utilizing optimized perfusion. Cryopreservation could not affect the nature of successive generations.
Fig 2: The hormone levels of rats after WOCP&TPCompared to control group.*P<0.05, **P<0.01; compared with two groups, *P<0.05 **P<0.01.

321 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

9:51 AM – STATION C

Ultrasound-Guided Hysteroscopy- and Laparoscopy-Based Treatment of Different Mullerian Anomalies
Mangubat MC, Pichay RL, Tan EC. Obstetrics & Gynecology, Perpetual Succour Hospital of Cebu, Cebu City, Cebu, Philippines

This case series reports the evaluation and ultrasound-guided management of different Mullerian abnormalities by hysteroscopy and concomitant laparoscopy. 6 patients with septate uteri diagnosed by 2D/3D ultrasound and MRI showed 2 subseptate uteri, 1 arcuate uterus, 1 complete uterine septum, 2 complete uterine septum each with oblique vaginal septum and longitudinal vaginal septum. The procedure was transcervical resection of uterine septum with concomitant laparoscopy under ultrasound control. Incision with complete resection of the oblique and longitudinal vaginal septa was done using monopolar electrode. With concomitant laparoscopy, the pelvis was evaluated for pelvic masses, adhesions, fluid spillage into the pelvic cavity for tubal patency assessment, external fundal contour and the uterine cavity on transillumination. The advantages of post procedural evaluation of the uterine cavity by transrectal ultrasound guidance during hysteroscopic septoplasty are easy estimation of fundal thickness and depth of remaining septum.

322 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

9:51 AM – STATION D

Whether Prophylactic Bilateral Salpingectomy Will Reduce Quality of Life and Ovarian Function?
Zheng Y, Dhakal S, Yi X. Obstetrics and Gynecology of Shanghai Medical School, Fudan University, Shanghai, China; Shanghai Key Laboratory of Female Reproductive Endocrine Related Diseases, Shanghai, China

Study Objective: To evaluate patients’ quality of life(QOL) and ovarian function who received prophylactic bilateral salpingectomy.

Design: Prospective and retrospective studies.

Setting: University-based tertiary ObstGyn hospital.

Patients: Histologically confirmed benign diseases and had undergone hysterectomy were included.

Intervention: Total hysterecetomy with prophylactic bilateral salpingectomy (TH+BS) or total hysterectomy with prophylactic bilateral salpingo-oophorectomy (TH+BSO) was performed.

Measurements and Main Results: QOL was evaluated through questionnaires including SF36, CRADI-8, UDI-6, and FSFI. Ovarian function was evaluated by using Kupperman Index(KI), the volume of ovaries, and the levels of E2, FSH, and AMH. For prospective study, one-month follow up was done, while for retrospective study, data were compared between pre-operation and 6-months post-operation. T test was used for the statistical analysis, and p<.05 was statistically significant.

One-month post-operative data showed that after TH+BS, patients had a significant decrease in physical function (88.6 VS 68.9, p= .003), physical role function (80.7 VS 20.0, p = .000), and sexual function (FSFI score 17.9 VS 3.3, p = .000). While UDI and CRADI-8 scores didn’t show changes with statistical significance (9.8 VS 2.7, 2.1 VS 3.3; p = .071 and 0.606). The KI was significantly increased (0.1 VS 3.7, p = .007), while AMH and E2 were significantly decreased (0.7 VS 0.5, 161.9 VS 67.6; p = .016 and 0.000). In the control group (TH+BSO), total-QOL and the FSFI were both reduced significantly (81.9 VS 60.8, 21.6 VS 9.3; p = .013 and 0.002).

Six-month post-operative data showed that only FSFI score dropped severely for prophylactic salpingectomy patients (27.3 VS 22.0, p = .013), while the total-QOL, the urinary and colorectal function were almost the same as pre-operative one.

Fig 1. One-month comparison of the quality of life (SF-36, UDI-6, CRADI-8, FSFI) for patients who received total hysterectomy with prophylactic bilateral salpingectomy (TH+BS)-SF36 was combined 8 separated parts: PF: physical function; PRF: physical role function; BP: body pain; GH: General health; Vatality; SRF: social role function; ERF: emotional function; MH: mental health. QOLT (SF-36 total score): total quality of life: UDI-6,CRADI-8,FSFI were used to evaluate the urinary function, colorectal function, and the sexual function respectively.

Fig 2. Six-month comparison of the quality of life (SF-36, UDI-6, CRADI-8, FSFI) for patients who received total hysterectomy with prophylactic bilateral salpingectomy (TH+BS)

The average volume of bilateral ovary was slightly decreased (right ovary 6.8 VS 5.7 cm3, left ovary 7.0 VS 5.7 cm3; p = .456,0.311).

Conclusion: It deserves to draw physicians’ attention that prophylactic bilateral salpingectomy may reduce women’s physical function, ovarian function, sexual function and perimenopausal symptoms changed significantly in an
Table 1. Comparison of the ovarian function for TH+BS patients

<table>
<thead>
<tr>
<th>Pre-op</th>
<th>Post-op</th>
<th>Statistical Value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>0.1</td>
<td>-3.2</td>
<td>0.007</td>
</tr>
<tr>
<td>E2</td>
<td>161.9</td>
<td>4.9</td>
<td>0.000</td>
</tr>
<tr>
<td>FSH</td>
<td>6.9</td>
<td>-1.5</td>
<td>0.164</td>
</tr>
<tr>
<td>AMH</td>
<td>0.7</td>
<td>2.8</td>
<td>0.016</td>
</tr>
<tr>
<td>ROV</td>
<td>6.8</td>
<td>0.77</td>
<td>0.456</td>
</tr>
<tr>
<td>LOV</td>
<td>7.0</td>
<td>1.06</td>
<td>0.311</td>
</tr>
</tbody>
</table>

AMH = anti-Mullerian hormone; E2 = estrogen; FSH = Follicle-Stimulating Hormone; KI = Kupperman Index; LOV = average volume of Left Ovary; ROV = average volume of Right Ovary.

one-month observation. While after 6-month’s adaptation, no negative impact could be detected as to the volume of ovary or total-QoL.

ENDOMETRIOSIS

323 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)
9:51 AM – STATION E

A Novel Technique for Robotic-Assisted Excision of Large Infiltrating Trans Vaginal Fibrotic Endometriosis
Breen MT, Stone A. Womens Health, UT Dell School of Medicine, Austin, Texas

Study Objective: Illustrate a novel approach in deep infiltrative endometriosis modeled after the Doderlein hysterectomy technique which involves reflecting a large recto vaginal mass in an inverting manner after detachment from the posterior cervix. A fertility sparing procedure was performed after 4 prior consultants had recommended hysterectomy as an only option. This technique allowed for safe visualization of the intra vaginal extent of the lesion from above while simultaneously dissecting down the recto vaginal septum. This allowed for fertility sparing and is a reproducible technique that should prove useful in clinical practices with bulky trans mural endometriosis.

Design: Illustrated, photographed and video recorded case of extensive polyoid infiltrative endometriosis filling the posterior cul de sac. Patient desiring uterus sparing surgery underwent a vaginoscopy/robotic-assisted excision of 6 by 8 cm fibrotic nodular endometriotic mass.

Setting: UT Dell Medical School Teaching Hospital.

Patients: Privately funded oncologist referred patient.

Intervention: Robotic-assisted surgical procedure.

Measurements and Main Results: Complete excision with clear margins of a large deeply infiltrating endometriotic mass.

Conclusion: A new technique modeled after the Doderlein method is an effective technique for very large infiltrating lesions which allows robotic-assisted complete excision with minimal loss of vagina and superior visualization while retaining the cervix and uterus.

324 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)
9:51 AM – STATION F

Assessment of Quality of Life after Surgery for Deep Endometriosis: Role of Plasma Vaporization
Delbos L, Legendre G, Bouet P-E, Descamps P. Department of Obstetrics and Gynaecology, Angers University Hospital Center, Angers, Maine et Loire, France

Study Objective: The principal objective of our study was to assess women’s quality of life (QoL) after surgery for Deep Endometriosis (DE), according to the surgical technique used.

Design: Qualitative single-center retrospective survey.

Setting: Department of obstetrics and gynecology, Angers University Hospital Center, France.

Patients: All women who underwent surgery for DE from January 2011 through February 2016 were contacted by phone. Fifty-two women (response rate = 86%) were included and classified into groups according to the surgical technique used: simple shaving, shaving exclusively or in part by plasma vaporization (plasma), and resection.

Measurements and Main Results: The Endometriosis Health Profile 5 score was used to assess QoL. The three groups were comparable for surgical history, preoperative QoL score, and characteristics of endometriotic lesions (size and site). All DE symptoms and QoL scores improved significantly after surgery for the population as a whole, all techniques combined (p < .001). The complete resection group had longer hospitals stays than the other groups (p < .001), as well as a higher surgical revision rate (23% vs 0% ; p < .02).

At a distance (at least four months) after surgery, QoL scores for women who had plasma shaving or complete resection were significantly higher than those for women with simple shaving (respectively, 375 [225–800] and 450 [-50-725] vs 275 [-100-600]; p = .04). Self-image significantly improved only in the plasma group (p = .03).

Conclusion: Plasma and complete resection improved QoL similarly for women with DE, both much more than shaving alone. The advantage of plasma vaporization lies in the lesser morbidity and better self-image, both better than in women with resection.

325 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)
9:51 AM – STATION G

Clinical Outcomes of Patients with Clear Cell and Endometrioid Ovarian Cancer Arising in Endometriosis

Study Objective: The aim of this investigation was to compare outcomes of patients with clear cell carcinoma (CCC) and endometrioid carcinoma (EC) of the ovary arising in endometriosis (ES) to CCC and EC not arising in ES.

Design: Retrospective study.

Setting: Tertiary Center.

Patients: This study retrospectively enrolled 224 CCC and EC patients treated in Samsung Medical Center from 2001 to 2015 to identify cancer arising in endometriosis.

Intervention: Clinicopathologic variables, progression-free survival (PFS) and overall survival (OS) were recorded. Student’s t test and chi square test were used to analyze continuous and categorical data. The Kaplan–Meier method was used for survival analysis.

Measurements and Main Results: Forty-five cases arising in ES were identified and then compared with 179 cases without ES. CCC and EC arising in ES tended to be presented with early age (mean 45.2 years vs. 49.2 years p = .003), early stage (stage I and II, 88.9% vs. 62.9 %, p = .001), lower CA125 level (mean 320.6 vs. 558.8, p = .047), higher percentages of no gross residual disease after surgery (82.2% vs.57.5%, p = .009), and higher percentages of negative lymph node metastasis (84.4% vs. 58.1%, p = .002) compared with those without ES. Kaplan–Meier curves for PFS and OS seemed to show better outcome for group arising in ES with borderline significance (p = .074 for PFS, and p = .082 for OS).

Conclusion: CCC and EC with tumors associated with endometriosis appear to be diagnosed at an earlier stage and confers trend of better survival outcome.
Deeply Infiltrative Endometriosis: Segmental Ureteral Resection & Hypogastric Arterectomy


We present a surgical case of a 42-year-old female with known endometriosis and infertility. Her past history is significant for bilateral hydronephrosis and stent placement secondary to invasion of endometriosis into the right ureteral lumen, confirmed via biopsy. Ureteroscopy revealed severe narrowing and constriction of the right ureter. Upon laparoscopic entry, the lesion was found to involve the hypogastric artery. The patient underwent replacement of bilateral ureteral stents, extensive ureterolysis and circumferential resection of the implant; the ureter was reapproximated via an end-to-end anastomosis with stents in situ. The size of the lesion necessitated ligation and resection of the hypogastric artery.

We demonstrate an advanced case of deeply infiltrative endometriosis with ureteral involvement; particular detail is paid to the anatomy and repair of key pelvic structures.

Diaphragmatic Endometriosis: Thoracoscopic and Robotic Approach

Oliveira MAP,1 Raymundo TS,1 Pereira TD,1 Saito E,1 Reis P Jr,1 Brandão A,1 Gynecology, State University of Rio de Janeiro, Rio de Janeiro, Brazil; 2Radiology, Felipe Mattoso, Rio de Janeiro, Brazil

This video demonstrates a thoracoscopic and robotic approaches to treat a symptomatic 7 cm diaphragmatic deep infiltrative endometriosis (DIE) diagnosed by MRI. She had also pelvic DIE. The patient had right shoulder and hyochondrium pain (VAS = 10). We used GnRhA 2 months preoperatively with a 20% reduction in size of the diaphragmatic lesion (7 to 5.5 cm). Initially we evaluated pelvic and diaphragmatic lesions by laparoscopy. We decided to treat pelvic DIE by laparoscopy (this would avoid dual docking, especially time-sparring when using da Vinci Si), followed by thoracoscopy (to evaluate and maybe resect the disease). We decided to excise the full-thickness diaphragmatic endometriosis by thoracoscopy. We used robotics to excise approximately 8 endometriotic lesions (1–3 cm) in hyochondrium region. Total operative time was 190 minutes. She was discharged after 48 h and the recovery was uneventful. She is now free of pain and trying natural pregnancy.
Demographics and surgical characteristics of women undergoing hysterectomy for non-gynecologic cancer reasons between 2014 and 2015, stratified by presence of endometriosis.

<table>
<thead>
<tr>
<th>Admit year, n (%)</th>
<th>Endometriosis</th>
<th>No Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3501 (12.3%)</td>
<td>25051 (87.7%)</td>
</tr>
<tr>
<td>2014</td>
<td>1577 (45.0)</td>
<td>11346 (45.3)</td>
</tr>
<tr>
<td>2015</td>
<td>1924 (55.0)</td>
<td>13705 (54.7)</td>
</tr>
<tr>
<td>Age, in years, mean (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>43.5 (8.1)</td>
<td>48.5 (10.8)</td>
</tr>
<tr>
<td>Race, n (%)</td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td></td>
<td>2471 (77.5)</td>
<td>543 (17.0)</td>
</tr>
<tr>
<td></td>
<td>173 (5.4)</td>
<td>314 (10.2)</td>
</tr>
<tr>
<td>Hispanic, n (%)</td>
<td></td>
<td>Missing</td>
</tr>
<tr>
<td></td>
<td>262 (8.1)</td>
<td>257 (8.1)</td>
</tr>
<tr>
<td>Current smoker, n (%)</td>
<td></td>
<td>620 (17.7)</td>
</tr>
<tr>
<td>Diabetes, n (%)</td>
<td>208 (5.9)</td>
<td>1933 (7.7)</td>
</tr>
<tr>
<td>BMI, mean (SD)</td>
<td>30.2 (7.3)</td>
<td>30.7 (7.6)</td>
</tr>
<tr>
<td>Parity, n (%)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>945 (27.0)</td>
<td>657 (18.8)</td>
</tr>
<tr>
<td></td>
<td>1899 (54.2)</td>
<td>16502 (65.9)</td>
</tr>
<tr>
<td>≥2</td>
<td>108 (3.1)</td>
<td>306 (1.2)</td>
</tr>
<tr>
<td>PID, n (%)</td>
<td>1007 (28.8)</td>
<td>6675 (26.7)</td>
</tr>
<tr>
<td>Prior abdominal surgery, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uterine weight, g, mean (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤100 grams</td>
<td>946 (28.1)</td>
<td>7679 (32.3)</td>
</tr>
<tr>
<td>101 – 500 grams</td>
<td>2148 (63.7)</td>
<td>12875 (54.1)</td>
</tr>
<tr>
<td>&gt;500 grams</td>
<td>279 (8.3)</td>
<td>3240 (13.6)</td>
</tr>
<tr>
<td>Missing</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>Wound classification, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>126 (3.6)</td>
<td>940 (3.8)</td>
</tr>
<tr>
<td>2</td>
<td>3313 (94.6)</td>
<td>23941 (95.6)</td>
</tr>
<tr>
<td>3 or 4</td>
<td>62 (1.8)</td>
<td>170 (0.7)</td>
</tr>
<tr>
<td>ASA classification, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>416 (11.9)</td>
<td>2595 (10.4)</td>
</tr>
<tr>
<td>2</td>
<td>2496 (71.4)</td>
<td>16953 (67.7)</td>
</tr>
<tr>
<td>3 or 4</td>
<td>585 (16.7)</td>
<td>5485 (21.9)</td>
</tr>
<tr>
<td>Inpatient procedure, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1937 (55.3)</td>
<td>13088 (52.3)</td>
</tr>
<tr>
<td>Surgical approach, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdominal</td>
<td>911 (26.0)</td>
<td>6982 (27.9)</td>
</tr>
<tr>
<td>Vaginal</td>
<td>167 (4.8)</td>
<td>4571 (18.3)</td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>2423 (69.2)</td>
<td>13498 (53.9)</td>
</tr>
</tbody>
</table>

ASA = American Society of Anesthesiologists; BMI = body mass index; PID = pelvic inflammatory disease; SD = standard deviation.

After adjusting for medical and surgical factors such as age, body mass index, uterine size, American Society of Anesthesiologist classification, and diabetes, women with endometriosis at the time of hysterectomy had a significantly higher odds of non-urogenital fistula complications compared to those without (aOR 1.19, 95% CI 1.05, 1.35, p = .008). No significant difference in odds of postoperative urogenital fistula development was seen (aOR 1.59, 95% CI 0.60, 4.18, p = .35).

Crude and adjusted odds of fistula among patients with endometriosis among patients undergoing hysterectomy for non-gynecologic cancer reasons.

<table>
<thead>
<tr>
<th></th>
<th>Crude OR (95% CI)</th>
<th>p-value</th>
<th>Adjusted OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder/urethral fistula</td>
<td>2.29 (1.03, 5.09)</td>
<td>.04</td>
<td>1.59 (0.60, 4.18)</td>
<td>.35</td>
</tr>
<tr>
<td>Any other</td>
<td>1.08 (0.96, 1.21)</td>
<td>.19</td>
<td>1.19 (1.05, 1.35)</td>
<td>0.008</td>
</tr>
</tbody>
</table>

CI = confidence interval a Adjusted for admit year, patient age, race, smoking status, diabetes, body mass index (BMI), parity, pelvic inflammatory disease, prior abdominal surgery, uterine weight, wound classification, American Society of Anesthesiologist classification, procedure type (inpatient vs. outpatient), and hysterectomy type (abdominal, vaginal, and laparoscopic); age, BMI, and uterine weight were modeled as restricted cubic splines; OR = odds ratio.

Conclusion: Independent of other medical and surgical factors, women with endometriosis at the time of their hysterectomy had higher odds of developing a non-urogenital fistula complication. While there appeared to be a trend towards increased fistula formation in women with endometriosis, the low incidence of fistulas limited our power to detect a significant difference.

330  Virtual Posters – Session 1
(9:45 AM – 10:45 AM)

9:57 AM – STATION D

Endometrioma Embedded Within the Myometrium
Zaghmout OA, Abueid O, Abueid M. Obstetrics and Gynecology, Hurley Medical Center, Flint, Michigan

Background: Endometrioma are benign, estrogen dependent ovarian cysts. Very few cases have been reported where the endometrioma was found outside the ovary. In this report we describe the laparoscopic management of what we believe is the first reported case of myometrium endometrioma.

Case Description: Patient is a 30-year-old Caucasian female G0 with history of Endometriosis. After imaging workup, a 32x24 mm left adnexal mass was noted on Trans-vaginal US. The mass appeared to be cystic with an echogenic, increasing the suspicion for a dermoid cyst. Patient opted to undergo diagnostic laparoscopy where the rare finding of myometrium endometrioma was discovered. The cyst was excised, drained and the cyst wall dissected. The cavity gap was repaired using a 3-layer closure.

Conclusion: This report suggests that endometrioma can be present within the myometrium and provides further evidence suggesting the etiology of endometriomas can be explained by methods other than retrograde menstruation.

331  Virtual Posters – Session 1
(9:45 AM – 10:45 AM)

9:57 AM – STATION E

Endometriosis as Chronic Disease: Surgical Management
Mohling SI, Eliason R, Farr RS. Department of Obstetrics and Gynecology, University of Tennessee College of Medicine, Chattanooga, Chattanooga, Tennessee

The objectives of this video are to visually explore the long-term anatomic changes in patients who have undergone surgical management of endometriosis and to demonstrate techniques used in laparoscopic excision of endometriosis. Three patients who presented with recurrence of pain 1 to 6 years following a sentinel surgery were re-operated on. The findings at the time of both surgeries are examined. The many different appearances of en-
dometriosis such as white lesions, clear lesions and red lesions as well as the effects of scarification caused by endometriosis are presented. In particular, this video illustrates some of the laparoscopic techniques used in the evaluation and treatment of endometriosis such as peritoneal excision, transperitoneal ureterolysis and orchiophradexy. Finally, the video poses the question of endometriosis as a chronic disease requiring not only a multimodal approach, but also the expectation of possible repeat surgical interventions over time.

**Conclusion:** Our experience suggests that ethanol sclerotherapy is a safe and effective procedure in premenopausal women with ovarian endometrioma who are anticipating pregnancy. Instillation of 95% ethanol contributes to the low recurrence rate through sclerosis of the possibly remaining functional ovarian endometrioma.

**References:**

- Lee HS, Koo J, Nam GI. Center for Minimally Invasive Surgery, Department of Obst/Gyn, Good Moonhwa Hospital, Busan, Republic of Korea.
- Objective: To present our experience of ultrasound-guided sclerotherapy with 95% ethanol for the treatment of ovarian endometrioma.
- **Method:** Under anesthesia, an 18 gauge ovum aspiration needle is penetrated into the cystic cavity under ultrasound guidance and the aspirated fluid is collected by applying constant indirect pressure without pressure through a specially designed silicone plug. Once adequately drained, the cystic cavity is flushed with normal saline until clear and intact cystic wall is confirmed throughout irrigation. Then the cystic cavity is irrigated with 40 cc of 95% ethanol and another 40 cc was instillated in the cyst.
- **Conclusion:** Our experience suggests that ethanol sclerotherapy is a safe and effective procedure in premenopausal women with ovarian endometrioma.

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**How to use CA-125 More Effectively in the Diagnosis of Deep Endometriosis?**

Raymundo TS, Oliveira MAP, Soares LC, Pereira TR, Demôro AE. Gynecology, State University of Rio de Janeiro, Rio de Janeiro, Brazil.

**Study Objective:** The main objective of this study is to evaluate the performance of CA-125 measurement in the menstrual and mid-cycle phases of the cycle, as well as the difference in its levels between the two phases in patients with DIE.

**Design:** A prospective study from January 2012 to January 2016.

**Setting:** Endometriosis Treatment Center in Pedro Ernesto University Hospital (Rio de Janeiro State University).

**Patients:** Fifty four patients were included, 34 with deep infiltrative endometriosis (DIE) and 20 for tubal ligation.

**Intervention:** Two serum samples of CA-125 were collected during the preoperative period: during menses (between the 2nd and 4th days of the menstrual cycle) and in the mid-cycle (between the 13th and 15th days). Both dosages were made no more than 3 months prior to surgery. Serum CA-125 concentrations were measured by an immunoradiometric kit using M11 specific monoclonal antibody (Centocor, Malvern, PA, USA).

**Measurements and Main Results:** Area Under the Curve (AUC) of CA-125 in menstrual phase and of the difference between menstrual and mid-cycle phases had the best performance (both with AUC = 0.96).

**Objective:** The main objective of this study is to evaluate the performance of CA-125 measurement in the menstrual and mid-cycle phases of the cycle, as well as the difference in its levels between the two phases in patients with DIE.

**Design:** A prospective study from January 2012 to January 2016.

**Setting:** Endometriosis Treatment Center in Pedro Ernesto University Hospital (Rio de Janeiro State University).

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**Intervention:** Two serum samples of CA-125 were collected during the preoperative period: during menses (between the 2nd and 4th days of the menstrual cycle) and in the mid-cycle (between the 13th and 15th days). Both dosages were made no more than 3 months prior to surgery. Serum CA-125 concentrations were measured by an immunoradiometric kit using M11 specific monoclonal antibody (Centocor, Malvern, PA, USA).

**Measurements and Main Results:** Area Under the Curve (AUC) of CA-125 in menstrual phase and of the difference between menstrual and mid-cycle phases had the best performance (both with AUC = 0.96).

The ratio between menstrual and mid-cycle phases had the worst performance. The best cutoff point in AUC for Δ CA-125 was the 8.5 value for the difference between CA-125 in menstruation and in mid-cycle. When menstrual serum CA-125 levels were less than 35 IU/mL in women with DIE, four had Δ CA-125 above 8.5 IU/mL. The only patient in the control group present. Pathology from staging procedure showed benign uterus with adenomyosis and leiomyomata. lymph nodes, omental biopsy, and small bowel mesenteric nodule all returned benign fibroadipose tissue.

**Conclusion:** Endometriosis although benign, shares pathophysiological features with cancer. Both histologic and epidemiologic evidence suggest that ovarian endometriosis may lead to malignant ovarian tumors primarily epithelial in origin. Primary extrauterine stromal sarcoma is a rare but reported diagnosis. Adequate sampling of suspected implants may aid in this rare diagnosis.
with serum CA-125 level in menstruation > 35 IU/mL, had a A CA-125 less than 8.5 IU/mL. The specificity of this test was 100%.

Comparison of Controls and Patients with DIE in menstrual and mid-cycle phases using 35 IU/ml as a cutoff of CA-125

<table>
<thead>
<tr>
<th>CA-125</th>
<th>Controls (n=20)</th>
<th>DIE (n=34)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both negatives a</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Both positives b</td>
<td>0</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Menstrual Positive Only</td>
<td>1</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>34</td>
<td>54</td>
</tr>
</tbody>
</table>

DIE = Deep Infiltrative Endometriosis.

a - menstrual and mid-cycle phases (CA-125 <35 IU/ml).
b - menstrual and mid-cycle phases (CA-125 >35 IU/ml); (p <.00001).

**Conclusion:** CA-125 may be useful for the diagnosis of deep endometriosis, especially when both are collected during menstruation and in mid-cycle. Multicentric studies with larger samples should be performed to better evaluate the cost-effectiveness of measuring CA-125 in two different phases of the menstrual cycle.

Bladder endometriosis is relative rare, and may be originated from retrograde menstruation implant, direct extension from uterine adenomyosis, metaplasia, or from iatrogenic route (such as direct invasion from Cesarean section scar defect). We present this unusual case with huge bladder base endometriosis near bladder trigone originated from previous Cesarean scar defect, extended anteriorly and laterally all the way to the left inguinal area. After careful development of left retropitoneal space and complete ureterolysis, bladder trigone was exposed, and entire anterior deep infiltrating endometriosis mass was mobilized. An en-bloc excision (full-thickness partial cystectomy) was performed, removing the left half of bladder (including cutting down the left superior vesical artery), while preserving the trigone area and both ureters. 2-layer watertight suture was applied to repair the bladder wound. Although the bladder had been halved, with small bladder capacity immediately after operation, bladder capacity can reach 350 cc 3 months after the surgery.

**Virtual Posters – Session 1**
**10:03 AM – STATION C**

**Laparoscopic Low Anterior Resection for Bowel Endometriosis Using a Natural Orifice**
Lee CE,1 Leyland NA2,1 Obstetrics, Gynecology & Reproductive Sciences, University of Saskatchewan, Saskatchewan, Canada; Obstetrics and Gynecology, McMaster University, Hamilton, Ontario, Canada

A 31-year-old nulligravid women presented to the minimally invasive gynecology clinic with a longstanding history of dysmenorrhea, dyschezia, and constipation. She had a previous laparoscopic procedure where she was diagnosed with stage IV endometriosis. Following extensive investigations and imaging, a large endometriotic tumor was found involving the rectosigmoid and rectovaginal septum with invasion into the vagina. A pre-operative colonoscopy revealed intrinsic compression of the rectosigmoid junction, presumably secondary to the pelvic mass. We demonstrate the feasibility of a laparoscopic low anterior resection of bowel endometriosis using a natural orifice technique.

**Virtual Posters – Session 1**
**10:03 AM – STATION D**

**Laparoscopic Management of Abdominal Wall Endometriosis**
Piszczek C,1 Mittal P,3 Fogelson N.2 Minimally Invasive Gynecology, Legacy Health System, Portland, Oregon; Radiology, Emory University, Atlanta, Georgia; Pearl Surgicenter, Portland, Oregon

**Objective:** To demonstrate a case of complex AWE with laparoscopic management.

**Case:** 38 year old G1P1 with persistent left abdominal wall pain following resection of AWE. Patient’s pain started in 2013, three months following a robotic SCH with uncontended power morcellation. A mass overlying the left iliac artery was removed and found to be an endometrioma. Pain continued. A laparotomy with excision of AWE was performed. Pain persisted.

The patient presented to our clinic. MRI images read by an expert suggested two sites of AWE, both at sites of robotic ports from the initial hysterectomy. Our video showcases the robotic resection of AWE.

**Results:** Pathology returned with endometriosis at both sites. The patient’s pain resolved following surgery.

**Conclusion:** In this case, the likely mechanism of disease is AWE seeded during uncontended power morcellation. AWE can be managed laparoscopically in select cases. Expert radiology review can increase sensitivity of AWE detection.
Laparoscopic Management of Partial Bladder Resection in Deep Infiltrating Endometriosis
Misirlioglu S, Eraslan A, Boza A, Yildiz Oguz S, Urmann B.
Taskiran C, Department of Ob/Gyn, VKF Koc University Hospital, Istanbul, Turkey; Department of Ob/Gyn, VKF American Hospital, Istanbul, Turkey; Department of Ob/Gyn, VKF Koc University School of Medicine, Istanbul, Turkey

Urinary tract endometriosis (UTE) is a rare form of deep infiltrating endometriosis. It may involve different sites of the bladder, most frequently the base and the dome, with various grade of infiltration. Bladder nodules typically coexist with other localizations of deep pelvic endometriosis, resulting in a wide variety of abdominal and urinary symptoms that may be overlooked by clinicians. In this report, a 32-year-old woman was admitted with urinary storage symptoms and severe pelvic pain. On pelvic MRI, suspected endometriosis infiltration was detected. Laparoscopic evaluation was suggested and partial bladder resection was performed. Multidisciplinary approach is required in the advanced stage cases for favorable outcomes.

Laparoscopic Treatment of Bladder Endometriosis: Outcomes on 223 Patients Treated in an Endometriosis Unit
Clarizia R, Roviglione G, Brunì F,Montefiori R, Caleffi G.

Study Objective: To assess feasibility and effectiveness of laparoscopic treatment of anterior compartment endometriosis.

Design: Retrospective analysis.

Setting: Department of Obstetrics and Gynecology, Gynecologic Oncology and Minimally-Invasive Pelvic Surgery, International School of Surgical Anatomy, Sacred Heart Hospital, Negrar, Verona, Italy;

Patients: 223 women treated for bladder endometriosis from January 2004 to April 2015 in our Department.

Intervention: Bladder wall opening and resection was obtained using bipolar scissors, monopolar hook or combined energy and ultrason devices. After bladder opening, distance of the excision margins from both ureteral hostia was visualized and ureteral double-J catheter was considered if less 2 cm. The bladder then was closed by double-layer intracorporeal laparoscopic running suture using Vicryl 3/0. At the end of the procedure, the bladder was filled with 240-300 ml of 0.9 % NaCl solution, for watertight closure testing.

Measurements and Main Results: Median duration of surgery was 251 minutes. Mean hospital stay was 9.5 days. There were no intraoperative complications related to the urinary phase. Median intraoperative blood loss was 111 milliliters.

Suture leakage was reported at cystography in 7 cases (3.1%), in no case surgical correction was performed, in all these patients the catheter was maintained up to 20 days with complete heal of the leakage. Median follow-up was 55.5 months. At the 1.6 and 12 months follow-up visit 218 patients (98.75%) reported complete resolution of symptoms, only 5 patients (2.24%) reported persistent symptoms of urinary tract. The rate of recurrence at 12 months of follow-up is 2.9%.
Conclusion: We did not find significant differences between perioperative outcomes for conventional versus robotic management of endometriomas. They appear to be equally safe and effective surgical management options for the treatment of endometriomas. This dataset is part of an ongoing five-year review.

Objective: To determine the prevalence of microscopic endometriosis in patients with chronic pelvic pain undergoing laparoscopy. Setting: Academic-affiliated community hospital. Patients: Patients who underwent laparoscopic evaluation for chronic pelvic pain by three fellowship-trained minimally invasive gynecologists from Jan 2011 to Dec 2016. Intervention: No intervention. Measurements and Main Results: One-hundred and forty-three patients were included. Operative and pathology reports were used to identify patients meeting inclusion criteria and the IPPS Pelvic Pain Assessment form was used to obtain menstrual and pain characteristics. The prevalence of microscopic endometriosis was 39%. Cramping pain score during menses was lower in the positive-biopsy group compared to the negative-biopsy group (6.9 vs 8.0 (p = .046)). Distribution of ROME scores was lower in the positive-biopsy group (p = .04). No differences were appreciated in terms of age of menarche, pain during various portions of the menstrual cycle, or duration of symptoms between the two study groups. The biopsy-positive group had a lower age at time of evaluation, although this was not statistically significant (p = .179). Current hormone use affected neither biopsy results nor menstrual or pain characteristics. Seventy-six percent of patients had concomitant pelvic floor syndrome (p = .574). Notably, 48% percent of patients reported a history of sexual abuse. Furthermore, 31% were either past or current users of illicit drugs, most commonly marijuana (94%).

Conclusion: Our study shows that microscopic endometriosis is present in 39% of patients with clinically-negative peritoneum undergoing laparoscopic evaluation for chronic pelvic pain. This study is underpowered to find many differences between these groups and further studies are necessary to determine what characteristics might be predictive of positive biopsies. This information could lead to a more prompt diagnosis allowing for earlier intervention that could improve various clinical outcomes and ultimately reduce chronic pelvic pain.

Objective: To determine the prevalence of microscopic endometriosis in patients with chronic pelvic pain undergoing laparoscopy. Setting: A multi-centre medical centre with a tertiary level endometriosis unit. Patients: Patients who underwent laparoscopic evaluation for chronic pelvic pain by three fellowship-trained minimally invasive gynecologists from Jan 2011 to Dec 2016. Intervention: No intervention. Measurements and Main Results: One-hundred and forty-three patients were included. Operative and pathology reports were used to identify patients meeting inclusion criteria and the IPPS Pelvic Pain Assessment form was used to obtain menstrual and pain characteristics. The prevalence of microscopic endometriosis was 39%. Cramping pain score during menses was lower in the positive-biopsy group compared to the negative-biopsy group (6.9 vs 8.0 (p = .046)). Distribution of ROME scores was lower in the positive-biopsy group (p = .04). No differences were appreciated in terms of age of menarche, pain during various portions of the menstrual cycle, or duration of symptoms between the two study groups. The biopsy-positive group had a lower age at time of evaluation, although this was not statistically significant (p = .179). Current hormone use affected neither biopsy results nor menstrual or pain characteristics. Seventy-six percent of patients had concomitant pelvic floor syndrome (p = .574). Notably, 48% percent of patients reported a history of sexual abuse. Furthermore, 31% were either past or current users of illicit drugs, most commonly marijuana (94%).

Conclusion: Our study shows that microscopic endometriosis is present in 39% of patients with clinically-negative peritoneum undergoing laparoscopic evaluation for chronic pelvic pain. This study is underpowered to find many differences between these groups and further studies are necessary to determine what characteristics might be predictive of positive biopsies. This information could lead to a more prompt diagnosis allowing for earlier intervention that could improve various clinical outcomes and ultimately reduce chronic pelvic pain.
Patients: Patients who underwent surgery for endometriosis-associated pain, were followed-up in our unit and had complete computerized medical records available. A total of 385 patients were included in the assessment.

Intervention: N/A

Measurements and Main Results: The demographic characteristics, stage of endometriosis, associated medical conditions; type of surgery and other medical treatments were evaluated. Student T-Test and Chi Square Test were used to compare variables.

The number of patients diagnosed with stage 1 and 2 endometriosis was 223 (57.9%) and 462(24.1%) stages 3& 4.

Pain was an indication for surgery in 330 (85.7%) patients, endometrioma in 136(35.3%) and infertility in 63 (16.4%). In patients with pre-operative pain, 99 (30%) had complete resolution, 143 (43.3%) had improvement in their symptoms & 71 (21.5%) had no change at the 6–8 week post-operative review.

On further follow-up, recurrent pain symptoms were reported in 73 of 242 (30.1%). The average time for symptom recurrence was 14.7 months (range 1–72 months, SD 14.9). Of those patients, 39 (53.4 %) were diagnosed as having stage 1 &2 and 34 (46.6%) stages 3&4.

All patients were offered post-operative hormonal treatment, 139 (42.1%) chose not to have any.

Conclusion: Our study confirms the high rate of symptom improvement after laparoscopic excision of endometriosis. However, in accordance with previous studies, the risk of recurrence is high. Our results show no correlation of endometriosis stage and recurrence of pain. Medical treatment did not affect chance of pain recurrence, however, this could be due to the relatively small study population.

347 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

10:09 AM – STATION E

Resection of Deep Infiltrating Endometriosis is Effective to Reduce Dysmenorrhea
Kato T, Irisara M. Obstetrics and Gynecology, Tokushima University, Tokushima City, Tokushima Prefecture, Japan

Study Objective: In the treatment of endometriosis, to improve dysmenorrhea is an important task. The patient of endometriosis with dysmenorrhea often has deep infiltrating endometriosis (DIE). DIE is defined as a lesion located 5 mm or more deep from the peritoneum. We select hormonal therapy or surgery in these cases. In the surgery for the patient with dysmenorrhea, we resect all endometriosis lesions including DIE. Surgery to completely excise DIE, usually needs extensive dissection with advanced laparoscopic skills. We examined retrospectively dysmenorrhea improvement effect of DIE resection surgery, and the role of post operative hormonal therapy.

Design: The subjects of this study were targeted 45 patients who received DIE resection surgery and follow-up more than 1 year after surgery in Tokushima University Hospital. We conducted a retrospective study to compare the change of dysmenorrhea before and after surgery by Visual analog scale (VAS) score in 20 cases and examined the recurrence rate of endometriosis after surgery in 45 cases. The emergence of ovarian endometrial cysts and deterioration of menstrual pain were treated as recurrence. It was also similarly examined the effect of the presence or absence of hormonal therapy after surgery.

Measurements and Main Results: Surgical complications such as organ damage and massive bleeding were not observed. VAS score showed decrease after surgery in 17/20 cases (85%). Endometrial cyst or dysmenorrhea relapse in 7/45 cases.

Conclusion: DIE resection surgery showed a effective against dysmenorrhea. Postoperative hormonal therapy can affect to pain improvement. But, there was no difference in the rate of recurrence of endometriosis and dysmenorrhea, whether surgery alone or hormonal therapy addition. I think that it is very important to completely remove the lesion by surgery in order to improve pain.
Setting: Department of Gynecology and Obstetrics of 1st Medical Faculty of Charles University and General University Hospital, Prague, Czech Rep.

Intervention: Uterine resection with anastomosis (ureterorraphia), reimplantation.

Measurements and Main Results: In case 1 we present the patient with serious pyelonephritis with septic manifestation, in case 2 patient with bilateral ureteral affection of DIE leading to renal hypertension in young age without any other predisposition for cardiovascular disease, and in case 3 we show the patient with complete loss of kidney function – all 3 cases as a serious result of DIE affecting ureters. First two cases were completely resolved after surgical laparoscopic management without impact on renal function. In case one (septic pyelonephritis) we performed uterine resection with anastomosis (ureterorraphia) on the left side. In case two normal blood pressure was established after bilateral uterine resections with reimplantation, so patient could stop use of combination of two antihypertensive drugs. In case 3 due to late diagnosis and zero residual renal function was necessary to perform unilateral nephrectomy. All procedures were finished laparoscopically, in multidisciplinary team of gynecologist and urologist.

Conclusion: Adequate surgical management is crucial for the treatment of additional medical conditions with possible very serious consequences. Case of total renal function loss shows that early diagnosis is very important, as well as for possible cardiovascular impact of the uterine DIE.

349 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

10:09 AM – STATION G

Surgical Outcomes of Minimally Invasive and Abdominal Procedures for Endometriosis

Vargas MV,1 Amadu R,2 Marfori C,1 Moawad G.1 Obstetrics and Gynecology, George Washington University Medical Faculty Associates, Washington, District of Columbia; Surgery, George Washington University Medical Faculty Associates, Washington, District of Columbia

Study Objective: To describe surgical practice patterns and compare outcomes of endometriosis procedures by surgical approach.

Design: Retrospective cohort (Canadian Task Force classification II-2)

Setting: Data from the ACS NSQIP database were evaluated.

Patients: Women undergoing gynecologic procedures with a diagnosis of endometriosis from 2005 to 2014 were identified by ICD-9 and CPT codes.

Intervention: Outcomes were analyzed using chi-square or Fishers Exact tests for categorical variables, and analysis of variance for continuous variables. Logistic regression was used to assess the associations of surgical approach with outcomes.

Measurements and Main Results: There were 1162 cases with endometriosis that underwent gynecologic procedures. The surgical approach was abdominal, laparoscopic or vaginal in 37%, 48%, and 10% of cases respectively (6% “other”).

The most common primary procedures were laparoscopic hysterectomy (37%), abdominal hysterectomy (26%), adnexal surgery (8%), and bowel surgery (7%). The most common concurrent procedures were lysis of adhesions (13%) cystoscopy (12%), treatment of pelvic lesions (10%), adnexal surgery (5%), and bowel surgery (5%).

Seventy-three cases (6%) had at least one morbidity outcome. Forty-four cases (10%) were abdominal, 21 laparoscopic (4%), and 6 vaginal (5%). Abdominal cases had the highest incidence of wound events, bleeding, return to operating room, prolonged operative times, and prolonged hospital stays. Compared to laparoscopy, the abdominal approach was significantly associated with overall morbidity (adjusted OR 2.99 (95% CI 1.71–5.23), p < .001). There was no difference in overall morbidity between the laparoscopic and vaginal approaches.

Conclusion: The surgical management of endometriosis is not standardized. Practice patterns and outcomes are not well described. In our analysis, the laparoscopic approach was most commonly utilized and conferred the lowest overall morbidity. The abdominal approach was used for a significant proportion of women and conferred greater morbidity. The vaginal approach was comparable to the laparoscopic approach but was least utilized.

350 Virtual Posters – Session 1
(9:45 AM - 10:45 AM)

10:09 AM – STATION H

Utility of Pelvic MRI Combined with Multidisciplinary Image Review in Patients with Chronic Pelvic Pain for Preoperative Surgical Planning

Jones TL, VanBuren WM, Purdy MP, Breitkopf DM, Green IC, Laughlin-Tommaso SK, Barnett TL. Obstetrics and Gynecology, Mayo Clinic, Rochester, Minnesota

Study Objective: To determine if preoperative MRI combined with multidisciplinary image review is useful in surgical planning and predicting surgical findings.

Design: Retrospective cohort study.

Setting: Academic referral center.

Patients: Chronic pelvic pain patients with bowel symptoms, endometriosis, or a history of advanced stage disease with an initial evaluation including preoperative MRI and case presentation pre- and post-operatively at a multidisciplinary conference between 2015 and 2017.

Intervention: Patients underwent a preoperative pelvic CT MRI with and without intravenous Gadolinium contrast. The images were reviewed during a preoperative conference by a primary radiologist, additional radiology staff, and gynecologic surgeons for signs suggestive of endometriosis. A single surgeon performed all operative laparoscopies.

Measurements and Main Results: 28 patients met inclusion criteria: 13 with no endometriosis or low stage (I or II) and 15 with advanced stage (III or IV) endometriosis. Baseline demographics between the two cohorts were the same. The MRI was concordant with the operative laparoscopy and pathologic diagnosis for the absence of deep infiltrating endometriosis (DIE) in 92% of the low or no endometriosis cases. For advanced cases, the sensitivity, specificity, positive predictive value and negative predictive value for DIE was 86%, 100%, 100% and 92% respectively (p = .04). Bowel DIE was identified in 3 patients on preoperative MRI; all 3 patients underwent intraoperative bowel surgery and had pathologic confirmation of disease. There were no unexpected cases of bowel DIE. Surgical planning was improved for 6 patients based on preoperative MRI findings of unexpected advanced stage disease and/or presence of bowel DIE.

Conclusion: Pelvic MRI combined with multidisciplinary image review can correctly distinguish advanced stage endometriosis from no or low stage disease preoperatively, allowing for appropriate preoperative planning.

HYSTEROSCOPY, ENDOMETRIAL ABLATION & STERILIZATION

351 Virtual Posters – Session 1
(9:45 AM-10:45 AM)

10:15 AM – STATION A

Choice of Primary Outcome Evaluating Treatment for Heavy Menstrual Bleeding

Bongers M.1 Herman M.2 Geominini P.2,1 Obst/Gyn, Maastricht University Medical Centre, Maastricht, Limburg, The Netherlands; 2Ob/Gyn, Maxima Medical Centre, Veldhoven, NB, The Netherlands

Study Objective: To investigate the primary outcome in heavy menstrual bleeding (HMB) studies.

Design: All RCT’s and systematic reviews were evaluated regarding the treatment of HMB until January 2015.

Setting: NA.

Patients: NA.

Intervention: NA.

Measurements and Main Results: A total of 429 studies were identified, 262 RCT’s and 167 reviews.
108 RCT’s and 26 reviews were included for full text analyses. 66 RCT’s (61%) performed a sample size calculation and pre-specified their primary outcome. RCT: 12 different primary outcomes were found in the included RCT’s. 5 primary outcome groups 1) blood loss related outcomes (67%), 2) satisfaction with treatment (20%) 3) quality of life (8%), 4) composite outcomes (4%) and 5) other (2%). The largest group - blood loss- consists of 5 different outcomes, of which amenorrhea is the most used primary outcome among all studies (16/66). Satisfaction is the second largest primary outcome group.

Systematic Review: 26 systematic reviews and/or meta-analyses were included. 54% had one primary outcome, all other reviews used a composite primary outcome. A total of 11 different primary outcomes were reported. Both RCT’s and reviews (71% versus 92%) use blood loss related primary outcomes the most. In RCT’s this is amenorrhea, however only in one review. The reviews are combining all the different outcomes to evaluate blood loss into one primary outcome. Quality of life was more used in reviews, 25 % compared to 11% in RCT’s.

Conclusion: The most used primary outcomes in HMB studies relate to blood loss but there is no consistency regarding the endpoints chosen or measurement tools used to describe blood loss. Standardising outcomes will aid valid comparison and interpretation of data pertaining to the treatment of HMB.

352 Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:15 AM – STATION B

Comprehensive Treatment of Moderate and Severe Intrauterine Adhesions in Reproductive Age Woman
Khiteva P., Martynov S., Adamyan L. Gynecological Department, Federal State Budget Institution “Research Center for Obstetrics, Gynecology and Perinatology” Ministry of Healthcare of the Russian Federation, Moscow, Moscow, Russian Federation

Study Objective: To investigate the feasibility and success rate of comprehensive treatment of intrauterine adhesions (IUA).

Design: Prospective cohort study, II-3 (Canadian Classification).

Setting: Dept. of Operative Gynecology of the Research Centre for Obst., Gyn. & Perinatolology, Moscow.

Patients: Two hundred and forty six patients with mild, moderate, and severe IUAs underwent hysteroscopic adhesiolysis in our hospital between September 2014 to December 2016.

Intervention: The therapeutic plan included: 1) hysteroscopy to confirm the diagnosis and evaluate the severity of disease followed by hysteroscopic adhesiolysis 2) physiotherapy using preformed physical factors, such as magnetic-therapy, laser-therapy magnetolasetherapy; 3) postoperative cyclic hormone therapy with high doses of estrogens to enhance endometrial proliferation.

Recurrence of adhesions was assessed after 3 months of therapy by hysteroscopic control.

Measurements and Main Results: Normalization of menstrual blood flow; recurrence rate according to results of TVU and Hysteroscopy. Intraoperatively grade I of IUA was established in 66.2% (163) of patients, grade II-16.2% (40), grade III-17.4% (43), 78% (191) of patients experienced completely restored uterine cavity. Normal menses after treatment had 89% (218) of patients, hypomenorrea had 11% (28) of patients. The overall conception rate after hysteroscopic adhesiolysis was 56% and was decreased with IUAs severity (mild, 67%; moderate, 50%; severe, 23%). The intrauterine adhesions recurrence rate was 3% in I grade, 37% in II grade, 88% in III grade. Mean conception time following hysteroscopic adhesiolysis was 5.6 ± 3.7 months. The live birth rate was 67% in grade I, 42% in grade II, 7% in grade III. The overall miscarriage rate was 11%.

Conclusion: Complex treatment of intrauterine adhesions has a low incidence of recurrence rate of intrauterine adhesions, especially at high grades.

353 Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:15 AM – STATION C

Diagnostic in Office Hysteroscopy with and without Paracervical Block: A Descriptive Study
Grottheer A.1 Giagni A.2 Sada M.3 Correa A.2 Almiral R.2 James K.1 Andrade F.1 Caragno J.2 1Minimally Invasive Gynecology Unit, University of Miami, Miami, Florida; 2Ambulatorio Manso, Barcelona, Spain

Study Objective: Office hysteroscopy is considered the gold standard for the evaluation and management of patients with abnormal uterine bleeding. Pain and inability to enter the uterine cavity are the most common reasons for aborting the procedure.

Study Objective: To describe the impact of paracervical block with 10 ml 2% Bupivacaine on the pain experienced during in office hysteroscopy compared to no anesthesia using the “no touch” vaginoscopy approach.

Design: Single center retrospective study.

Setting: Outpatient ambulatory hysteroscopy unit.

Patients: A total of 257 consecutive patients who underwent in office diagnostic hysteroscopy for suspected endometrial pathology.

Intervention: In-office diagnostic hysteroscopy using a Bettocchi 4.3 mm hysteroscope with working channel using the “no touch” vaginoscopy approach.

When used, paracervical block was performed using 10 cc on bupivacaine 2%. Pain level was measured by visual analogue scale (VAS) immediately after the procedure.

Measurements and Main Results: Both groups were similar regarding age, parity, menopausal status and other demographics. The most common indications for the procedure in both groups were suspected endometrial polyp, abnormal uterine bleeding and postmenopausal bleeding. 210 patients received paracervical block before the procedure. The control group was represented by 47 patients who received no anesthesia. Pain measured with VAS immediately after the procedure was 4.7 (SD = 2.8) in the no anesthesia group and 3.4 (SD = 2.7) in the paracervical block group. (p = .003).

Conclusion: The use of paracervical block with 10 ml of Bupivacaine 2% is an effective modality to decrease pain during in office diagnostic hysteroscopy. In office diagnostic hysteroscopy using the “no touch” vaginoscopy approach is a safe, relatively painless and well tolerated procedure. We strongly recommend the use of hysteroscopy in office setting to avoid, when feasible, operating room cost and inconvenience.
Early Hysteroscopic Diagnosis of Endometrial Tuberculosis
Kumar A. Hysteroscopy Surgery Division, Women’s Health Centre, Jaipur, Rajasthan, India

Study Objective: To develop hysteroscopic markers for early diagnosis of endometrial tuberculosis from a pregnancy point of view after anti-tubercular therapy (ATT).

Design: Retrospective study.

Setting: Private urban hospital.

Patients: 304 patients of infertility.

Intervention: Hysteroscopies were done in women suffering with infertility between 1995 to 2016 and special emphasis was laid to diagnose endometrial TB.

Measurements and Main Results: A total of 304 hysteroscopies were done in cases of infertility. BACTEC and PCR for endometrial TB was done in all cases. BACTEC was positive for TB in 20 cases, PCR was positive in 24 cases and 23 cases were found negative for TB on BACTEC and PCR however these 23 cases exhibited hysteroscopic findings of TB. Of the 67 cases in 28 cases the endometrium was absolutely unremarkable for endometrial TB except for minute well delinated whitish deposits impregnated by being anchored over extremely filmy very thin adhesion strands. In the remaining 39 cases the endometrium appeared dirty, whitish, pale and was covered with whitish caseous deposits, adhesions and ill defined endometrial gland openings. All 67 cases were administered ATT. A relook hysteroscopy was performed 6 months after ATT in all cases. In the 28 cases of early TB there was absolutely no hysteroscopic evidence of TB while the remaining 39 cases showed varying degree of improvement however some signs of a healed TB still remained during the relook hysteroscopy. Of the 28 cases, 16 cases responded with spontaneous pregnancies, 8 cases became pregnant with IVF while 4 cases did not become pregnant at all. Of the remaining 39 cases suffering with advanced endometrial TB only 2 cases became pregnant even after ATT.

Conclusion: Impregnated whitish deposits over extremely filmy very thin adhesion strands is a valuable hysteroscopic marker of early endometrial TB with respect to a pregnancy after ATT.

Economic and Clinical Outcomes Among Women with Abnormal Uterine Bleeding Treated with Inpatient or Outpatient Hysterectomy versus Endometrial Ablation
Bonafede MM,1 Cai Q,2 Miller JD,1 Pohlman SK,3 Troeger KA.1 Truven Health Analytics, an IBM Company, Cambridge, Massachusetts; 2Hologic, Inc., Marlborough, Massachusetts

Study Objective: To describe clinical and economic outcomes among women with abnormal uterine bleeding (AUB) treated with global endometrial ablation (GEA) versus inpatient and outpatient hysterectomy.

Design: US retrospective administrative claims analysis.

Setting: N/A.

Patients: Women undergoing GEA or hysterectomy (index event) between January 2013 and June 2015 with at least 2 claims indicating AUB before or on the index date in the Truven Health MarketScan® Commercial Database. Women were required to have at least 12 months pre- and post-index continuous enrollment. Women with evidence of pregnancy, delivery, menopause, non-skin cancer or those receiving total abdominal hysterectomy were excluded. Outcomes included initial procedure and follow-up costs during the 12 month follow-up period, as well as the incidence of complications (cervical occlusion, cervical/uterine/bowel perforation, fluid overload, pyometra, cervicitis, device complications and cervical trauma, including cervical lacerations and hematometra).

Intervention: GEA or hysterectomy.

Measurements and Main Results: 56,665 women met the inclusion criteria (55.8% GEA, 44.2% hysterectomy). The majority of hysterectomy cases (58.1%) occurred in an outpatient setting. Mean age was slightly lower for GEA patients (42.7 versus 43.2, p < .001), as was pre-index use of oral contraceptives (25.3 versus 27.9%) while pre-index use of anti-depressants (28.9% versus 28.6%, p = .384) and NSAIDS (33.4% versus 33.9%, p = .271) was similar. Total healthcare costs in the first month post-index were significantly lower for GEA than hysterectomy ($6,983 versus $15,224, p < .001), a finding also present when limited to inpatient ($15,989) or outpatient hysterectomy ($14,673) (both p < .001). Total healthcare costs in the 12 month post-index period were also significantly lower for GEA than hysterectomy ($13,528 versus $21,509, p < .001).

Complications were more common among inpatient and outpatient hysterectomy patients than GEA patients (30.3% and 33.1% versus 3.9%, both p < .001).

Conclusion: This analysis of a large, national administrative claims database found that GEA was approximately one-half the cost of hysterectomy (inpatient or outpatient) for the treatment of AUB.

Effectiveness of Outpatient versus Operating Room Hysteroscopy for the Diagnosis and Treatment of Uterine Conditions: A Systematic Review
Bennett A,1 Lepage C,2 Thavorn K,2 Murnaghan O,3 Ferguson D,1 Singh SS.1 Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Ontario, Canada; 2School of Epidemiology, Public Health, and Preventive Medicine, University of Ottawa, Ottawa, Ontario, Canada; 3Department of Obstetrics, Gynecology, and Newborn Care, The Ottawa Hospital, Ottawa, Ontario, Canada

Study Objective: To systematically review the effectiveness of outpatient hysteroscopic procedures and hysteroscopic procedures performed in the operating room (OR) to diagnose and/or treat intrauterine pathology.

Design: We searched computerized databases such as Medline, EMBASE, and the Cochrane Library for clinical trials and observational studies that investigated the diagnosis and treatment of intrauterine pathology. Screening and data extraction were done independently by two reviewers. Our primary outcome of interest is diagnostic accuracy, while our secondary outcomes included pain, patient and/or practitioner satisfaction, treatment success, adverse events, and cost.

Measurements and Main Results: 18 full-text studies met our inclusion criteria including a total of 3,646 women. No studies compared the diagnostic accuracy of outpatient hysteroscopy to any surgical gynecological procedure. 9 of the 18 studies reported on patient satisfaction and adverse events. 77% (7/9) of studies reported a higher satisfaction in patients receiving an outpatient hysteroscopy, while 100% (9/9) of studies reported less adverse events that occurred in the outpatient setting. Of the papers reporting on pain, 57% (4/7) reported lower or no difference in pain scores in the outpatient group, while 60% (3/5) of papers reported more success in the surgical setting. Lastly, all 6 studies reporting on cost concluded that the costs for performing outpatient hysteroscopic procedures is less than hysteroscopic procedures performed in the OR.

Conclusion: Outpatient hysteroscopy is a safe and less costly alternative to treating intrauterine pathology compared to hysteroscopic procedures performed in an inpatient setting.
for the hysteroscopic identification and resection of three commonly encountered endometrial pathologies: uterine septa, submucosal fibroids, and Asherman’s syndrome. Pregnancy rates improve significantly after hysteroscopic treatment of submucosal fibroids, both in spontaneous conception and for patients undergoing in vitro fertilization. Similarly, recurrent miscarriage rates diminish after hysteroscopic resection of uterine septa and intrauterine scar tissue. Utilizing the techniques included in this video, we will demonstrate how operative and diagnostic hysteroscopy is an essential and powerful tool.

5. Headaches and Allergies in Nitinol Based Devices

A literature review of headaches and allergies associated with nitinol-based cardiovascular stents using the MAUDE database and a literature search and compare findings to those reported by the FDA for Essure microinserts. Design: Review. Canadian Task Force Classification III. Setting: N/A.

Patients: Patients receiving a nitinol-based cardiovascular stent or tubal occlusion microinsert.

Intervention: A literature review of headaches and allergies associated with cardiovascular nitinol stents was conducted using PubMed (2002 to 2016) using search terms included in Figure 1. A review of injury reports was conducted using the FDA MAUDE database, since “injury” is the relevant category for reports on headaches and allergies associated with the stents. These findings were compared to the 2015 FDA report on Essure microinserts.
Conclusion: There is a significant difference between the number of injury reports for nitinol microscrews and nitinol stents. Further research should be conducted to identify possible causes of this significant difference such as hormonal milieu, anatomical location, manufacturing process, MAUDE reporting system, and social media.

360 Virtual Posters – Session 1 (9:45 AM–10:45 AM)
10:21 AM – STATION B

Hysteroscopic Treatment of Robert’s Uterus

Study Objective: To show that a new hysteroscopic method can be used in treatment of uterus bicornis unicollis with one rudimentary horn.

Design: Case report.

Setting: Academic affiliated community hospital.

Patients: 18 year old patient with a 5-year history of severe dysmenorrhea. She had in 2012 appendectomy and in 2013 diagnostic laparotomy with releasing adhesions. She had no family history regarding gynecological pathology. Currently she was undergoing hormonal therapy with dienogest because of endometrosis suspicion.

Intervention: To diagnose the patient we had performed 3D USG, CT and MRI. We confirmed duplication of the uterus most likely with two separate cervical channels and single vagina. The right cervical channel was extremely narrow and difficult to trace and failure to examine very much in the MRI. According to the ESHRE classification we established U4A–Robert’s uterus. There have been two treatment options: removal of the rudimentary horn in laparoscopy. This method has been widely used, relatively safe and led to the fertility reduction. Another new option has been preservation of the horn by hysteroscopic recommunication with the main cavity under supervision of simultaneous rectal ultrasound. This method has been individually adapted according to each patient case. We could have here the risk of perforation of the uterus but could preserve both fallopian tubes.

Measurements and Main Results: We have performed hysteroscopic recommunication rudimentary horn with active uterus cavity. After recanalization of the rudimentary horn we left Foley catheter inside the new cavum for 72 hours. The treatment has been successful—during over one year observation the patient has one cavum—created from unification of the two cavities, does not suffer from dysmenorrhea and is planning in the future pregnancy.

Conclusion: A novel hysteroscopic treatment of uterine anomaly like Robert’s uterus seems a better and safer approach resulting in optimal long term outcome.

361 Virtual Posters – Session 1 (9:45 AM–10:45 AM)
10:21 AM – STATION C

Hysteroscopic Myomectomy After Uterine Artery Embolization in Large Submucosal Myoma

Study Objective: To evaluate the safety and feasibility of hysteroscopic myomectomy after uterine artery embolization(UAE) for treatment of large sized submucosal myoma with intramural invasion.

Design: Retrospective observational study. Approval for use of the information from medical record and images were granted by the Institutional Review Board of our institution (KC12RISE0812).

Setting: University hospital.

Patients: Eight premenopausal patients with symptomatic submucosal myomas >4.5 cm with intramural invasion.

Intervention: All of patients after bilateral UAE underwent subsequent hysteroscopic operation 3 to 15 months following UAE.

Measurements and Main Results: Total of eight patients who had large sized submucosal myoma were included. The average volume of submucosal myoma is 87.7 cm³ by magnetic resonance imaging and the average patient age is 37.6 years. Mean volume reduction of submucosal myoma was 83.3% after UAE and no immediate complications were observed. One-step hysteroscopic myomectomy after UAE was successfully performed in all patients. Leiomyoma with hyaline degeneration was pathologically confirmed. All women improved symptoms and there was no evidence of the recurrence one year later. One patient was successful spontaneous pregnancy.

Conclusion: In premenopausal women with large sized symptomatic submucosal myoma, hysteroscopic myomectomy after UAE is safe and effective.

362 Virtual Posters – Session 1 (9:45 AM–10:45 AM)
10:21 AM – STATION D

Improving Patient Access Through Office Hysteroscopy Clinic Redesign

Study Objective: To improve patient appointment wait times for office hysteroscopy procedures without negatively impacting appointment “no show” and fill rates.

Design: Quality improvement project using Define, Measure, Analyze, Improve and Control methodology.

Setting: Tertiary care academic medical center abnormal uterine bleeding (AUB) clinic.

Patients: 1040 patients appointed for office hysteroscopy procedures from the first 6 months of 2015 and 2016.

Intervention: Prior to the intervention, nurse practitioners (NP) and gynecologists saw AUB clinic patients independently; this led to inconvenience and inefficiency for patients as they waited for hysteroscopy appointments if needed after seeing an NP. We designed a new hysteroscopy clinic format to increase throughput and efficiency of our practice, utilizing a collaborative team model with nurse practitioners and gynecologists seeing patients consecutively. With the intervention, each patient with AUB was evaluated by a nurse practitioner first, followed immediately by a shorter visit with a gynecologist for office hysteroscopy if indicated. NPs managed bleeding concerns if hysteroscopy was not warranted. Two NPs saw AUB patients in each half day alongside one gynecologist.

Measurements and Main Results: Baseline data was collected from electronic records of the 393 patients scheduled for office hysteroscopy from January-June of 2015. Following implementation of clinic redesign in August of 2015, data was collected from 647 patients scheduled for office hysteroscopy from January-June of 2016. Preintervention, 30% of patients had a hysteroscopy appointment scheduled within 0–13 days. Post-intervention, the wait time for appointments improved, with 63% of patients scheduled within 0–13 days. The number of appointment slots increased by 57.5% after the intervention. Counterbalance measures, including the clinic no show rate (4.48% preintervention vs 4.43% postintervention) and the appointment fill rates (93% vs. 87%) remained stable.

Conclusion: Creation of a collaborative team based care model utilizing NPs and gynecologists led to improved throughput and patient access to office hysteroscopy services.
363  Virtual Posters – Session 1  
(9:45 AM–10:45 AM)  

10:21 AM – STATION E  

In Office Hysteroscopy. Our Experience After 1,163 Cases in an Ambulatory Primary Care Center  
Grotheer Ar,1 Giugni A,2 Sada M,1 Correa A,1 Almiral R,1 James K,2 Andrade F,12 Carugno F,1 1Ambulatorio Manso, Barcelona, Spain; 2Minimally Invasive Gynecology Unit, University of Miami, Miami, Florida  

Study Objective: In modern gynecology, hysteroscopy is considered the primary diagnostic and therapeutic modality for the management of patients with endometrial pathology. In office hysteroscopy offers the added benefit of convenience, decreased cost and increased patient satisfaction when compared to hysteroscopy performed in the operating room.  

Study Objective: To describe our experience with in office hysteroscopy in an ambulatory primary care health setting.  

Design: Single center retrospective study.  

Setting: Ambulatory primary care center diagnostic hysteroscopy unit.  


Intervention: In office diagnostic or operative hysteroscopy.  

Measurements and Main Results: The mean age was 47.8 years (SD: 12.9). 384 patients (33.6%) were postmenopausal. The most common indication was suspected endometrial polyps in 421 patients (36.2%), followed by desire for permanent sterilization with Essure (22.2%), and postmenopausal bleeding (21.4%). 50 patients (4.3%) underwent removal of retained IUD with non-visible threads. 906 patients (77.9%) had paracervical block with 257 patients (22.1%) receiving no anesthesia. The average pain measured with visual analog scale (VAS) reported immediately after the procedure was 3.6. Endometrial cancer was diagnosed in 23 patients (2.0%). There were 3 major complications. One patient experienced profuse bleeding after polypectomy that required placement of foley catheter to tamponade. One patient developed PID that was treated as an outpatient, and one had an allergic reaction to bupivacaine that resolved immediately after aborting the procedure. Most of the patients (87%) were managed at a primary care setting with only 147 patients (12.6%) referred to a higher level of care.  

Conclusion: In office hysteroscopy is a safe, effective and well-tolerated diagnostic and therapeutic option. We encourage the use of hysteroscopy in an office setting to avoid the extra cost and inconvenience of the operating room.  

365  Virtual Posters – Session 1  
(9:45 AM–10:45 AM)  

10:21 AM – STATION G  

In-Office Hysteroscopic Removal of Intrauterine Device (IUD) with Lost Threads  
Grotheer A,1 Giugni A,2 Sada M,1 Correa A,2 Almiral R,1 Saad Naguib M,1 Andrade F,1 Carugno F,1 1Minimally Invasive Gynecology Unit, University of Miami, Miami, Florida; 2Ambulatorio Manso, Barcelona, Spain  

Study Objective: Missing IUD strings present a challenge for removal. Blind removal of IUD is frequently attempted using an IUD hook, Kelly clamps or Alligator forceps. However, removal under hysteroscopic direct visualization when blind removal fails is recommended. Pain during in office hysteroscopy is the most frequent reason to abort the procedure.  

Conclusion: The results demonstrate a relevant decrease, mainly, of intense pain in the patients who watched the video, what shown that the properly information to the patients and the adjustment of their expectations regarding the procedure could improve the perception of pain. We believe that the systematization of information is fundamental to patients submitted to office hysteroscopy.
Study Objective: To determine the impact of paracervical block in reducing pain during in office hysteroscopic removal of retained IUD with lost threads after failed attempt by blind removal.

Design: Single center retrospective study.

Setting: Hysteroscopy unit in an ambulatory primary care center in Barcelona, Spain.

Patients: A total of 46 patients with “retained IUD” were included in the study. 27 patients received no anesthesia, and 19 had paracervical block with Bupivacaine 2%. Pain level was measured with the VAS (Visual Analogue Scale) immediately after the procedure.

Intervention: In office hysteroscopic IUD removal using Bectocchi 4.3 mm hysteroscope with working channel with and without paracervical block using 10 cc of Bupivacaine 2%. Pain was measured with the VAS (Visual Analogue Scale) immediately after the procedure.

Measurements and Main Results: A total of 46 patients with retained IUD were included in the study. 27 patients received no anesthesia, and 19 had paracervical block with Bupivacaine 2%. Pain level immediately after the procedure was 4.1 (SD: 3.1) in the no anesthesia group and 2.8 (SD: 2.3) in the paracervical block group. (p = .08). The IUD was successfully removed in all patients (100% success rate). No complications were encountered during the procedure.

Conclusion: The use of paracervical block did not decrease the pain reported immediately after the procedure. Hysteroscopic removal of retained IUD is a safe, effective and relatively painless procedure that can be safely performed in an office setting without anesthesia.

366 Virtual Posters – Session I
(9:45 AM–10:45 AM)

10:21 AM – STATION H

Is there Any Oxytocin Receptor in Non Pregnant Myomatous Uterus?

Capmas P, Nikodijevic K, Fernandez H. Bicetre Hospital, Le Kremlin Bicetre, France, Metropolitan, United Kingdom

The question of the presence of oxytocin receptors in the myomatous uterus of non-pregnant women is asked in the management of hysteroscopic myoma. In theory, there are no receptors for oxytocin in non-gravid uterus. The present case is in favor of an action of oxytocin on myoma as oxytocin allows a type 3 myoma to become a type 2 myoma during hysteroscopic resection. The hypothesis of an action via the DHA receptor has been advanced but deserves to be confirmed. The injection of oxytocin may be part of the therapeutic arsenal in case of hysteroscopic treatment of type 2 or 3 myomas.

367 Virtual Posters – Session I
(9:45 AM–10:45 AM)

10:27 AM – STATION A

Long-Term Efficacy of Hysteroscopic Morcellation of Polyps and Submucosal Leiomyomas in Women with Abnormal Uterine Bleeding

Maheux-Lacroix S, Mennen J, Arnold A, Nesbitt-Hawes E, Won H, Budden A, Abbott J. Royal Hospital for Women, University of New South Wales, Sydney, New South Wales, Australia

Study Objective: To assess the long-term efficacy of hysteroscopic morcellation of polyps and submucosal leiomyomas in women with abnormal uterine bleeding (AUB).

Design: We performed a prospective cohort study and assessed the need for further surgery, patient satisfaction, symptom resolution, and postoperative complications after a minimum of six months of follow-up.

Setting: Two tertiary hospitals in Sydney, Australia: Prince of Wales Private Hospital and Royal Hospital for Women.

Patients: A total of 122 women with AUB and benign polyp(s) and/or submucosal leiomyoma(s) confirmed at histopathology were included in this study. The mean follow-up was 31 ± 13 months.

Intervention: Intra-uterine pathologies were removed by hysteroscopy using a mechanical morcellator (Myosure LITE or XL, Hologic, Marlboro, MA).

Measurements and Main Results: Pathologies were submucosal leiomyomas 63/122 (52%), polyps 48/122 (39%) or both 10/122 (8%) with a mean size of pathology of 33 mm. More than one fifth (26/122, 21%) of participants had a combined size of pathology of more than 50 mm. A total of 28/122 (23%) women required a subsequent surgery with, the estimated 3-year cumulative incidence being 11 ± 3% for hysterectomy and 26 ± 5% for any procedure (operative hysteroscopy, abdominal myomectomy or hysterectomy). Satisfaction rate of participants was 89%. In multivariate Cox regression, only a combined size of pathology of 50 mm or more was found to be significantly associated with the risk of further requiring a hysterectomy (hazard ratio = 3.5, p = .02) or any procedure (hazard ratio = 2.8, p = .01, [Figure 1]).

Fig. 1. Cumulative incidence of subsequent surgical procedures (operative hysteroscopy, abdominal myomectomy or hysterectomy) stratified by the total size of pathology removed.
No intra-operative complications occurred. Post-operative complications included prolapsed leiomyomas after incomplete resection (2), pelvic infections (2) and self-resolving dyspnoea without any evidence of overload (1).

Conclusion: Hysteroscopic morcellation of polyps and submucosal leiomyomas is an effective method to manage women with AUB. Resection of pathology of more than 5 cm is safe, although associated with an increased risk of requiring subsequent surgical procedures.

Measurements and Main Results: 79.4% procedures were performed in an outpatient clinic with analgesia, but without local anaesthesia. 20.6% were performed in a theatre, when requested by patients, under a customised “minimum-necessary anaesthesia protocol”, selected from Entonox only, intravenous sedation or general anaesthesia. Average patient age was 44.2 (range 31–54). Cavity size (fundus to internal os) was 4–9 cm. Follow-up data for 74 patients was available. Overall success rate was 65/74 (87.8%). At initial follow-up (range 4–6 months), 38/74 (51.4%) patients reported amenorrhoea, 20/74 (27.0%) reported spotting, and 7/74 (9.5%) lighter periods. 7/74 (9.5%) patients underwent subsequent hysterec-tomy and 2/74 (2.7%) are being treated with drugs. No complications were identified.

Since dilatation is not required, the procedure tray needs only a disposable speculum, vulsellum (if required), Pipelle catheter, and cleaning preparation. A diagnostic hysteroscope is kept ready if ultrasound imaging is inadequate. The outpatient team comprises a gynaecologist, a nurse, and a CSW.

Using Minitouch, we have started an outpatient ablation service where we treat an expanded patient pool, especially 1) patients at high risk under GA e.g. due to cardiac/pulmonary co-morbidities, obesity, etc., 2) patients with oversized/undersized cavities or extreme uterine axis bends.

Measurements and Main Results: 44/69 patients (65.2%) had a history of 1–2 LSCS. 65/69 (94.2%) patients had normal cavities with an average sounding length of 8.9 cm. 4/44 patients (9.1%) had a history of 1–2 LSCS.

All 44/44 patients had normal cavities with an average sounding length of 8.9 cm. 4/44 patients (9.1%) had a history of 1–2 LSCS.

Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:27 AM – STATION B

Minitouch Endometrial Ablation Performed as an Outpatient (Office) Procedure in Arrowe Park Hospital, a UK District General Hospital – An Update

Gent J, Alam M, Steele G, Kubwalo B. Department of Obstetrics & Gynaecology, Arrowe Park Hospital, Upton, Wirral, United Kingdom

Study Objective: Endometrial Ablation is a safe and effective treatment for heavy menstrual bleeding with established NICE guidelines. It can be performed with a combination of analgesics in selected patients in an outpatient setting, thus avoiding the risks of general anaesthesia. We present our updated results of 69 patients who underwent outpatient endometrial ablation; focusing on ease of use, completion of procedure, use of local anaesthetic, patient acceptability, complications, patient satisfaction and outcomes.

Design: Retrospective Review.
Setting: Nurse led outpatient clinic in a district general hospital in the United Kingdom.
Patients: 69 patients.

Intervention: Minitouch procedures performed since 2014.

Measurements and Main Results: Data from all 69 patients is now available. 36/69 performed by nurse hysteroscopist, 4/69 by consultant, 3/69 by community doctor and 3/69 by registrar. The average age was 44.4, average parity 2.4 and sounding length 9 cm. 4 patients did not complete the procedure (unable to tolerate/cavity not appropriate/failed to gain entry to cavity).

65 patients successfully underwent ablation, treatment time was short and cervical dilatation was not required. Local anaesthetic was used for those with a tender cervix. No immediate complications occurred and only 2 patients required antibiotics for suspected infection. Satisfaction was high and results show a success rate exceeding 81% at 4 month follow up.

Conclusion: Minitouch endometrial ablation is an easy to use, safe procedure that does not require cervical dilatation. It is well suited in a nurse led outpatient setting. It has positive outcomes and is an acceptable treatment option for selected patients.

Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:27 AM – STATION C

Minitouch Endometrial Ablation: Review of Outcomes and Resource Usage at Basildon University Hospital

Thakur Y,1 Thakur V2 Karunarathne C,1 Nicholls S1. Department of Gynaecology, Basildon University Hospital, Basildon, Essex, United Kingdom; 2Broomfield Hospital, Chelmsford, Essex, United Kingdom

Study Objective: We share our experience with Minitouch Endometrial Ablation at a busy university hospital since 2014 in terms of outcomes, resource usage, and ability to treat an expanded patient pool.

Design: Records of 107 patients treated till December 2016 were reviewed.

Setting: A busy university hospital in the United Kingdom.
Patients: Patients treated with Minitouch Endometrial Ablation.

Intervention: Minitouch Endometrial Ablation.

Measurements and Main Results: 79.4% procedures were performed in an outpatient clinic with analgesia, but without local anaesthesia. 20.6% were performed in a theatre, when requested by patients, under a customised “minimum-necessary anaesthesia protocol”, selected from Entonox only, intravenous sedation or general anaesthesia. Average patient age was 44.2 (range 31–54). Cavity size (fundus to internal os) was 4–9 cm. Follow-up data for 74 patients was available. Overall success rate was 65/74 (87.8%). At initial follow-up (range 4–6 months), 38/74 (51.4%) patients reported amenorrhoea, 20/74 (27.0%) reported spotting, and 7/74 (9.5%) lighter periods. 7/74 (9.5%) patients underwent subsequent hysterectomy and 2/74 (2.7%) are being treated with drugs. No complications were identified.

Since dilatation is not required, the procedure tray needs only a disposable speculum, vulsellum (if required), Pipelle catheter, and cleaning preparation. A diagnostic hysteroscope is kept ready if ultrasound imaging is inadequate. The outpatient team comprises a gynaecologist, a nurse, and a CSW.

Using Minitouch, we have started an outpatient ablation service where we treat an expanded patient pool, especially 1) patients at high risk under GA e.g. due to cardiac/pulmonary co-morbidities, obesity, etc., 2) patients with oversized/undersized cavities or extreme uterine axis bends.

Measurements and Main Results: 44/69 patients (65.2%) had a history of 1–2 LSCS. 65/69 (94.2%) patients had normal cavities with an average sounding length of 8.9 cm. 4/44 patients (9.1%) had a history of 1–2 LSCS.

All 44/44 patients had normal cavities with an average sounding length of 8.9 cm. 4/44 patients (9.1%) had a history of 1–2 LSCS.

Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:27 AM – STATION D

Minitouch Outpatient Endometrial Ablation – Learning Curve of 12 Gynaecologists

Golash M, Misfar N, Bhatia K. Burnley General Hospital, East Lancashire NHS Trust, Burnley, Lancashire, United Kingdom

Study Objective: To describe the learning curve and outcomes of Minitouch endometrial ablation cases done by 12 gynaecologists.

Design: Electronic discharge summaries and last outpatient clinic letters were analysed of patients who have completed 4-month follow up.

Setting: Day case setting of a general hospital within a National Health Service trust.

Patients: Patients treated with Minitouch endometrial ablation between January and December 2016.

Intervention: Minitouch endometrial ablation procedures.

Measurements and Main Results: 48 Minitouch endometrial ablation cases were performed. Four patients are awaiting 4-month follow up. Electronic discharge summaries and last outpatient clinic letters for the remaining 44 patients were analysed.

All cases were done in a day case setting by 12 gynaecologists, resulting in an average 3.7 cases per operator. Patients’ average age was 42.9 (range 28–53) and their indications were: 39/44 menorrhagia, 2/44 irregular bleeding, and 3/44 metromenorrhagia. Fibroids measuring 9–46 mm were identified during pre-op ultrasound in 15/44 (34.1%) patients, included 11 intramural, 4 sub-mucosal, and 2 sub-serosal.

One or more pharmacological treatments had previously failed in 30/44 (68.2%) patients.

All patients had normal cavities with an average sounding length of 8.9 cm (range 7–14 cm). 4/44 patients (9.1%) had a history of 1–2 LSCS. Successful resolution of symptoms (amenorrhoea, spotting or lighter periods) at 4-months was identified in 36/44 (82%) patients. One of these patients is not completely satisfied and is scheduled for second review. Another is being treated with Esmya. No adverse event was reported.

Of the remaining 8/44(18%) patients with persistent symptoms, one patient is under wait and watch, five are receiving pharmacological treatment, one underwent rollerball ablation, and one total laparoscopic hysterectomy.

Conclusion: The learning curve for our large team of gynaecologists with varying experience levels was short and consistent as demonstrated by ex-
cellent safety and effectiveness outcomes. Minitouch has enabled us to introduce outpatient endometrial ablation service for the first time in our trust.

371 Virtual Posters – Session 1
(9:45 AM–10:45 AM)
10:27 AM – STATION E

Skroppa S, Bohlin T, Putz A. Gynecology, Vratsfold Hospital Trust
Tonsberg, Tonsberg, Vestfold, Norway

Study Objective: Hysteroscopic procedures in Gynecology are common and well established. Complication rates vary dependent on the experience of the surgeon, available equipment, chosen procedure, socioeconomic status of the patient and regional differences. Therefore it seems very important to investigate the complication rates in a whole population.

Design: Prospective cohort study with a 4 to 6 weeks’ follow-up period.

Setting: Secondary and tertiary care level hospitals in Norway.

Patients: Patients registered in Norwegian Gynecological Endoscopy Registry (NGER) with a hysteroscopic procedure between 2013 and 2016. 3258 patients were included.

Intervention: All gynecological hysteroscopies.

Measurements and Main Results: We used continuously the database of the NGER from 01.02.2013 until 31.12.2016 to observe the complication rates of hysteroscopy in Norway. The online registration of hysteroscopic procedures in the NGER is mandatory in Norway, and includes demographic factors, general health parameters, information about comorbidity and previous surgery, documentation of the present surgery and intra-operative complications. 4 to 6 weeks postoperatively a questionnaire is sent to the patients to document complications. Our investigation shows that the intraoperative complication rate for hysteroscopy nationwide was 3.4%. The main part of intraoperative complications were uterus perforations with 2.0%, followed by haemorrhage and access complications. The overall postoperative complication rate for hysteroscopy surgery was 3.1% where infection with 2.5% represented the main postoperative complication. The rate of serious complications was very low at 0.1%. The complication rates varied between the departments. The causes of this are differences in age and comorbidity of the patients, sociodemographic factors, indications, performance of the operation and skills of the surgeons.

Conclusion: Our results confirm previous findings that hysteroscopy is safe. Complication rates in the different sociodemographic groups and in the different groups of patients with comorbidity, previous surgery and age should be investigated further.

372 Virtual Posters – Session 1
(9:45 AM–10:45 AM)
10:27 AM – STATION F

Novasure Endometrial Ablation Database Results
Bhagavath R, Lozada-Caprilles Y, Kumar D, Harris-Glocker M, Cunningham D, Clement R, McKnight N. Ob/Gyn, University of Rochester Medical Center, Rochester, New York

Study Objective: Collect data prospectively on patients undergoing Novasure Global Endometrial Ablation to assess satisfaction, symptom improvement, quality of life and sexual quality of life.

Design: Prospective Cohort Study.

Setting: Tertiary Teaching Hospital.

Patients: All patients undergoing Novasure procedure are eligible for enrollment.

Intervention: Novasure Global Endometrial Ablation. Patients with clinically enlarged uterus or dysmenorrhea were offered pelvic sonography to evaluate the uterus.

Measurements and Main Results: 242 patients were scheduled for Novasure procedure between September 2014 and March 2017. 197 patients were enrolled in the study as the rest of the patients declined to participate, had the procedures cancelled or could not be contacted.

A total of 122 and 86 patients completed 6-month and 12 months follow-up evaluations respectively. 110 (90.2%) and 82 (95.3%) patients claim that their symptoms have resolved. 117 (96%) and 81 (94.2%) patients would recommend this procedure to a friend. 102 (83.6%) and 76 (88.4%) patients are either very satisfied or satisfied with the procedure. One patient (0.51%) had re-intervention and had a hysterectomy. Pathology report showed extensive adenomyosis.

The mean WHO-QOL score was 96.5 (SD 8.5) at baseline, 87 (SD 3) at 6 months and 96.5 (SD 2.5) at 1 year. The mean SSS score was 109.75 (SD 1.75) at baseline, 93.5 (SD 25.5) at 6 months and 100 (SD 20) at 1 year.

Neither scoring system showed a statistically significant improvement.

Conclusion: In appropriately selected patients, Novasure endometrial ablation has high satisfaction and symptom resolution rates one year after the procedure.

373 Virtual Posters – Session 1
(9:45 AM–10:45 AM)
10:27 AM – STATION G

Operative Variables Associated with Postoperative Pain Resolution Following Laparoscopic Essure® Removal
Casey J, Davis J, Yunker A. Obstetrics and Gynecology, Vanderbilt Medical Center, Nashville, Tennessee

Study Objective: To evaluate perioperative factors associated with pelvic pain improvement following laparoscopic removal of Essure® devices.

Design: Retrospective case series.

Setting: Single academic medical institution.


Intervention: N/A.

Measurements and Main Results: A total of 45 patients underwent laparoscopic removal of Essure® coils with bilateral salpingectomy from October 2012 through October 2016 specifically for the treatment of pelvic pain symptoms associated with prior Essure® placement. Patient variables were recorded before, during, and following surgical removal.

Postoperative pain improvement was less likely in patients requiring additional intra-operative treatment for endometriosis and/or lysis of adhesions versus patients who required no additional procedures, 44% (4/9) vs 88% (28/32) pain resolution respectively.
Table 1. Patient characteristics

<table>
<thead>
<tr>
<th>Patients (n = 45)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>30.1</td>
<td>6.0</td>
<td>21–49</td>
</tr>
<tr>
<td>Gravidity</td>
<td>3.0</td>
<td>1.7</td>
<td>0–8</td>
</tr>
<tr>
<td>Parity</td>
<td>2.3</td>
<td>1.4</td>
<td>0–7</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>29.9</td>
<td>8.2</td>
<td>18.9–60.9</td>
</tr>
<tr>
<td>Previous abdominal surgery</td>
<td>0.8</td>
<td>1.0</td>
<td>0–4</td>
</tr>
<tr>
<td>Smoker</td>
<td>17</td>
<td>(37.8%)</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>White 35</td>
<td>(77.8%)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>7</td>
<td>(15.6%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>(6.7%)</td>
<td></td>
</tr>
<tr>
<td>Preoperative symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pelvic pain</td>
<td>45</td>
<td>(100%)</td>
<td></td>
</tr>
<tr>
<td>Dyspareunia</td>
<td>25</td>
<td>(55.6%)</td>
<td></td>
</tr>
<tr>
<td>Dyschezia</td>
<td>1</td>
<td>(2.2%)</td>
<td></td>
</tr>
<tr>
<td>Dysuria</td>
<td>2</td>
<td>(4.4%)</td>
<td></td>
</tr>
</tbody>
</table>

Postoperative complication rates were low, including localized hematoma 2.2% (1/45) and cervical laceration 2.2% (1/45) with no known postoperative readmissions within 30 days (0/45).

Conclusion: Concurrent findings of endometriosis and the performance of lysis of adhesions are associated with lower rates of postoperative pain improvement following Essure® removal. While improperly placed coils may represent the minority of patients (36%), preoperative evidence with imaging (KUB, US, HSG) or a history of improperly placed coils are associated with high rates of pain resolution (93%) following surgical removal. The variation in pain improvement rates suggests that several specific factors including known adhesions, endometriosis, or malpositioned coils will help guide patients and surgeons regarding pain improvement expectations following laparoscopic Essure® removal.

Table 2. Operative variables and postoperative pain resolution following Essure removal

<table>
<thead>
<tr>
<th>Pain resolved</th>
<th>Pain persisted</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional intraoperative surgery performed</td>
<td>4 (40%)</td>
<td>5 (50%)</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Lysis of adhesions</td>
<td>2 (40%)</td>
<td>2 (40%)</td>
<td>1 (20%)</td>
</tr>
<tr>
<td>Treatment of endometriosis</td>
<td>3 (50%)</td>
<td>3 (50%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Previous coil placement difficulty</td>
<td>6 (67%)</td>
<td>1 (11%)</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>Improperly placed coils seen intraoperatively</td>
<td>13 (81%)</td>
<td>1 (6%)</td>
<td>2 (13%)</td>
</tr>
<tr>
<td>Incomplete coil removal</td>
<td>2 (67%)</td>
<td>1 (33%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Intra-operative findings of malpositioned coils were associated with a high rate of postoperative pain resolution following removal, 93% (13/14).

374 Virtual Posters – Session 1

10:45 AM – STATION H

Polypectomy with Integrated Bigatti Shaver®

Imperator DV, Moscovitz T, Tcherniaikovsky M, Baracat E, Fernandes CE, Wojman M. Gynecology Endoscopy, Faculdade de Medicina do ABC - FMABC, Santo Andre, Sao Paulo, Brazil

MN, 50 years old, BMI: 36. Menopause was 7 years ago. No hormone replacement therapy before. She was treated for breast cancer and stopped using tamoxifen two years ago. Asymptomatic. She underwent screening transvaginal ultrasound that showed an endometrial thickness of 0.6 cm. Diagnostic hysteroscopy visualized two endometrial polyps. Surgical hysteroscopy was performed with The Integrated Bigatti Shaver (IBS®). The IBS® consists in a 6° angle telescope with an integrated sheath and a working channel in which a rigid shaver system is inserted. No energy is used. It was the doctor’s first surgery with the device. Surgical time: 2 minutes. The distension media: physiological saline solution and water balance: 0.3 liters. No pain or complications during the procedure. The IBS® system allows resection without a high frequency source, reduced risk of fluid overload, operative time reduction, better cavity visualization without remaining tissue chips and a faster learning curve.

375 Virtual Posters – Session 1

10:45 AM – STATION A

Prophylactic Cervical Dilatation After Trans Cervical Resection of the Endometrium to Prevent Painful Hematomata

Kumar A. Hysteroscopic Surgery Division, Women’s Health Centre, Jaipur, Rajasthan, India

Study Objective: To evaluate whether a prophylactic cervical dilatation one month after Trans Cervical Resection of the Endometrium (TCRE) is helpful in preventing a painful hematometra which is a known complication after TCRE.

Design: Retrospective study.

Setting: Private urban hospital.

Patients: 697 cases of Trans Cervical Resection of the Endometrium.

Intervention: TCRE’s were done in women suffering with menorrhagia between 1995 to 2016. Cervical dilations were done one month after TCRE’s with a 3 mm diameter plastic dilator which was also moved from cornua to cornua.

Measurements and Main Results: A total of 697 TCRE’s were done with the cutting loop using monopolary energy. All patients were advised for a prophylactic cervical dilatation one month after the TCRE’s. A total of 457 cases agreed, a prophylactic cervical dilatation was done and of those cases only 2 cases came back 1.5 years after TCRE with acute pelvic pain. Ultrasound diagnosed fluid collection in both cases, a repeat cervical dilatations were done and both these cases were pain free thereafter. A total of 240 cases did not agree for a prophylactic cervical dilatation. Of these 240 cases 42 cases came back to us with acute pelvic pain and dysmenorrhea a few years after TCRE. Of these 42 cases in 28 cases ultrasound revealed fluid collection inside the uterine cavity, cervical dilatations were done under ultra sound guidance and the patients were pain free thereafter. In the remaining 14 cases no fluid collection was diagnosed on ultrasound, cervical dilatations were done, 11 cases responded to their pain while 3 cases ended up with a hysterectomy.

Conclusion: A prophylactic cervical dilatation one month after TCRE is helpful in preventing preventing painful hematometra post TCRE. Prophylactic cervical dilatation could also be useful after global methods of endometrial ablation however further studies are needed to establish the same.
Radiation Exposure to Asherman Patients and Gynaecologist During a Transcervical Adhesiolysis Using Fluoroscopic Guidance: A Prospective Observational Study

Hanstede M, Asherman Expertise Center, Spaarne Gasthuis, Hoofddorp/ Haarlem, Noord Holland, The Netherlands

Study Objective: In our database of 746 patients who were operated between 2003–2015 17 perforations occurred during adhesiolysis. This low complication rate (2.7%) is in our opinion due to the use of fluoroscopic guidance. This method is always a reason for discussion because of the radiation exposure to patients and gynaecologist. In this study we aim to quantify the radiation exposure both to patients and gynaecologists, during the procedure of fluoroscopically guided hysteroscopic adhesiolysis for patients with Asherman syndrome.

Design: Prospective observational study.

Setting: This prospective observational study is performed by the Asherman Expertise Center. This center is part of the department of Ob/Gyn of the Spaarne Gasthuis Hospital. This is a teaching hospital in Hoofddorp/ Haarlem the Netherlands.

Patients: Women with Asherman’s Syndrome treated through transcervical adhesiolysis (TCA) with fluoroscopic guidance.

 Intervention: All patients underwent a TCA with fluoroscopic guidance in the OR with the intention to remove all intra uterine adhesions. Complications, fluoroscopy time (FT) and the Dose Area Product (DAP) were recorded for each patient.

Measurements and Main Results: From May to August 2016, 22 patients underwent a transcervical adhesiolysis (TCA) with fluoroscopic guidance. Median fluoroscopy time was 28 seconds (IQR = 24). Median DAP was 0.31 Gy.cm2 (IQR = 0.25). For patients and the gynaecologists the median ED were respectively 10μSv (IQR = 85) and 1.5 μSv (IQR = 2). A higher FT was significantly related to an increase in ED both to patients (R2 = 0.244; p = .019) and gynaecologists (R2 = 304; p = .012).

Conclusion: Adhesiolysis with fluoroscopic control has a low complication rate. The main concern about this technique is the radiation exposure associated with fluoroscopic guidance. The study show that that is very low and far below annual limits. Therefore we can conclude, in terms of radiation exposure, using fluoroscopic guidance in transcervical adhesiolysis is a safe procedure, both for patients and the gynaecologists.

Results of Hysteroscopic Treatment of Intrauterine Adhesions in Patients with Secondary Amenorrhea, Hypomenorrhea or Infertility

López, Carrasco I, Vegas Carrillo De Albornoz A, Martín Blanco C, Moratalla Bartolomé E, Montero Pastor N, Salvato Angelich A, Cano Vieco MLL. Gynecology and Obstetrics, Grupo HM Hospitals, Hospital Montepríncipe, Boadilla del Monte, Madrid, Spain

Study Objective: To determine the effectiveness of hysteroscopic adhesiolysis in patients with Asherman’s Syndrome and secondary amenorrhea, hypomenorrhea or infertility.

Design: Descriptive, retrospective study.

Setting: Describe the study location and level of clinical care. University Secondary Hospital.

Patients: Patients with secondary amenorrhea, hypomenorrhea or infertility and demonstrated intrauterine adhesions (IUA) treated hysteroscopically between April 2015 and January 2017.

Intervention: Hysteroscopic adhesiolysis was performed in the office with a 5 mm Hysteroscope with scissors and no energy.

Measurements and Main Results: 7 women underwent hysteroscopic adhesiolysis for the treatment of Asherman’s Syndrome. The mean age at the intervention was 35.4 years old. Three patients presented secondary amenorrhea and four hypomenorrhea, besides, five of them were looking for pregnancy and presented secondary infertility. All patients presented at least one previous curettage, one presented 2 and other had history of 3 curettages. All curettages were due to miscarriages except for two cases that were because of placental retention. The hysteroscopic adhesiolysis was performed under general anesthesia, using a 5 mm hysteroscope with scissors and no energy. In four patients Hyaluronic acid was left inside the cavity. We had one case of uterine perforation in a patient with severe adhesions; in this case we stopped the procedure and rescheduled her for a new hysteroscopy three months later that was done without complications. Follow up was performed one and two months after the surgery. All of the patients presented normal menstrual bleeding two months after the hysteroscopy.

Two of the patients that received the Hyaluronic acid got successfully pregnant two months after the surgery. Another patient had a miscarriage two months after the surgery and got successfully pregnant 8 months later.

Conclusion: Hyaluronic acid seems to reduce the appearance of new intrauterine adhesions.
in the early and late postpartum period may be considered in women with history of RPOC.

379 Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:33 AM – STATION E

Retrospective Study of 27 Cases of Menorrhagia Treated with Microwave Endometrial Ablation
Tsuchiya T, Katagiri Y, Shibutani T, Fukuda Y, Taniguchi T, Maemura T, Morita M, Obstetrics and Gynecology, Toho University Omori Medical Center, Ohta-ku, Tokyo, Japan

Study Objective: Microwave endometrial ablation (MEA) is a minimally invasive procedure that can be performed with short inpatient stay. It is an effective treatment method for patients with menorrhagia who suffer from complications, or for those who do not wish to undergo total hysterectomy.

Design: Retrospective study.

Setting: Single study of Toho University Omori Medical Center.

Patients: The subjects were 27 patients seen at our hospital from 2004 for a chief complaint of menorrhagia and had wished to undergo MEA. Among them, 15 patients were adenomyosis, 10 patients were leiomyoma and 2 patients were functional uterine bleeding.

Intervention: Based on the MEA guidelines adapted, we performed the procedure on subjects who were not expecting to become pregnant and were not suffering from any malignant disease as confirmed by cytological evaluation of the endometrium.

Measurements and Main Results: The subjects had age of 45.1 years old. The procedure was completed in 36.1 minutes and cauterezation was performed 8.7 times on average. The subjects’ hemoglobin (Hb) levels were measured before and after the procedure. The average pre-procedural Hb level was 9.7 g/dL, and a significant increase was seen upon comparison with the post-procedural level of 12.7 g/dL. Although menstruation resumed in 14 out of the 27 subjects after the procedure, menorrhagia improved in all cases. Among these 14 subjects, four are currently undergoing follow-up, two have reached menopause after their menstruation resumed and four have transferred to other hospitals. In addition, there were four cases of total hysterectomy due to an exacerbation of condition. Out of all 27 subjects, 23 of them were able to avoid the need for total hysterectomy.

Conclusion: Besides alleviating menorrhagia, MEA can significantly improve post-procedural Hb levels when compared to pre-procedural levels. MEA is therefore considered an effective treatment for patients who suffer from complications of menorrhagia or patients who do not wish to undergo total hysterectomy.

380 Virtual Posters – Session 1
(9:45 AM–10:45 AM)

10:33 AM – STATION F

Role of Hysteroscopy as an Indispensable Tool in Diagnosis of Structural Intrauterine Pathologies, Missed on Ultrasound
Mishra J, Sharma P, Obstetrics & Gynaecology, Jaypee Hospital, Noida, Uttar Pradesh, India

Study Objective: To assess the role of hysteroscopy as an indispensable tool in diagnosis of structural intrauterine pathologies, missed on ultrasound.

Design: Prospective non randomized study.

Setting: A tertiary care hospital.

Patients: Thirty pre and postmenopausal women with abnormal uterine bleeding (AUB) randomly selected from January 2016 to March 2017.

Intervention: All women were subjected to transvaginal ultrasonography, hysteroscopy, endometrial biopsy and additional surgery, if needed. Results of ultrasound and hysteroscopy were compared.

Measurements and Main Results: Thirty pre and postmenopausal women from 25 to 65 years with AUB were subjected to transvaginal ultrasound. Hysteroscopy was performed with a 2.9 mm hystroscope under anaesthesia in all patients. We compared hysteroscopy findings with ultrasound diagnosis. Hysteroscopy showed a normal cavity in 17% cases. Most common abnormal finding was thickened endometrium (42%). Other hysteroscopy findings were endometrial polyp (21%), fibroid (14%) and atrophic endometrium (6%). We found that one case reported as a small myoma with hydrometra on ultrasound, turned out to be a large submucous myoma, filling the uterine cavity. Another case reported as widened cavity with a small mass in fundal region was found to be a large submucous myoma 6 x 4cms on hysteroscopy, which was reported as carcinosarcoma on histology. Small polyps up to 2 cms seen on hysteroscopy were missed in 21% cases on ultrasound.

Conclusion: Although ultrasonography is a widely available, non invasive tool for initial assessment of AUB, it has low specificity in diagnosing intrauterine pathologies. Hysteroscopy is a valuable tool in diagnosing structural intrauterine pathologies which may be missed on transvaginal sonography. It also offers the benefit of treating the pathology in the same setting. We conclude that hysteroscopy should be combined in the management of all cases of abnormal uterine bleeding, which have a high suspicion of intrauterine pathologies.
Measurements and Main Results: Conventional slicing technique had longer operative time than slice and excise technique with a statistically significant difference \( p < .05 \). In 3/17 (17.6\%) of conventional slicing technique, incomplete surgery with a second session was needed. In one case of slice and excise technique \( 1/19 \) (5\%), complete myomectomy wasn’t achieved in one session. Operative time was significantly shorter in slice and excise technique \( p < .05 \). Fluid deficit was more in conventional than slice and excise group, but with no statistic significant difference. No intraoperative complications occurred in either group.

**Conclusion:** In the presence of large G0 myomas 4–5 cm, and the absence of hysteroscopic morcellator, the technique (slice and excise) is as effective as conventional slicing with less operative time, less fluid deficit and more reliable for completion of surgery in one session.

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**Patients:** Target enrollment is 32 patients/arm for a total of 96 patients.

**Intervention:** Subjects are randomized to normal saline fluids bags as follows: Arm 1- at room temperature \( (22°C) \), or Arm 2- bags pulled from a warming cabinet set at \( 40°C \) and left to hang in ambient OR temperature during the case, or Arm 3- using a fluid management system that can maintain the warmed fluid distention medium continuously at \( 40°C \).

**Measurements and Main Results:** 48 patients have been enrolled thus far. Body temperature was recorded using a sublingual thermometer. No significant difference has been found between the 3 groups regarding body temperature or PACU self-assessed pain scores.

**Conclusion:** This would be the first published study evaluating the effect of either room temperature or warmed hysteroscopic fluid distending media on near-core body temperature. There are also no previous studies evaluating the effect of warmed distention media on post-operative pain after operative hysteroscopies performed under IV sedation.

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**Surgical Management of Small Uterine Fibroids that Were Found Embedded in a Significant Arcuate Uterine Anomaly and an Incomplete Uterine Septum**

Abuzaid O, Hebert I, Abuzaid M. *OhioGyn, Hurley Medical Center, Michigan State University College of Human Medicine, Flint, Michigan*

To illustrate the surgical technique of hysteroscopic resection of small uterine fibroids found embedded at the base of a significant arcuate uterine anomaly and incomplete uterine septum during hysteroscopic division of such anomalies. In this video we demonstrate two cases of patients that were each undergoing infertility workup. These patients were found to have uterine anomalies along with small uterine fibroids that were embedded in the uterine anomalies. The video shows the surgical management of septoplasty as well as removal of the fibroids hysteroscopically in the same setting. Post operatively patient in case one saline infusion hysterosalpingogram was normal and patient conceived after in vitro fertilization. Patient in case two post operatively had a slight residual septum and conceived spontaneously. We believe the detection and surgical removal of such fibroids may improve reproductive potential in such patients.

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**The Effect of Warmed Hysteroscopic Fluid Distention Medium on Postoperative Core Body Temperature: A Randomized Control Trial**

Salazar CA, Wong MC, Morris SN, Isaacson KB. *Minimally Invasive Gynecologic Surgery, Newton Wellesley Hospital, Newton, Massachusetts*

**Objective:** The primary aim of this study is to compare near-core body temperature in patients undergoing operative hysteroscopy who receive warmed vs. room temperature fluid distending medium. The hypothesis is that there will be a difference in near-core body temperature. The secondary aim is to compare the patient’s self-assessed pain level during the recovery period, with the hypothesis that there will be a difference in comfort levels.

**Design:** 3-armed stratified, single-blinded randomized control trial of patients undergoing operative hysteroscopy in the OR under IV sedation. A stratified randomization by procedure type (myomectomy vs. all other procedures) was used to ensure this variable is evenly distributed across all groups more than chance alone may assure, as intravasation of fluid associated with myomectomy is the greatest potential confounding factor identified. Operative hysteroscopy includes myomectomy, lysis of adhesions, polypectomy, metroplasty, and resection of POC.

**Setting:** Academic-affiliated community hospital with 2 high-volume hysteroscopic surgeons.

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**The Influence of Early Second-Look Hysteroscopy on Reproductive Outcomes After Hysteroscopic Adhesiolysis**

Xu W, Lin X. *Department of Obstetrics and Gynecology, Sir Run Run Shaw Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang Province, China*

**Objective:** To assess the impact of early second-look hysteroscopy after hysteroscopic adhesiolysis on pregnancy rate (PR) and live birth rate (LBR).

**Design:** Prospective cohort study.

**Setting:** Gynecologic endoscopy unit.

**Patients:** A total of 151 women referred to our institution from 2010 to 2016.

**Intervention:** Operative hysteroscopy for treatment of intrauterine adhesions (IUAs) and office hysteroscopic follow-up to assess for IUAs.

**Measurements and Main Results:** We investigated demographic characteristics, menstrual pattern, previous intrauterine surgery, reproductive history, ovarian reservation assessment, tubal patency examination, husband’s semen test, obstetrics parameters, and surgical variables to evaluate the impact of early second-look hysteroscopy after hysteroscopic adhesiolysis on pregnancy rate (PR) and live birth rate (LBR). Of 151 women treated for IUAs, general PR was 71.5%, LBR was 53.0%. The time related PR and LBR were both higher in earlier second look group (second hysteroscopy within 2 months) and less than 3 times of adhesiolysis group \( p < .05 \). Meanwhile the pregnant group had more antral follicle count than the non-pregnant group \( 10 \text{ vs } 8, p < .05 \), and the LBR was younger than the non-live birth group \( 29.7 \pm 3.8 \text{ vs } 31.8 \pm 4.2, p < .01 \). The LBR was higher in patients who had unobstructed tubes \( p < .05 \), and the PR was higher in amenorrhea group and recurrent miscarriage group \( p < .05 \). With the logistic regression, second-look time interval, times of adhesion relaxing and pregnancy history were selected for PR, while age and second-look time interval were selected for LBR.
**Conclusion:** Early second look hysteroscopic examination within 2 months may increase the cumulative PR and LBR. Second time adhesiolysis in time hasn’t adverse impact to pregnant result.

**Study Objective:** Identify any histological discrepancy between blind endometrial sampling (ES) reported as inadequate, inactive or benign endometrium and office based hysteroscopy with the MyoSure tissue removal system in women with post-menopausal bleeding (PMB).

**Setting:** Women attending the PMB clinic who’s ES is reported as benign, inactive or inadequate. MyoSure Lite & Classic devices were used for the removal of these lesions.

**Patients:** Women with PMB having an endometrial polypectomy using the MyoSure tissue removal system.

**Intervention:** The MyoSure Lite & Classic tissue removal systems were used to remove endometrial polyps in women with PMB who’s ES was inactive, inadequate or benign. Histological comparison between the ES and MyoSure histology was made.

**Measurements and Main Results:** All 616 women underwent hysteroscopic evaluation for abnormal uterine bleeding between September 2014 and March 2017; 399 were post-menopausal of which 186 women (46.6%) had inactive endometrium, 82 women (20.6%) had inadequate, 109 (27.3%) had benign polyp and 22 (5.5%) had simple hyperplasia or higher grade disease detected on the blind endometrial sampling prior to polypectomy. The MyoSure polypectomy of those women with “Proliferative/benign endometrium” demonstrated that 19.3% had higher grade disease (Simple, complex, complex with atypia or cancer) than the ES, for the “inactive group 10.8% had high grade disease and those with an inadequate ES 13.4% had higher grade disease.

Endometrial thickness in the PMB group ranged from 1.5 - 45 mm with a mean of 10.6 mm. There were no reported complications in all 616 cases.

**Conclusion:** This retrospective review of patients with inadequate, inactive or benign ES has demonstrated the significant benefit to patient of having the polyp removed simply without complication in the office setting using the MyoSure tissue removal system.

Between 10.8–19.3% will have higher grade disease detected using the MyoSure device, which would have an impact on their medical management.

**TUESDAY, NOVEMBER 14, 2017**

**386 Virtual Posters – Session 1**
**(9:45 AM–10:45 AM)**

**10:39 AM – STATION D**

**The Utility of Pelvic Ultrasound for Evaluation of Postmenopausal Bleeding Following Endometrial Ablation**

*Casey J, Zhai A, Harvey L. Vanderbilt Medical Center, Nashville, Tennessee*

**Study Objective:** To examine pertinent ultrasound findings and trends during the evaluation of postmenopausal bleeding in patients with prior endometrial ablation.

**Design:** Retrospective chart review.

**Setting:** Academic Medical Center.

**Patients:** Patients undergoing ultrasound evaluation for postmenopausal bleeding with a previous history of endometrial ablation.

**Intervention:** N/A.

**Measurements and Main Results:** A total of twenty-eight patients were identified between May 2001 and May 2013 who underwent evaluation with ultrasound for postmenopausal bleeding with a history of endometrial ablation.

**Table 1 Patient characteristics**

<table>
<thead>
<tr>
<th>Age at ablation (years)</th>
<th>Mean</th>
<th>Standard error</th>
<th>Range</th>
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<tr>
<td>45.6 ± 0.8</td>
<td>36–55</td>
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<tr>
<th>BMI (kg/m²)</th>
<th>Mean</th>
<th>Standard error</th>
<th>Range</th>
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<tbody>
<tr>
<td>30.2 ± 1.7</td>
<td>19–71</td>
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<tr>
<th>Gravidity</th>
<th>Mean</th>
<th>Standard error</th>
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<tr>
<td>3.2 ± 0.3</td>
<td>0–8</td>
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<tr>
<th>Parity</th>
<th>Mean</th>
<th>Standard error</th>
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<tr>
<td>2.8 ± 0.4</td>
<td>0–10</td>
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<tr>
<th>Duration from ablation to postmenopausal bleeding (years)</th>
<th>Mean</th>
<th>Standard error</th>
<th>Range</th>
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<tr>
<td>5.8 ± 0.8</td>
<td>0.2–12.9</td>
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**Race**

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<th>Race</th>
<th>Mean</th>
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<tr>
<td>Black</td>
<td>6 (21.4%)</td>
</tr>
<tr>
<td>White</td>
<td>21 (75%)</td>
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<tr>
<td>Other</td>
<td>1 (3.6%)</td>
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**Type of ablation**

<table>
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<tr>
<th>Type of ablation</th>
<th>Mean</th>
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<tbody>
<tr>
<td>NovaSure</td>
<td>15 (53.6%)</td>
</tr>
<tr>
<td>Rollerball</td>
<td>9 (32.1%)</td>
</tr>
<tr>
<td>Thermachoice</td>
<td>4 (14.3%)</td>
</tr>
<tr>
<td>Hormone replacement use</td>
<td>9 (32.1%)</td>
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</table>

Ultrasound reports were able to identify a specific endometrial stripe in 89.3% of cases (25/28). Mean endometrial stripe was 5.6 mm with a range 2–14 mm, though at least a portion of the endometrium demonstrated indistinct borders in 35.7% (10/28) of cases and endometrial fluid pockets were seen in 21.4% (6/28) of cases. Of the patients who underwent sampling (15/28), insufficient results on endometrial biopsy were notably high at 38.5%, with a trend towards lower success in patients with an endometrial stripe less than 5 mm versus an endometrial stripe ≥5 mm, 25% vs 85.7% respectively p = .09. Of the six patients with an endometrial fluid collection seen on ultrasound, pathology returned benign. One simple endometrial hyperplasia was diagnosed on hysterectomy and one case of endometrial cancer was identified on pipelle sampling with thickened endometrial stripes on ultrasound of 14 mm and 10 mm, respectively.

**Conclusion:** Current evidence for endometrial interpretation on ultrasound is lacking in women with postmenopausal bleeding and a history of endometrial ablation. There is limited data within the radiographic literature, without correlation to pathologic outcomes. For postmenopausal bleeding following endometrial ablation, results show general support with the existing interpretation of endometrial thickness parameters. In this cohort, benign outcomes were observed in patients with an endometrial stripe <5 mm, and further evaluation with sampling should be considered in patients with endometrial stripe ≥5 mm.
Use of Paracervical Block to Decrease Pain During In-Office Essure® Hysteroscopic Sterilization

Grotheer A,1 Giugni A,2 Sada M,2 Correa A,1 Almira R,1 Saad Nagaib M,1 Andrade F,1 Carugno J,1 1Minimally Invasive Gynecology Unit, University of Miami, Miami, Florida; 2Ambulatorio Manso, Barcelona, Spain

Study Objective: To evaluate the effectiveness of paracervical block using 10 cc of 2% bupivacaine to reduce pain during in-office insertion of Essure® hysteroscopic sterilization coils.

Design: Single center retrospective study.

Setting: Hysteroscopy unit in an ambulatory primary care center in Barcelona, Spain.

Patients: A retrospective chart review of 247 consecutive patients who underwent hysteroscopic permanent sterilization with Essure® inserts.

Intervention: Patients scheduled for Essure® placement were divided in 2 groups. The anesthesia group (n = 155) received paracervical block with 10 cc of 2% Bupivacaine. The control group (n = 65) received no anesthesia. Pain immediately after the procedure was recorded using the visual analog scale (VAS) for pain.

Measurements and Main Results: Both groups had similar demographics. 155 patients received paracervical block with bupivacaine 2%, and the control group received no anesthesia (65 patients). We were unable to place the Essure® in 14 patients, and 13 patients had the implant placed in only one fallopian tube. This yielded an insertion failure rate of 10.9%. Pain measured with VAS immediately after the procedure was 3.7 (SD = 2.7) This demonstrated that pain was not a reason for insertion failure. (p = .10).

Conclusion: Paracervical block using bupivacaine is not an effective option to reduce pain during in-office Essure® insertion. Essure® insertion is a relatively painless procedure that is well tolerated if it is placed with adequate technique, even if performed without anesthesia.
Utility of Anesthetic Block for Endometrial Ablation

Study Objective: To evaluate whether local anesthetic, in combination with general anesthesia, affects postoperative pain following endometrial ablation.

Design: Single-blind randomized controlled trial.

Setting: Academic-affiliated community hospital.

Patients: English speaking premenopausal women, aged 30–55 years, undergoing outpatient endometrial ablation for benign disease.

Intervention: Standardized paracervical injection of 20 mL 0.25% Bupivacaine or 20 mL Normal Saline at ablation completion.

Measurements and Main Results: Between April 2016 and February 2017 108 women scheduled for endometrial ablation were screened (refusals n = 21, ineligible n = 3). Of the 84 randomized, 2 women <35 years were excluded. Intent-to-treat analyses included one incorrect randomization and 3 women having no ablation due to operative difficulties. Three were lost to follow-up. Two-tailed t-tests show treatment group patients experienced lower one hour postoperative visual analog pain scores than the control group (p = .02). The difference diminished by four hours and was negligible by eight hours (n.s.). Treatment group patients used less postoperative pain medication (p = .05). Backward stepwise logistic regressions controlled for confounding reduced the one hour postoperative treatment group pain score difference to 0.8 (CI – 6–1) and the average postoperative morphine equivalents to 3.7 (CI –6.8–7).

Table 1. Primary and secondary outcomes (unequal variances assumed)

<table>
<thead>
<tr>
<th>Study Group</th>
<th>Control</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>% or Mean±SD</td>
<td>% or Mean±SD</td>
<td>p</td>
</tr>
<tr>
<td>1 Hour Pain Score</td>
<td>2.71 ± 2.47</td>
<td>41</td>
</tr>
<tr>
<td>4 Hour Pain Score</td>
<td>3.37 ± 2.48</td>
<td>38</td>
</tr>
<tr>
<td>8 Hour Pain Score</td>
<td>2.47 ± 2.17</td>
<td>38</td>
</tr>
<tr>
<td>Total Blood Loss (mL)</td>
<td>6.38 ± 3.70</td>
<td>37</td>
</tr>
<tr>
<td>Total Morphine Equivalents</td>
<td>7.80 ± 8.45</td>
<td>41</td>
</tr>
<tr>
<td>Total Day 1 Tylenol with Codeine</td>
<td>9.18 ± .98</td>
<td>38</td>
</tr>
<tr>
<td>Hours Between Surgery</td>
<td>1.63 ± 0.73</td>
<td>41</td>
</tr>
</tbody>
</table>

Conclusion: Low risk local anesthetic, utilized in conjunction with general anesthesia, decreases postoperative pain at one hour and postoperative narcotic use following endometrial ablation.

LAPAROSCOPY – CONVENTIONAL

A 13-Week Heterotopic Pregnancy Managed by a Minimally Invasive Approach

Samverdi I, Kilicci C, Ayvaci H, Ozkaya E, Naki MM. Ob/Gyn, Zeynep Kamil Maternity and Children’s Health Training and Research Hospital, Istanbul, Turkey

A 32-year-old nulliparous (Gravida 2 Parity 1 Abortus 1) woman came to the hospital for “First Trimester Screening test”. She had no complaint. During her first (11/20/2016) hospital visit ultrasonography showed only a singleton 8-week intrauterine fetus. LMP: 09/28/2016 The patient got pregnant by natural conception. Blood Pressure: 110/80 mmHg. During 2nd fetal ultrasonographic examination obstetrician measured a singleton 13-week intrauterine fetus but also found a 13-week extraterine fetus on the right adnexal place. The patient was operated same day by laparoscopy. One 10 mm umbilical and two 5 mm auxiliary trocars were used. Pathologic specimen was extracted via 10 mm umbilical trocar site without enlarging any of 5 mm auxiliary trocar sites.

A Clinical Observation of Preoperative Adjuvant Therapy for Intrauterine Adhesions

Wu Y, Feng L. Ob/Gyn, Beijing Tiantan Hospital, The Capital Medical University, Beijing, China

Study Objective: To study the clinical observation of estrogen, progestrone and vasodilator in the treatment of moderate to severe intrauterine adhesions.

Design: Randomized, single-arm study.

Setting: One university teaching hospital.

Patients: 120 Patients with moderate to severe intrauterine adhesions, be compared before and after medicine treatment.

Intervention: Estrogen, progestrone and vasodilator used for 3 cycles.

Measurements and Main Results: 1. Course of the disease and the number of previous uterine cavity operations were correlated with severe adhesion (p < .05). Severe adhesion has no correlation with age and etiology (p > .05); 2. Changes in AFS score, endometrial thickness, endometrial hemodynamic parameters PI, RI, S/D before and after medicine treatment were statistically significant (p < .01); 3. After treatment, menstrual improvement rate was 84.35%. PBAC analyzed by paired t-test had statistically significance (p < .01); 4. 6 factors: course of disease, degree of adhesions, AFS score, menstrual mode, endometrial thickness and endometrial blood flow were significantly correlated with pregnancy (p < .05); 5. The type of endometrial blood flow (p = .001), the postmenopausal model (p = .04), and the endometrial thickness (p = .05) are independent factors that affecting pregnancy.

Conclusion: After treatment, the thickness of endometrium and blood flow type were improved; blood flow resistance decreased; menstrual recovery and pregnancy rate improved. Physiological dose of hormone therapy combined with aspirin, vitamin C, vitamin E and Kirin pills to promote endometrial growth and vasodilator in patients with moderate to severe intrauterine adhesions is effective, safe and reliable thus can be extended in clinical practice.

A Comparison of Surgical Outcomes Between Single-Site Robotic, Multisite Robotic and Conventional Laparoscopic Techniques in Performing Hysterectomy for Benign Indications

Gupta N, Blevins M, Radke S, Holcombe J, Farr RS. University of Tennessee College of Medicine, Chattanooga, Tennessee

Study Objective: To compare surgical outcomes between different minimally invasive approaches utilized to perform total hysterectomy for benign indications.

To evaluate the patient or disease related factors that may influence the use of one approach over another.

Design: Retrospective Study (Canadian Task Force Classification II-3).
Setting: Academic Community Based Hospital.

Patients: Patients undergoing minimally invasive hysterectomy (daVinci or conventional laparoscopy) for benign indications from January 2015 to July 2016.

Intervention: Use of conventional laparoscopy, multiport daVinci or single-site daVinci platform for benign hysterectomy by a single surgeon, proficient in all 3 techniques.

Measurements and Main Results: A total of 129 patients were identified and divided into 3 groups based on the surgical approach utilized: LSC (n = 44), MP-Rob (n = 36) and SS-Rob (n = 49). Patient factors and perioperative outcomes were compared using descriptive and non-parametric statistics as appropriate. There were statistically significant differences between groups in age (MP-Rob 46 ± LSC 39), BMI (MP-Rob 33 ± LSC 27 or SS-Rob 26.8), uterus weight in grams (MP-Rob 144 ± LSC 102 or SS-Rob 105), and operative time in minutes (LSC 192 ± SS-Rob 162.3 or MP-Rob 163). Length of stay (LOS) and estimated blood loss were not significantly different across surgery type. Chi-square analyses revealed history of endometriosis and presence of clinical endometriosis was statistically less common in MP-Rob, abnormal uterine bleeding was statistically less common in LSC and leiomyomas were statistically more common in MP-Rob. There was no statistically significant difference noted between intra-op and post-operative complications between different surgical types.

Conclusion: Patients with higher age, BMI, uterus weight and abnormal uterine bleeding were noted to undergo multi-port robotic surgery. Operative time was significantly less for daVinci hysterectomies (single-site and multiport) as compared to conventional laparoscopy. Patients with history of endometriosis were more likely to undergo conventional laparoscopy or single-site robotic surgery. There was no significant difference in perioperative outcomes of patients when LOS, EBL and complications were compared.

Table 1. Baseline and postoperative TVL by vaginal cuff closure method

<table>
<thead>
<tr>
<th>Randomization</th>
<th>n</th>
<th>Mean TVL (cm)</th>
<th>Mean TVL (cm) Change</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Closure (HC) Baseline</td>
<td>35</td>
<td>9.26</td>
<td>-1.009 (-1.424, -.593)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>28 weeks postop</td>
<td>34</td>
<td>8.26</td>
<td></td>
</tr>
<tr>
<td>Vertical Closure (VC)  Baseline</td>
<td>34</td>
<td>8.93</td>
<td>-0.433 (-0.859, -0.006)</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>28 weeks postop</td>
<td>32</td>
<td>8.44</td>
<td></td>
</tr>
</tbody>
</table>

* Based on preliminary data.

Best preserved vaginal length (TVL) and examine the impact of cuff closure method on female sexual function.

Design: Single-blinded randomized controlled study.

Setting: Academic tertiary care center.

Patients: Women undergoing TLH for benign indications were consented and randomized to the HC or VC group.

Intervention: TVL was measured at the time of TLH, prior to incision. Baseline sexual function was assessed prior to surgery using the Female Sexual Function Index (FSFI), a 19-item validated questionnaire. Participants were randomized to either the HC or VC group intra-operatively. TVL was re-measured 28 weeks postoperatively. The FSFI was re-administered at six and 12-months following TLH to reassess sexual function.

Fig. 1. FSFI Domain Scores and Full Scale Score.

Measurements and Main Results: Ten-nine women were included in the study – 35 randomized to the HC group and 34 to the VC group. Of these, postoperative TVL was measured for 34 women in the HC group and 32 in the VC group. The mean change in postoperative TVL was -1.01 cm (95%CI -1.42 – -0.59) in the HC group and -0.43 cm (95%CI -0.86 – -0.01) in the VC group. There was a statistically significant change in preoperative versus postoperative TVL for both the HC and VC groups (p < .0001 and p < .05, respectively), though the difference in TVL between groups was marginal (p < .06).

FSFI scores increased in the HC group, but decreased in the VC group. However, the change in FSFI scores from baseline to 6 months and 12 months following TLH did not reach statistical significance (p = .47 and p = .2, respectively).

Conclusion: While both vertical and horizontal cuff closure methods resulted in decreased TVL, vertical closure better preserved TVL. Both vaginal cuff closure methods demonstrated similar outcomes in both TLH and long-term female sexual function.

Table 2. Change in FSFI scores from baseline to 6 and 12 months following TLH

<table>
<thead>
<tr>
<th>Randomization</th>
<th>n</th>
<th>Baseline</th>
<th>Mean FSFI Score Change (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Closure (HC) Baseline</td>
<td>35</td>
<td>26.73</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>6 months postop</td>
<td>30</td>
<td>26.79</td>
<td>-1.42 (-4.14, 1.31)</td>
</tr>
<tr>
<td></td>
<td>12 months postop</td>
<td>23</td>
<td>27.71</td>
<td>0.53 (-2.47, 3.53)</td>
</tr>
<tr>
<td>Vertical Closure (VC)  Baseline</td>
<td>34</td>
<td>25.89</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>6 months postop</td>
<td>30</td>
<td>24.28</td>
<td>-0.001 (-2.73, 2.72)</td>
</tr>
<tr>
<td></td>
<td>12 months postop</td>
<td>26</td>
<td>23.31</td>
<td>-2.16 (-5.03, 0.7)</td>
</tr>
</tbody>
</table>

* Based on preliminary data.

1 FSFI score of ≥ 26.55 indicates sexual dysfunction.
**A Randomized Controlled Trial of Laparoscopic Lens Defogging: Efficacy of Techniques Employing a Novel Simulation Model**


**Study Objective:** To determine the optimal technique for laparoscopic lens defogging by utilizing a simulated environment of the abdomino-pelvic cavity.

**Design:** Randomized controlled trial via simulation.

**Setting:** Academic affiliated community hospital.

**Patients:** N/A.

**Intervention:** A humidified and temperature controlled simulator was employed to replicate an abdominopelvic environment. The simulator was used to compare laparoscopic lens defogging techniques (LDT): no LDT (control), anti-fog solution (FRED), warm saline (WS), chlorhexidine gluconate (CHG) solution, and manual glove warming (GLOV).

**Measurements and Main Results:** Three observers rated the visual clarity with each LDT using a visual analog scale (0 = no clarity, 100 = perfect clarity). Each LDT was repeated four times in a blinded randomized fashion. This provided 12 observations per LDT for each laparoscope (5 mm and 10 mm). All values reported as mean ± standard deviation: Control (26 ± 10), GLOV (32 ± 21), FRED (49 ± 24), WS (79 ± 8) and CHG (78 ± 7). LDTs were significantly different (ANOVA, p < .001). Post hoc pairwise comparisons revealed that all LDTs except for GLOV were better than controls. WS and CHG clarity were the highest, but similar. WS and CHG clarity were better than FRED. The results were similar for the 5 and 10 mm laparoscopes.

**Conclusion:** Our study is the first randomized controlled trial that compares efficacy of different laparoscopic lens defogging techniques. Warm saline and CHG solution were more effective than FRED in preventing lens fogging. Warm saline is also a cost-effective and improved alternative to providing a clear visual field. Future studies can utilize our novel simulation model to determine new techniques to optimize laparoscopic procedures.

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**A Value-Based Approach to Hysterectomy:**

*Comparison of Minimally Invasive Hysterectomy Techniques*

*Baxi RP, MacKoul PJ, Danilyants N, van der Does L, Haworth L. The Center for Innovative Gyn Care, Rockville, Maryland*

**Study Objective:** The skyrocketing costs of healthcare in this country and the uncertain future of the Affordable Care Act have intensified national calls for a strategy to contain costs and increase healthcare value for patients. The purpose of this study is to evaluate six different minimally invasive hysterectomy approaches from a value-based perspective using a triad of outcomes: operative, cost and patient satisfaction.

**Design:** Sequential mixed methods; retrospective chart review and mail survey of the same patient population.

**Setting:** Community-based, non-profit teaching hospital in suburban Maryland.

**Patients:** All patients (N = 2,689) who underwent hysterectomy performed for benign disease between 2011 and 2013.

**Intervention:** Minimally invasive hysterectomy, including laparoscopic supracervical hysterectomy (LSH), robotically-assisted laparoscopic hysterectomy (Robotics), total laparoscopic hysterectomy (TLH), laparoscopically assisted vaginal hysterectomy (LAVH), laparoscopic retroperitoneal hysterectomy (LRH), and total vaginal hysterectomy (TVH).

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**Table 1. Patient Characteristics by Hysterectomy Procedure**

<table>
<thead>
<tr>
<th>Variable *</th>
<th>LHR</th>
<th>LSH</th>
<th>RALH</th>
<th>TLH</th>
<th>LAVH</th>
<th>TVH</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, yr</td>
<td>47.7 (9.5)</td>
<td>45.5 (5.7)</td>
<td>49.9 (8.8)</td>
<td>47.8 (9.0)</td>
<td>48.4 (9.1)</td>
<td>49 (11.8)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Urinary Size, gmo</td>
<td>328.9 (343.1)</td>
<td>410.4 (461.6)</td>
<td>276.8 (266.3)</td>
<td>283.1 (292.2)</td>
<td>273.6 (301.8)</td>
<td>153.2 (101.6)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Weight, kgs</td>
<td>79.5 (21.1)</td>
<td>84.8 (21.4)</td>
<td>86 (26.4)</td>
<td>78.4 (20.4)</td>
<td>80.4 (21.5)</td>
<td>79.3 (22.0)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>BMI, *</td>
<td>29.6 (7.3)</td>
<td>31.6 (7.4)</td>
<td>32 (9.6)</td>
<td>29.3 (7.1)</td>
<td>30.3 (8.4)</td>
<td>29.9 (7.5)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Race (%)</td>
<td>Black</td>
<td>45</td>
<td>71</td>
<td>40</td>
<td>39.1</td>
<td>44.8</td>
<td>40</td>
</tr>
<tr>
<td>White</td>
<td>46.8</td>
<td>50</td>
<td>42.4</td>
<td>42</td>
<td>42</td>
<td>18</td>
<td>0.0001</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>7</td>
<td>19</td>
<td>0.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preabdominal Surgery (%)</td>
<td>None</td>
<td>33.1</td>
<td>29.3</td>
<td>30.6</td>
<td>34</td>
<td>31.5</td>
<td>40.5</td>
</tr>
<tr>
<td>&gt;1</td>
<td>31.6</td>
<td>34.2</td>
<td>30.9</td>
<td>35.2</td>
<td>38.7</td>
<td>30.9</td>
<td>0.001</td>
</tr>
<tr>
<td>&gt;2</td>
<td>35.4</td>
<td>21.9</td>
<td>19.9</td>
<td>16</td>
<td>17.1</td>
<td>19</td>
<td>0.001</td>
</tr>
<tr>
<td>Comorbid Conditions (%)</td>
<td>None</td>
<td>44.4</td>
<td>41.2</td>
<td>34</td>
<td>46</td>
<td>42.5</td>
<td>46.3</td>
</tr>
<tr>
<td>&gt;1</td>
<td>35.7</td>
<td>32.7</td>
<td>32.8</td>
<td>32</td>
<td>32.4</td>
<td>26.5</td>
<td>0.001</td>
</tr>
<tr>
<td>&gt;2</td>
<td>22.9</td>
<td>21.6</td>
<td>23.2</td>
<td>21.5</td>
<td>24.1</td>
<td>29.1</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Unless otherwise indicated, values are given as Mean (standard deviation)

*ANOVA, analysis of variance:

*Chi-squared test p = 0.001
Measurements and Main Results: Results were adjusted for age, race, number of previous abdominal surgeries, BMI, weight, number of co-morbidities, and surgeon volume.

TVH had the highest average estimated blood loss (190.5 ml; p < .0001). LRH had the shortest operating time (72.7 min), lowest estimated blood loss (94.1 ml), shortest length of stay (0.2 days), and lowest intraoperative complication rates (0.8%; p < .0001). TVH and LA VH had the highest intraoperative complication rates (9.2%, 7.2%, respectively; p < .0001). Robotics had the highest postoperative complication rate followed by LA VH (11.5%, 7.7%, respectively; p < .0001). LA VH and LRH both had 0.0% rate of laparotomy conversion. Robotics and TVH had the longest length of hospital stay (1.1 days each; p < .0001). The direct hospital costs for LRH ($4,776) were nearly half of Robotics ($9,351). TLH and LRH had the highest overall patient satisfaction rates (86.7% and 85.4%, respectively).

Conclusion: From a value-based perspective, LRH has significant advantages over the most commonly performed minimally invasive hysterectomies with superior operative outcomes, lower costs and higher patient satisfaction.

396 Virtual Posters – Session 2 (12:45 PM–1:45 PM)

12:51 PM – STATION B

An Approach to Severe Uterine Adhesions During Total Laparoscopic Hysterectomy
Jan A. Warren L. University of Louisville, Louisville, Kentucky

The intention of this video is to demonstrate techniques to successfully approach severe uterine adhesions to accomplish total laparoscopic hysterectomy. In this video we approach the severe adhesions using Harmonic Scalpel, and blunt dissection with suction irrigator and endoscopic Kittner. We also use the technique of retrograde filling the bladder to delineate the borders of the bladder for safer dissection.

397 Virtual Posters – Session 2 (12:45 PM–1:45 PM)

12:51 PM – STATION C

Analysis of Factors Contributing to Increased Operative Time for Laparoscopic vs. Open Myomectomy
Hammer KC, Abbasy SA, Fogg L, Maurice JM. Obstetrics & Gynecology, Rush University Medical Center, Chicago, Illinois

Study Objective: To determine factors contributing to increased operative time for myomectomy procedures.

Design: This is a retrospective case series of patients who underwent a myomectomy via laparotomy or laparoscopy. Patients were identified by CPT code from the American College of Surgeons National Surgical Quality and Improvement Database (NSQIP). The primary outcome was operative time. We analyzed the type of myomectomy, demographic data and the presence of residents during the surgery. Statistical analysis was performed using SPSS software and the chi-square test.

Setting: Retrospective case review via the multi-center NSQIP database.

Patients: Using CPT codes 58545, 58140, 58546 and 58146, we identified patients in the NSQIP database who underwent myomectomy via laparoscopy or laparotomy from 2009 to 2013. We excluded cases performed by a vaginal approach or if operating time was less than 10 minutes.

Intervention: None.

Measurements and Main Results: A total of 2682 patients underwent myomectomy by either laparoscopy (1132, 42.2%) or laparotomy (1550, 57.8%). The median operative time for all myomectomies was 148.4 minutes (range 65.23 to 231.58), while the median time for abdominal and laparoscopic approaches was 129.96 (range 60.66 to 199.37) and 173.65 (range 80.39 to 266.91) minutes, respectively. When comparing techniques, a laparoscopic myomectomy is 3 times more likely to have an operative time longer
Operating Time by Surgical Approach

<table>
<thead>
<tr>
<th>Surgical Approach</th>
<th>Less than 60</th>
<th>60–120</th>
<th>120–180</th>
<th>180–240</th>
<th>Greater than 240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopy (N, %, RR)</td>
<td>70, 6.2%, 0.52</td>
<td>287, 25.4%, 0.61</td>
<td>328, 29.0%, 1.07</td>
<td>208, 18.4%, 1.46</td>
<td>239, 21.1%, 3.15</td>
</tr>
<tr>
<td>Laparotomy (N, %)</td>
<td>185, 11.9%</td>
<td>647, 41.7%</td>
<td>418, 27.0%</td>
<td>196, 12.6%</td>
<td>104, 6.7%</td>
</tr>
<tr>
<td>All Surgical Approaches (N)</td>
<td>255</td>
<td>934</td>
<td>746</td>
<td>404</td>
<td>343</td>
</tr>
</tbody>
</table>

Difference amongst surgical times is significant $p < .01$

than 240 minutes ($p < .01$) and adds an average of 44 minutes to the procedure ($p < .01$). Other factors prolonging operating time include age less than 30 or greater than 40, underweight or overweight BMI, and resident involvement ($p < .05$).

**Conclusion:** Patients undergoing laparoscopic myomectomy had significantly longer operating times, which may increase complication rates and cost. Further research is needed to determine if the known benefits of laparoscopic myomectomy such as decreased postoperative pain, operative blood loss, risk of transfusion and hospital stay outweigh the risks of prolonged operative time.

**Study Objective:** To determine if backfill of the urinary bladder prior to removal of indwelling catheter in the OR decreases the post-operative urinary retention rate and decreases the post operative recovery time in women undergoing same day discharge gynecologic surgery.

**Design:** Prospective Randomized Controlled Trial.

**Setting:** Tertiary Teaching Hospital.

**Patients:** All women undergoing gynecologic surgery requiring urinary catheterization in the operating room and who had plans for same day discharge were eligible to be included in the study. 390 women have been recruited into this study so far.

**Intervention:** Women who consented to be part of the study were assigned either to have 200 ml of normal saline introduced into the bladder prior to removal of the urinary catheter at the conclusion of the study or to have the catheter removed without back fill. Nurses in recovery were blinded to the treatment arm the study subjects were under.

**Measurements and Main Results:** 30 (7.7%) of subjects had difficulty voiding after the surgery Using Chi-square analysis, significantly more patients in the no backfill arm reported difficulty with voiding (21 patients) than in the backfill arm (9 patients; $p = .02$). Average time in recovery was 123 minutes for those who did not have back fill and 108 minutes for those with backfill and it was statistically significantly using rank sum analysis, ($p = .0004$).

**Conclusion:** Backfilling the bladder with 200 ml of normal saline in women undergoing same day discharge gynecologic surgery requiring urinary catheterization with indwelling catheter significantly decreases the incidence of postoperative urinary retention and significantly decreases the length of stay in postoperative recovery unit.

**References:**

1. **Benjamin A. Ob/Gyn, University of Rochester Medical Center, Rochester, New York**

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   **Conclusion:** Backfilling the bladder with 200 ml of normal saline in women undergoing same day discharge gynecologic surgery requiring urinary catheterization with indwelling catheter significantly decreases the incidence of postoperative urinary retention and significantly decreases the length of stay in postoperative recovery unit.
Table 1. Clinical Outcomes


gynecologic Endoscopy: 23 patients were treated with ulipristal acetate 5 mg daily.

Intervention: 25 patients were submitted to laparoscopic myomectomies with post-operative observation. Myoma enucleation was carried out step-wise according to the Kiell School of Gynecological Endoscopy:

Measurements and Main Results: Pre-treatment measurements: Haemoglobin, pain and pressure symptoms in a scale from 1 - 5, metrorrhagias and assessment of menstrual periods.

Post treatment observation: group (a) (n = 25) patients, who were operated by myomectomy, continued with normal menstrual bleedings, no metrorrhagias, no more pain and pressure symptoms. They were subjected to post surgical iron medication and revealed normal haemoglobin values after 4 months.

In group (b) (n = 23) 17 patients continued with normal menstrual bleedings, no more pain and pressure symptoms, the fibroids had shrunk for about 2 - 3 cm each.

6 patients had to be subjected to laparoscopic myomectomy.

Conclusion: Laparoscopic intramural myoma enucleation in symptomatic (pain and pressure symptoms) infertility patients should still be treated primarily surgically, however, indications for ulipristal acetate particularly pre-surgically include: anemia, big and multiple myomas, difficult localized myomas, shrinking of myomas and to gap time issues.
Measurements and Main Results: Medical records were reviewed for post-surgical outcomes and follow-up (FU) after 1 and 6 weeks. None of the 15 patients were converted to open surgery or had any intraoperative organ injuries. The patients’ mean age was 45 ± 6.7 years, mean BMI was 25 ± 4.7 kg/m2, and mean uterine weight was 143 ± 77.5 gr. 60% of patients had previous abdominal surgery, and 33% had history of gynecological cancer, which showed no statistically significance with EBL and OT, respectively (p > .05). All 15 patients were discharged home within 6.1 ± 1.2 hours after surgery with a mean EBL of 26 ± 14.3 cc, and mean OT of 42 ± 2.8 minutes. After 1 week FU, 1 patient reported pelvic pain, and after 6 weeks FU, 1 patient reported dyspareunia. 93% of patients returned to normal activities/work within 1–2 weeks, and 86% were able to exercise within 6 weeks. No complications or readmissions were reported.

Conclusion: Colpotomy-first showed to be a safe and feasible technique with minimal rates of complications for gynecological surgery. Our study suggests that this approach decreases hospital length of stay, and patients return sooner to their regular activities.

Study Objective: With advantages in scheduling, focused specialization, logistical efficiency, and patient convenience, ambulatory surgery centers are the new frontier in minimally invasive gynecology. The purpose of this study is to compare clinical outcomes of laparoscopic hysterectomy performed at an ambulatory surgery center (ASC) versus outpatient hospital setting (Hospital).

Design: Retrospective chart review.

Setting: An independent ASC and a community-based, non-profit teaching hospital in suburban Maryland.

Patients: Patients undergoing hysterectomy for benign disease between 2011 and 2016 performed by two fellowship trained, minimally invasive gynecologic surgeons.

Intervention: Laparoscopically-assisted vaginal hysterectomy with or without salpingectomy and/or oophorectomy.

Measurements and Main Results: A total of 1,243 consecutive hysterectomies were identified (ASC = 612; Hospital = 631). Location of surgery was based solely on insurance or patient preference. There was a higher percentage of Black women in the Hospital group. No statistically significant differences were found in other patient characteristics, such as BMI and uterine weight. There was a difference in estimated blood loss (ASC, 97.5 mL; Hospital, 116.1 mL, p = .0095), but this difference is not considered to be clinically meaningful. The average surgery time was slightly shorter in the ASC group (49.5 v 54.2; p = .0075). Differences in intraoperative and postoperative complications were not statistically significant across settings (ASC, 3.3% and Hospital, 1.7%; p = .6646; ASC, 2.7% and Hospital, 3.0%; p = .3754, respectively). There were no blood transfusions or conversions to laparotomy in either group. No patients required hospital transfer from the ASC or hospital admission in the 30-day postoperative period. All ASC patients were discharged home the same day of surgery, versus 88% of Hospital patients.

Conclusion: Our study shows that complex gynecological surgeries such as laparoscopic hysterectomy can be performed as safely and effectively at an ASC as compared to a Hospital setting with the added benefits of logistical efficiency and patient convenience.

Table 1. Patient Demographic and Clinical Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Hospital (N=638)</th>
<th>ASC (N=612)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>47.2 (9.0)</td>
<td>46.4 (7.9)</td>
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</tr>
<tr>
<td>Weight (kg)</td>
<td>78.4 (20.9)</td>
<td>77.6 (20.3)</td>
<td>0.4526</td>
</tr>
<tr>
<td>BMI</td>
<td>28.0 (7.1)</td>
<td>27.7 (7.1)</td>
<td>0.1417</td>
</tr>
<tr>
<td>Uterine Size (grams)</td>
<td>322.6 (331.4)</td>
<td>342.1 (388.6)</td>
<td>0.9057</td>
</tr>
<tr>
<td>Race (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>44.7</td>
<td>22.9</td>
<td>&lt;0.0001</td>
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<tr>
<td>White</td>
<td>47.8</td>
<td>51.9</td>
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<tr>
<td>Other</td>
<td>6.4</td>
<td>6.2</td>
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</table>

Table 2. Operative Outcomes

<table>
<thead>
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<td>Readmissions</td>
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Comparison of Laparoscopic-Assisted Vaginal Hysterecomy and Total Laparoscopic Hysterecomy in Case of Uteri Weighing ≥500G: a Randomized Prospective Study

Lee WM, 1 Choi JS, 1 Bae JW, 1 Bae J, 1 Eom JM, 1 Jung US, 2 Ko JH, 2
1Division of Gynecologic Oncology and Gynecologic Minimally Invasive Surgery, Department of Obstetrics and Gynecology, Hanyang University College of Medicine, Seoul, Republic of Korea; 2Department of Obstetrics and Gynecology, Kangdong Sacred Heart Hospital, Hallym University College of Medicine, Seoul, Republic of Korea

Study Objective: We investigate to optimal routes for hysterectomy in case of uteri weighing over than 500g.

Design: Randomized prospective study.

Setting: University teaching hospital.

Patients: Thirty four patient who underwent laparoscopic assisted vaginal hysterectomy (LAVH) or total laparoscopic hysterectomy (TLH) due to large uterus weighing over than 500g from May 2014 to February 2016 at Hanyang university hospital.

Intervention: LAVH or TLH.

Measurements and Main Results: Seventeen patients of the 34 patient were LAVH group (Group A) and 17 patients were TLH group (Group B). General characteristics including age, body mass index, parity and previous operation history were not associated statistically between Group A and Group B. Median pure hysterecomy time was 38.0 (21–140) minutes in Group A and 60.0 (27–105) minutes in Group B (p = .011). Median cuff closure time between group A and group B was 7 (2–30) minutes and 15 (10–22) minutes, respectively (p = .001). Median time of return to bowel activity was 12.5 (5.6–18.8) hours in Group A and 16.1 (10.6–61.0) hours in Group B (p = .018). Median weight of uterus was 710 (500–1160) g in Group A and 580 (500–890) g in Group B (p = .078). Median total operating time between two groups was 125 (75–275) minutes and 155 (95–327) minutes, respectively (p = .215). Median morcellation time was 10.0 (2–70) minutes in Group A, 15 (5–85) minutes in Group B (p = .325). There were no conversion from LAVH or TLH to laparotomy. Each one case of bladder injury and bowel laceration was occurred in Group B due to severe pelvic adhesion and endometriosis, respectively.

Conclusion: Although the LAVH has advantages over the TLH in that is shorter pure hysterectomy time, cuff closure time and return to bowel activity, the LAVH and TLH procedure by expert surgeon for a large uterus weighing in over than 500g was safe and effective.
Comparison of Umbilical Access vs. Supraumbilical Access to the peritoneal cavity is a challenge of laparoscopy. Studies have reported that umbilical access with the Veress’s needle presents complication rates: during the first attempt 0.816%, two attempts 16.3137%, three attempts of 44.264% and more than three attempts 84.6100%. We propose a new access point for the entrance using the umbilical scar to create pneumoperitoneum and the other group in which the Verress needle is inserted at the umbilical scar in the middle line. The main objective was to compare umbilical vs. supraumbilical access with Veress’s needle in laparoscopic surgery.

**Design:** Prospective, randomized and comparative study.

**Setting:** Minimally Invasive Gynecological Surgery Service of the Centro Medico Docente La Trinidad, in the period from April 2016 to September 2016.

**Patients:** We included all the patients who met the inclusion criteria that presented indication of laparoscopic surgery. There were a total of 83 patients who underwent gynecological surgery, of which 38 patients met the inclusion criteria.

**Intervention:** Patients were randomized through a table of random numbers into two groups: the group in which the Veress needle is inserted at the umbilical scar and the other group in which the Veress needle is inserted supraumbilically (one centimeter above the umbilical scar).

**Measurements and Main Results:** Supraumbilical access proved to be successful in 91% in a first attempt, compared to a 33% success in umbilical access. After analyzing our data, it was shown that the novel supraumbilical access is successful in 91% in a first attempt, compared to a 33% success in the umbilical access, proving to be more effective than the umbilical way, thus reducing the number of attempts.

**Conclusion:** Access to the peritoneal cavity is a challenge of laparoscopy and with the supraumbilical approach we can reduce surgical time, and decrease the incidence of lesions related to access to the abdomen.

**Objective:** To describe the surgical technique of laparoscopic partial cystectomy in a patient with bladder DIE.

Endometriosis is defined as the presence of endometrial-like tissue outside the uterus, affects up to 15% of women of reproductive age. Three types of endometriosis are recognized: superficial endometriosis, ovarian endometriosis and deeply infiltrating endometriosis (DIE). Endometriosis expanding and invading the urinary tract is a rare occurrence found in 1–2%. The present case is a 35-year-old female with dysmenorrhea, dysuria (without haematuria) and dyspareunia. The patient had received hormonal treatment prior to surgery with combined contraceptives, progestagens and even GnRH without improvement of symptoms. A Pelvic MRI performed pre-surgical diagnosis.

In the following video we analysed the clinical case and show the surgical technique.
413 **Virtual Posters – Session 2** *(12:45 PM – 1:45 PM)*

1:03 PM – STATION C

**Disparities in Minimally Invasive Hysterectomy**

Morris M, Jacoby V. Obstetrics, Gynecology, and Reproductive Sciences, University of California, San Francisco, San Francisco, California

**Study Objective:** To evaluate racial, ethnic, and economic disparities in the use of minimally invasive hysterectomy among women with uterine fibroids.

**Design:** This is a multi-state cross-sectional study of surgical data from January 2013 to December 2014.

**Setting:** Publicly available hospital data was used from the Healthcare Cost and Utilization Project State Inpatient and State Ambulatory Surgical Databases from four states.

**Patients:** Women >18 years with a diagnosis of uterine fibroids who underwent hysterectomy by any surgical approach were included in the analysis. Women were divided into two groups: a minimally invasive group that underwent laparoscopic or vaginal surgery and a group that had abdominal hysterectomy.

**Intervention:** All women underwent laparoscopic, vaginal, or abdominal hysterectomy for an indication of uterine fibroids.

**Measurements and Main Results:** There were 59,384 hysterectomies included in the analysis; 20,125 abdominal and 39,259 minimally invasive hysterectomies. In multivariable analysis that controlled for a wide range of demographic and clinical factors, women who were African-American/black, Hispanic, and Asian were less likely to undergo minimally invasive hysterectomy compared with white women (OR 0.43, 95% CI 0.41–0.45 for black women, OR 0.81, 95% CI 0.77–0.85 for Hispanic women and OR 0.50, 95% CI 0.44–0.57 for Asian women). Women without private insurance were also less likely to undergo minimally invasive hysterectomy (OR 0.52, 95% CI 0.49–0.55 for Medicaid and OR 0.28, 95% CI 0.25–0.31 for those who are uninsured). Hysterectomies performed in rural counties were less likely to be performed laparoscopically compared with urban settings (OR 0.82, 95% CI 0.74–0.91).

**Conclusion:** Non-white women and those without private insurance are less likely to undergo minimally invasive hysterectomy. These disparities in care may increase the risk of morbidity and mortality for minority women undergoing hysterectomy. Further study should evaluate the cause of these disparities and create effective interventions to reduce these gaps in care.

414 **Virtual Posters – Session 2** *(12:45 PM – 1:45 PM)*

1:03 PM – STATION D

**Eleven Years of Experience in Laparoscopic Hysterectomy in an Ambulatory Surgical Center**

Rosenfield R, Fogelson NS. Pearl Women’s Center, Portland, Oregon

**Study Objective:** To describe our longitudinal experience in outpatient laparoscopic hysterectomy over 11 years in an outpatient surgery center.

**Design:** We present 11 years of data on outpatient laparoscopic hysterectomy, including data on demographics, case type, complications, and patient satisfaction with care. Demographic and performance data are reported, with chi-square, T-Tests, and ANOVA performed for comparisons as appropriate. Year by year trends in surgical times are reported, as well as the impact of case characteristics on surgical and recovery times.

**Setting:** Pearl Surgicenter, An Medicare certified multi-specialty ambulatory surgery center in Portland, OR

**Patients:** 1,056 patients undergoing laparoscopic hysterectomy between October 2005 and September 2016.

**Intervention:** 857 LSHs were performed, and 199 TLHs. Indications included fibroids, menorrhagia, prolapse, pelvic pain, and simple/complex endometriosis. Pt mean age was 43, with mean BMI of 28, with 32% having a BMI > 30 and 15% with BMI > 35. 7% of cases involved concomitant incontinence procedures.

**Measurements and Main Results:** Of 1056 patients, 1052 achieved same day discharge. 4 patients experienced significant complication, three of which were repaired intraoperatively and one of which required transfer to a inpatient facility for management. 98% of patients were either satisfied or very satisfied with their experience. Surgical times averaged 102 minutes (95% CI 95.5–107.2) for TLH and 86 (95% CI 83.7 – 89.8) minutes for LSH. Time from surgical completion to discharge averaged 138 minutes (95% CI 134.8 – 141.6).

**Conclusion:** Laparoscopic hysterectomies of arbitrary complexity can be safely and efficiently performed in the ambulatory surgical setting with low complication rates and excellent satisfaction rates. High volume expert gynecologic surgeons can perform surgery with complication rates far lower than published averages. An increased use of the ASC setting for laparoscopic hysterectomy can save healthcare dollars while maintaining high quality standards.

415 **Virtual Posters – Session 2** *(12:45 PM – 1:45 PM)*

1:03 PM – STATION E

**Factors Influencing the Difficulty of Laparoscopic Myomectomy:**

**A Delphi Approach**

Leung M,1 Marij A,1 Allaire C,2 Singh S,3 Thiel J,4 Tulandi T,5 Shore E. 6

1Department of Obstetrics and Gynecology, University of Toronto, Toronto, Ontario, Canada; 2Department of Obstetrics and Gynecology, University of British Columbia, Vancouver, British Columbia, Canada; 3Department of Obstetrics, Gynecology, and Newborn Care, University of Ottawa, Ottawa, Ontario, Canada; 4Department of Obstetrics and Gynecology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; 5Department of Obstetrics and Gynecology, McGill University, Montreal, Quebec, Canada

**Study Objective:** To obtain expert consensus on what patient and fibroid characteristics make laparoscopic myomectomies (LM) more challenging and to use these factors to create an objective grading tool for evaluating LM.

**Design:** Modified Delphi Technique.

**Setting:** Online survey using web-based software SurveyMonkey.

**Patients:** Experienced advanced minimally invasive gynaecological surgeons (MIGS) who perform LM representing a Canada-wide geographic distribution.

**Intervention:** Participants were invited to participate in an online survey which listed pre-operative patient factors, pre-operative uterine factors, and intra-operative procedural factors relating to LM. Participants were asked to rate each item on a Likert Scale (1 strongly disagree to 5 strongly agree) based on the degree it influences the difficulty of LM.

**Measurements and Main Results:** Twenty-seven surgeons from across Canada participated. Most (23/27, 85%) were MIGS Fellowship trained, and performed more than 6 LM per year (18/27, 66.7%). Consensus was achieved in the first round of the survey (Cronbach α = 0.93). In the final rating, 16 of 27 factors met the criteria for inclusion (>80% respondents agreed or strongly agreed) in the final rating tool. Factors that met the criteria for inclusion were grouped as patient factors (including BMI), uterine factors (including number of fibroids, size of largest fibroid), and surgical factors (including ease of developing the cleavage plane).

**Conclusion:** This study used Delphi methodology to obtain expert consensus on the elements to include in an objective rating tool for LM. Consensus was achieved in the first round of the survey. Ultimately, we plan to validate this tool.
Fertility and Pregnancy Outcome after Laparoscopic Myomectomy

Martin Blanco C, Vega Carrillo de Albornoz A, López Carrasco I, Morello Bartolomé E, Miro Matos M, Salvador A, Montero Pastor N, Cano Vico ML. Gynecology and Obstetrics, Montepirincipe University HM Hospital, Boadilla del Monte, Madrid, Spain

Study Objective: Myomectomy is a procedure often reserved for the treatment of symptomatic leiomyomas in women who desire fertility preservation. This surgery often leads to significant blood loss and produces a scar in the uterine body, so it is important to know what possible effects may have on the fertility of these patients. The purpose of our study is to assess the rates of postoperative fertility and pregnancy outcomes after laparoscopic myomectomy with a single surgeon.

Design: A retrospective case series.

Setting: Montepirincipe University HM Hospital in Madrid, Spain. Third Level Hospital.

Patients: 154 women that underwent laparoscopic myomectomy between April 2009 and March 2017.

Intervention: Laparoscopic myomectomy.

Measurements and Main Results: We analyzed 154 women with a mean age of 36.5 years. In 17.53% of the cases, the indication of surgery was fertility issues, and 20.77% of them achieved pregnancy in the mean time of 36.5 years. In 17.53% of the cases, the indication of surgery was fertility issues.

Conclusion: Laparoscopic myomectomy seems to be a good approach for those women who desire pregnancy. No obstetrics complications were found in relation with this surgery.

Identification of Factors Associated with Laparoscopic Myomectomy Transfusion Requirement

Gingold JA, Flyckt R. Women’s Health Institute, Cleveland Clinic Foundation, Cleveland, Ohio

Study Objective: To identify factors associated with need for transfusion related to laparoscopic myomectomy.

Design: Retrospective cohort study of patients who underwent laparoscopic myomectomy between 2011 and 2016. Study was performed under IRB approval.

Setting: Single-center at large academic medical center.

Patients: Patients (n = 140) were identified through chart review of all laparoscopic myomectomies. Cohort was restricted to cases performed by benign generalist and subspecialist gynecologic surgeons.

Intervention: Patients all underwent elective laparoscopic myomectomy.

Demographic parameters were gathered for each surgery and patient, and patients were stratified by requirement of RBC transfusion within 1 week of planned surgery. The blood loss, pre- and post-operative hemoglobin, length of stay and transfusion requirements both within and outside the OR were identified for each patient.

Measurements and Main Results: Of 140 patients (5%) ultimately required RBC transfusion within a week of surgery. A mean of 2.57 ± 1.27 units of blood were transfused. 4 of these patients required transfusion in the OR, receiving a mean of 2 ± 1.15 units. Compared with patients who did not require transfusion, patients were more likely to undergo myomectomy for ≥5 myomas (86% vs 35%, odds ratio 11.17, p < .05). Other demographic and clinical parameters including preoperative hemoglobin, myomectomy ≥250g, ethnicity or history of cesarean delivery were not significantly different between the transfused and non-transfused groups.

Patients who required a transfusion were noted to have a substantially increased EBL compared with non-transfused patients (mean difference 544.57 mL, 95%CI (184.41, 904.73 mL), p < .01) and have a lower post-operative hemoglobin nadir (mean difference -2.32 g/dL, 95%CI (-3.98, -0.66 g/dL), p < .05).

Conclusion: RBC transfusion in laparoscopic myomectomy remains relatively uncommon, noted in about 5% of cases. Presence of ≥5 myomas is the primary preoperative risk factor for transfusion. While the lack of significant association between transfusion and preoperative hemoglobin or myoma weight is surprising, these findings may be limited by sample size.
419  Virtual Posters – Session 2  
(12:45 PM – 1:45 PM)  

1:09 PM – STATION A  

Incorporating Minimally Invasive Nerve-Sparing Radical Hysterectomy for Locally-Advanced Cervical Cancer  

Bogani C,1 Ghezzi F,1 Ditto A,2 Martinelli F,2 Signorelli M,1 Ferrero S,1 Leone Roberti Maggiore U,1 Chiappa V,2 Lorasso D,1 Raspagliesi F,1  
1National Cancer Institute, Milano, Italy; 2University of Insubria, Varese, Italy; 1IRCCS AOU San Martino, Genova, Italy  

Study Objective: To determine the incidence, natural course, and specific characteristics of postlaparoscopic shoulder pain (PLSP).  

Design: Prospective cohort study.  

Setting: University hospital.  

Patients: 105 patients undergoing laparoscopy for benign gynecologic diseases  

Intervention: Laparoscopy.  

Measurements and Main Results: The intensity of pain, and the identification of the pain site, was assessed 24- and 48-hour after surgery, using a visual analogue scale. The description and intensity of PLSP, its aggravating and relieving factors, and the response to analgesics was assessed over a 1-week period using a self-reported questionnaire. Of 105 patients, 84 (80%) experienced PLSP. PLSP along with wound pain peaked one day after surgery, gradually subsided, and were not reported by the seventh day after surgery. Of the 84 patients experiencing PLSP, 77 (91.7%) had aggravating and relieving factors, which included position change (48.8%) and rest (42.9%), respectively. Analgesics provided significantly less pain relief for PLSP (32.7 ± 32.2%), when compared to relief of wound pain (68.0 ± 16.2%) (p < .001).  

Conclusion: PLSP, identified in 80% of our patients, resolved in most patients within the first week after laparoscopy. Since PLSP is less responsive to analgesics, when compared to wound pain, surgeons should pay attention to the prevention of PLSP among patients undergoing laparoscopy.
Laparoscopic Abdominal Cerclage: Surgical and Obstetric Outcomes of 106 Cases
Clark NV, Rademaker D, Mushinski AA, Ajao MO, Cohen SL, Einarsrson JI. Minimally Invasive Gynecologic Surgery, Brigham and Women’s Hospital, Boston, Massachusetts

Study Objective: To evaluate surgical and obstetric outcomes following laparoscopic abdominal cerclage (LAC) for the treatment of cervical insufficiency.

Design: Retrospective case series and follow-up patient survey.

Setting: A large academic medical center.


Intervention: Patients underwent LAC for the treatment of cervical insufficiency.

Measurements and Main Results: A total of 106 LAC were performed: 95 (89.6%) pre-conception and 11 (10.4%) post-conception. The most common indication for an LAC was at least one prior failed transvaginal cerclage (69/106, 65.1%). Other indications included multiple second trimester losses or extreme preterm births, and/or a history of cervical LEEP, conization, trachelectomy, or laceration. Mean operative time was 55 ± 29 minutes, estimated blood loss was 27 ± 20 mL, and there were no major perioperative complications. Sixty-five (61.3%) women had a total of 72 subsequent pregnancies that extended beyond the first trimester. Sixty-seven (93.1%) pregnancies resulted in live births at 32 weeks of gestation or greater: 44 (61.1%) preconception and 20 (29.4%) post-conception. Sixty-five (61.3%) women had a total of 72 subsequent pregnancies that extended beyond the first trimester. Sixty-seven (93.1%) pregnancies resulted in live births at 32 weeks of gestation or greater: 44 (61.1%) preconception and 20 (29.4%) post-conception.

Conclusion: Laparoscopic abdominal cerclage is a safe and effective procedure for treating cervical insufficiency.

Abstract Withdrawn

Laparoscopic Radiofrequency Ablation (Lap-RFA) of Symptomatic Myomas and Laparoscopic Myomectomy (LM): Long-Term Outcomes From a Randomized Trial of Uterine-Sparing Techniques Krämer MS, Neis F, Taran A, Schöller D, Issacson K, Brucker S. 1Department of Obstetrics and Gynecology, University of Tübingen, Tübingen, Germany; 2Minimally Invasive Surgery, Newton-Wellesley Hospital, Newton, Massachusetts

Study Objective: Compare subject-reported outcomes at 48 months post-Lap-RFA and LM.

Design: 1:1 Randomized, prospective, single-center, longitudinal analysis of Lap-RFA to LM at 48 months of follow-up.

Setting: University hospital in Germany.

Patients: Fifty premenopausal women ≥ 18 years old with symptomatic myomas who desired uterine conservation and reproductive function and who were indicated for surgical intervention for their myoma symptoms.

Intervention: Lap-RFA or laparoscopic myomectomy.

Measurements and Main Results: Consented subjects were randomized (1:1) intraoperatively to Lap-RFA or LM after laparoscopic (contact) ultrasound mapping of their myomas. Twenty-eight subjects (Lap-RFA: n = 12; LM: n = 16) had 48-month postoperative evaluations based on validated questionnaires. Mean transformed symptom severity scores improved (decreased) for the Lap-RFA subjects by −44.8% from the mean baseline value to 22.6 ± 21.7 [95% CI: 8.8, 36.4]. Over the same period, mean transformed symptom severity scores improved for the LM subjects by −33.3% to 26.2 ± 25.6 [95% CI: 12.5, 39.8]. At 48 months, health-related quality-of-life (HRQL) scores improved (increased) over baseline for Lap-RFA subjects by 12.8% to 86.8 ± 16.9 [95% CI: 76.0, 97.5] and—for LM subjects—by 18.8% to 84.0 ± 24.0 [95% CI: 71.2, 96.8]. Mean EQ-5D scores improved (increased) from baseline for Lap-RFA subjects by 5.1% to 85.5 ± 11.2 [95% CI: 78.4, 92.6] and for LM subjects by 12.7% to 79.4 ± 16.5 [95% CI: 70.7, 88.2]. Three Lap-RFA subjects conceived 4 times, culminating in 4 full-term deliveries of healthy infants. Five LM subjects conceived 8 times: 3 pregnancies terminated spontaneously (n = 1) or therapeutic (n = 2) abortions, 4 pregnancies resulted in full-term deliveries of healthy infants, and 1 delivery is pending. Lap-RFA (91.7%) and LM (100%) subjects were moderately-to-very satisfied with their treatment.

Conclusion: Long-term data suggest equivalent clinical outcomes after Lap-RFA and laparoscopic myomectomy.

Case Study Sadek S, Alciade A. Obst/Gyn, Flushing Hospital Medical Center, Flushing, New York
We identified a 39 year-old woman, G2P2 complaining of chronic pelvic pain, and migraines. The patient had Essure® implants and desired their removal. The pelvis was accessed laparoscopically and an incision was made on the proximal fallopian tube. The Essure® implant was dissected using graspers. Using tension, the implant was removed from the distal end of the tube. The second half of the implant was dissected and removed from the proximal end of the tube. Both ends were cauterized for hemostasis. The same procedure was repeated on the right side.

The patient was seen on the Post-operative day 7 and 28, with resolution of her symptoms. There has been an increase in Essure® implant removal. An ideal technique has yet to be described. This video describes a simple two-step procedure removing both distal and proximal ends of the implant. Deviation from this technique could lead to retention of the implant.

Laparoscopic Repair of a Cesarean Section Scar Defect/Isthmocele Mahmoud MS. Obstetrics and Gynecology, University of Rochester School of Medicine and Dentistry, Rochester, New York
Cesarean scar defect or isthmocele is a relatively newly recognised entity. Patients with previous cesarean section can have this complication. There is no consensus on the definition or management, but it is usually identified as a triangular defect at the area of prior hysterotomy on pelvic imaging. This pathology can cause abnormal uterine bleeding and chronic pelvic pain among other symptoms. Laparoscopic and hysteroscopic treatment have been described in small case reports and series. We present a case of laparoscopic repair of a cesarean scar defect. Step by step technique is demonstrated.
Laparoscopic Resection of a Retroperitoneal Mass: a Case Report

**Patients:** This is a case report of a 70 year old woman with abnormal uterine bleeding. Upon evaluation, endometrium was normal, however, imaging revealed a complex right adnexal cyst. Her medical history included type 2 diabetes, hypertension and an anterior angiomyolipoma in the right kidney. Initial ultrasonography showed a posterior 1.90 cm fibroid and an unchanged anterior AML in the right kidney. Ultrasonography at 7 months follow-up showed an enlarged right ovary containing a 2.7 cm x 2.6 cm heterogenous mass in the left cornual region consisting of ectopic remnants. The patient was ultimately consented for a left cornual oophorectomy.

**Conclusion:** Per ACOG recommendations, a pelvic mass and elevated CA 125 in postmenopausal women is suspicious for malignancy. Patients should be referred to gyn oncology or treated with gyn oncology available. Minimally invasive procedures are preferred route of surgery. Primary masses of pelvic retroperitoneum are rare, but often diagnosed as gynecologic in origin. The accurate preoperative diagnosis of intraperitoneal mass (most being gynecologic in nature) versus a retroperitoneal mass guides therapeutic approach.

**Fig. 1:** Computed Tomography (CT) demonstrating "adnexal mass".

**Fig. 2:** Intraoperative pictures of retroperitoneal mass.
Virtual Posters – Session 2 (12:45 PM – 1:45 PM)

1:15 PM – STATION D

Laparoscopic Trachelectomy
Sisto JM, Stockwell E, Pedroso J, Gatierrez M, Volker W. Las Vegas Minimally Invasive Surgery, Las Vegas, Nevada

Laparoscopic trachelectomy is a safe and effective treatment for patients with sequelae after supracervical hysterectomy. Following a few simple steps allows for facilitated dissection of the cervix. Understanding the anatomy of the ureter and bladder is essential to avoid injury to these important structures. This video demonstrates a surgical guide for performing a laparoscopic trachelectomy safely and efficiently.

Virtual Posters – Session 2 (12:45 PM – 1:45 PM)

1:15 PM – STATION E

Laparoscopic Uterine Artery Pedicle Creation and Lateralization
Secter MB, Kroft J. Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

This video presents a laparoscopic technique of creation and lateralization of a sutured uterine artery pedicle. The technique practiced at our institution is reproducible, reliable and low cost. Following the isolation of the uterine arteries, a suture is placed to secure the uterine blood supply. Following bipolar coagulation the uterine arteries, cardinal ligaments and uterosacral ligaments are lateralized with fine dissection with the carbon dioxide laser. This technique allows a secured, hemostatic pedicle to be dropped below the level of the coldprobe, ensuring minimal blood loss at the time of colpotomy. The presented technique is particularly useful in difficult cases due to endometriosis or distortion from large fibroids. The described technique avoids the use of advanced and expensive technology, and is highly valuable in a setting where it may not be widely available or reliable. The video is also intended as an educational tool for surgeons at all levels.

Virtual Posters – Session 2 (12:45 PM – 1:45 PM)

1:15 PM – STATION F

Long Utero-Ovarian Ligament Length Might be a Risk Factor for Ovarian Torsion: a Prospective Study
Tamir I., Schuman R., Agizim R., Sharvit M., Hakkin Herzberger E., Daykan Y., Klein Z., Wiser A.1,2, 1Department of Obstetrics and Gynecology, Meir Medical Center, Kfar Saba, Israel; 2Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel

Study Objective: To evaluate whether there is an association between utero-ovarian ligament (UOL) length and ovarian torsion.

Design: Prospective case control study.

Patients who underwent gynecological laparoscopy were enrolled. They were grouped according to those who had ovarian torsion and those with other etiologies.

Setting: Gynecological department in a university-affiliated hospital.

Patients: A total of Fifty-six patients were recruited from 2013 through 2015. Twenty-eight (50%) had ovarian torsion and the other 28 were operated for other gynecological indications.

Demographics

<table>
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<td>BMI</td>
<td>23.5 ± 5</td>
<td>25.9 ± 5.6</td>
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<td>Gravida</td>
<td>1.3 ± 1.5</td>
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<td>Parity</td>
<td>0.9 ± 0.7</td>
<td>1.6 ± 1.9</td>
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<tr>
<td>Smoking</td>
<td>14.8%</td>
<td>17.2%</td>
<td>.8</td>
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Intervention: During the laparoscopic surgery, right and left UOL were measured with a sterile ruler.

Measurements and Main Results: The mean length of the right and left UOL in patients without torsion were similar at 2.2 ± 0.6 cm and 2.3 ± 0.8 cm, respectively. Most ovarian torsions occurred on the right side. The right UOL was significantly longer in the torsion group (mean 3.3 ± 0.9 cm) compared to the control group (2.2 ± 0.6 cm; p < .001). When patients with ovarian cyst were excluded, the UOL was still significantly longer in the torsion group compared to control group (3.2 ± 1.1 cm vs. 2.2 ± 0.6 cm respectively, p = .01).

Ovarian ligament measurements

R vs. L ovarian ligament in the control group

R (n = 28) = 2.2 ± 0.6 cm
L (n = 28) = 2.3 ± 0.8 cm
p = .42

R ovarian torsion compared to normal L side in the study group

R Torsion (n = 19) = 3.2 ± 0.9 cm
L side of R torsion (n = 15)* = 3.2 ± 0.9 cm
p < .0001

R ovarian ligament: Study vs. Control

R Torsion (n = 19) = 2.9 ± 0.9 cm
R no torsion (n = 28) = 2.2 ± 0.6 cm
p = .24

R ligament without torsion with and without cyst

R cyst (n = 12) = 2.9 ± 0.9 cm
R no pathology (n = 30) = 2.5 ± 1.0 cm
p = .24

R ligament with torsion with and without cyst

R torsion, no cyst (n = 12) = 3.2 ± 1.1 cm
R torsion with cyst (n = 7) = 3.3 ± 0.9 cm
p = .76

R ligament without cyst Study vs. Control

R Torsion, no cyst (n = 12) = 3.2 ± 1.1 cm
R no pathology (n = 28) = 2.2 ± 0.6 cm
p = .0114

R = right; L = left.

*p4 patients missing data.

Conclusion: The results reported in the present study are statistically significant and can be the basis for further studies. We cautiously state that ovarian ligament longer than 3 cm may be a risk factor for ovarian torsion.
Minimally Invasive Surgery during Pregnancy
Yoder C, Naumann RW, Brown J. Obstetrics and Gynecology, Carolinas Medical Center, Charlotte, North Carolina

The decision on how to manage adnexal masses in pregnancy is controversial. However, it is an issue that needs to be addressed as the prevalence of such masses is as high as 1–4% during pregnancy. Although most of these masses are benign, 5% are found to be malignant and may also result in torsion. The most common approach used when operating on pregnant patients has been a laparotomy with a midline incision. However, multiple retrospective studies have recently shown the safety, feasibility, and benefits of minimally invasive surgery in the removal of adnexal masses in pregnant patients.

Minimally Invasive Surgery in Ovarian Cancer: Safe and Effective for a Variety of Indications

Study Objective: To determine indications, safety, and efficacy of minimally invasive surgery (MIS) in ovarian cancer patients.

Design: A retrospective review of consecutive patients with ovarian cancer treated at one institution between April 2006 - February 2017 who underwent minimally invasive surgery as part of treatment. Billing records were queried and charts were reviewed; data were abstracted and analyzed with descriptive statistics.

Setting: A not-for-profit comprehensive academic health care system in an urban setting with 7 staff gynecologic oncologists.

Patients: All consecutive patients with invasive primary ovarian, tubal, or peritoneal cancer who underwent MIS as part of treatment. Patients with endometriosis only, low malignant potential or metastatic tumors were excluded.

Intervention: Patients underwent laparoscopic or robot-assisted surgery as part of treatment for ovarian cancer.

Measurements and Main Results: We identified 417 patients who underwent a total of 540 MIS procedures as part of their treatment for invasive ovarian cancer. Indications for surgery included suspected ovarian cancer (n = 243), interval cytoreduction (n = 51), intraperitoneal (IP) catheter placement/removal (n = 169), recurrent disease (n = 67), and other (n = 10). Surgical procedures included diagnostic biopsy (n = 27), primary staging/curtoreductive surgery (n = 216), interval cytoreductive surgery following neoadjuvant chemotherapy (n = 51), IP catheter placement (n = 63), second look surgery +/- intraperitoneal (IP) catheter removal (n = 106), laparoscopy to confirm recurrent disease (n = 15), cytoreductive surgery for recurrence (n = 50), colostomy reversal (n = 9), splenectomy (n = 2), and repair of vaginal cuff separation (n = 1). Of the 540 procedures, 72 (13%) were converted to open procedures. For evaluated procedures, estimated blood loss = 60 mL (range, 0–2600 mL); 8% had intraoperative complications including enterotomy, trocar injury, and hemorrhage; 37% had minor to major postoperative complications and 7% were admitted to the ICU. One postoperative death occurred. Median hospital stay was 1 day (range, 0–40 days).

Conclusion: Minimally invasive surgery has multiple applications in the treatment of patients with ovarian cancer. It is safe, effective, and feasible within this scope of practice.

Laparoscopic procedures in Gynecology are common and well established. Complication rates vary dependent on the experience of the surgeon, available equipment, chosen procedure, socioeconomic status of the patient and regional and national differences. Results of research on surgical procedures vary widely with an overall complication rate from 0.2% up to 10.3%. Therefore it seems to be very important to investigate the complication rate in a whole population.

Design: Prospective cohort study with a 4 to 6 weeks follow-up period.

Setting: Secondary and tertiary care level hospitals in Norway.

Patients: 7,121 patients undergoing laparoscopy for benign and malignant gynecological diseases between 2013 and 2016.

Intervention: All kind of gynecological laparoscopy.

Measurements and Main Results: We used continuously the database of the national Norwegian Gynecological Endoscopic Registry (NGER) from 01.02.2013 until 31.12.2016 to observe the complications of laparoscopy in Norway. The online registration of laparoscopic procedures in the NGER is mandatory in Norway and includes demographic factors, general health parameters, information about comorbidity and previous surgery, documentation of the present surgery and intra-operative complications. 4 to 6 weeks postoperatively a questionnaire was sent to the patients to document complications. In the above period there were performed 7,121 laparoscopies. The intraoperative complication rate was 2.9%. Organ injury (1.1%) represents the main part of intraoperative complications whereof vessel injury (0.4%) is the most common reason. Frequency of postoperative complications was 11.3%, whereof infections (9.6%) represent most of the postoperative complications. Complications observed after laparoscopic surgery were mild in 9.0%, moderate in 1.6% and severe in 0.7% cases.

Conclusion: Laparoscopic procedures, recorded in the NGER, were associated with postoperative complications in 11.3% of all patients. 0.7% of patients had severe complication after laparoscopy. Our results confirm previous findings - the use of minimal invasive surgery in gynecology is safe and efficacious.

Off-Label Use of Laparoscopic Radiofrequency Ablation (Lap-RFA) to Treat Adenomyoma in Gravida 4 Para 0 Patient
Quezada C, Alamo Women’s Health, San Antonio, Texas

Study Objective: To present the off-label treatment of an adenomyoma with Lap-RFA in a G4P0 woman with a suspected 2.5-cm anterior fundal fibroid on preoperative transvaginal ultrasound.

Design: Case report.

Setting: Privat practice in Texas.

Patients: A white, 30-year-old G4P0 female with a history of recurrent spontaneous abortions presented with an 8-week gestational size uterus, dysmenorrhea, menorrhagia with worsening menses, metrorrhagia, bloating, and lethargy with lightheadedness. Preoperative transvaginal ultrasound detected an apparent 2.5-cm anterior fundal fibroid.

Lap-RFA.

Measurements and Main Results: Intraoperative laparoscopic (contact) ultrasound revealed a 3-cm amorphous hypoechoic lesion suggesting adenomyosis and not leiomyoma. The surgeon ablated the lesion and the patient was discharged the same day without complications. She was
pain-free by 2-weeks post procedure and, at 4 months, transvaginal ultrasound detected no lesion. By that time, the patient had a normal sized uterus, normal and regular menses, and no dysmenorrhea. At 3 months post procedure, she was treated medically by a reproductive endocrinologist and, in 7 months, conceived. After an uneventful pregnancy, she delivered a full-term healthy infant by Cesarean section.

Conclusion: In this challenging patient, adenomyosis was apparent on contact ultrasound and ensuing laparoscopic radiofrequency ablation of the adenomyoma provided dramatic relief of her presenting symptoms as well as an environment conducive to conception and term gestation.

437 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:21 PM – STATION C

Opioid Prescription and Patient Use Following Hysterectomy
Griffith KC,1 Clark NV,1 Zackerman AL,1 Ferzandi TR,1 Wright KN2.1 Obstetrics & Gynecology, Tufts Medical Center, Boston, Massachusetts; 2Gynecology, Lahey Hospital and Medical Center, Burlington, Massachusetts

Study Objective: To describe opioid prescription and patient use following hysterectomy. To determine if gynecologists prescribe or patients use fewer opioids for minimally-invasive compared to abdominal hysterectomy.

Design: A pilot study including 1) a physician survey on opioid prescribing practices, and 2) a retrospective patient survey on opioid consumption following hysterectomy.

Setting: An academic medical center.

Patients: Boston-area gynecologists and women who underwent a benign hysterectomy.

Intervention: An online survey was distributed to 96 gynecologists. A telephone survey was conducted with 147 women who underwent a benign hysterectomy between 2015 and 2016.

Measurements and Main Results: Fifty-one gynecologists responded to the physician survey (53.1%). Gynecologists reported prescribing a median of 30 tabs of oxycodone (5 mg) or dilaudid (2 mg) (range 5–30) after abdominal hysterectomy (AH) and a median of 20 tabs after laparoscopic hysterectomy (LH) or vaginal hysterectomy (VH) (range 5–30). Gynecologists prescribed significantly more opioids for AH compared to LH with a mean difference of 4.5 tabs (SD 4.7, p = .001). Fifty-six women participated in the patient survey (38%). The majority of women (36/56, 64.6%) used less than half of the opioids prescribed, and 16.1% (9/56) used zero. Mean difference of 4.5 tabs (SD 4.7, p = .001). Fifty-six women participated in the patient survey (38%). The majority of women (36/56, 64.6%) used less than half of the opioids prescribed, and 16.1% (9/56) used zero

Conclusion: Physicians report prescribing fewer opioids following a minimally-invasive compared to an abdominal hysterectomy; however, women report similar opioid use for both procedures. Most women use less than half of prescribed opioids and a fraction do not use any at all following a hysterectomy.

Design: This is a cross-sectional analysis of 16 State Ambulatory Surgery and Services Databases from 16 states with complete information for the year 2011.

Setting: n/a.

Patients: Adult women undergoing hysterectomy for benign or oncologic indication were included.

Intervention: Procedure volume, route and associated patient and surgical characteristics were calculated.

Measurements and Main Results: There were 64,612 ambulatory hysterectomy cases reported; 81.5% of cases were performed laparoscopically and 16% vaginally. If these numbers are extrapolated to national estimates, this represents 100–200,000 outpatient hysterectomy cases per year. The strongest driver of laparoscopic, compared to vaginal, route of hysterectomy in this dataset was presence of cancer (OR 4.01 (3.19, 5.05), p < .001). In addition to indication for surgery, patient characteristics such as age, race, income, location and primary payer were associated with mode of hysterectomy. The laparoscopic cases were associated with shorter length of stay (mean stay 0.65 days, 99% CI (0.65, 0.66) compared to 0.79 days (0.78, 0.81), aIRR 0.89 (0.86, 0.92), p < .001) and higher mean charges ($24,227 ($24,053, $24,402) versus $14,068 ($13,811, $14,330, p < .001) compared to vaginal cases.

Conclusion: The perceived decline which has been reported in national hysterectomy volume may represent lack of reporting of cases performed in ambulatory settings. This information has considerable implications for business, public health interventions and insurance carriers among other key stakeholders in women’s health care delivery.

439 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:21 PM – STATION E

Post-Operative Belladonna and Opium Suppositories for Pain Management Following Laparoscopic Hysterectomy: a Randomized Clinical Trial
Reinert AE,1 Murphy L,2 Morozov V3, Audlin KM3.1 Department of Obstetrics, Gynecology, and Reproductive Sciences, University of Maryland Medical Center, Baltimore, Maryland; 2Institute for Gynecologic Care - The Gynecology Center, Mercy Medical Center, Baltimore, Maryland

Study Objective: To assess the use of a single Belladonna and Opium (B&O) suppository placed at the conclusion of laparoscopic or robotic hysterectomy for postoperative pain.

Design: Single-center, double-blinded, randomized, placebo-controlled trial.

Setting: Academic affiliated community hospital.

Patients: Women undergoing total laparoscopic or robot-assisted hysterectomy, recruited from a gynecology practice with five fellowship-trained surgeons.

Intervention: Belladonna and Opium 16A (16.2/60 mg) or placebo Glyceral suppository placed rectally at the conclusion of surgery, prior to reversal of general anesthesia.

Measurements and Main Results: 47 women were randomly assigned to treatment groups. Demographics did not differ significantly among the groups. Patient-reported pain data were collected with the use of a visual analog scale per PACU protocol. Opiate use was measured and converted into oral morphine equivalents (OMEs). The primary outcome was pain; secondary outcomes included antiemetic and pain medications received in the PACU, and time to discharge from PACU Phase I. The B&O group used a mean of 20.3 mg OMEs compared with 20.2 mg OMEs for placebo (p = .49). Average pain did not vary significantly between the two groups at any time point examined. Use of a preoperative scopolamine patch was significantly higher among the placebo group (p = .014). Use of antiemetic medications was similar between the two groups, including when the scopolamine patch subgroup was excluded from analysis. Average time to discharge from PACU Phase I was 87 minutes for the B&O group, vs. 105 minutes for the placebo group (p = .08). For patients who received Toradol
(n = 41), time to discharge from PACU Phase I was 82 minutes for the B&O group, vs. 104 minutes for the placebo group (p = .05).

Conclusion: B&O suppositories did not significantly lower pain or narcotic use during PACU recovery, but did reduce time to discharge from PACU phase I. Subgroup analysis suggests that specific patient populations may benefit from B&O use.

440 Virtual Posters – Session 2 (12:45 PM – 1:45 PM)

1:21 PM – STATION F

Postoperative Pain after Extracorporeal Uterine Morcellation Routes at the Time of Total Laparoscopic Hysterectomy for Benign Disease
McGregor A, Martin L, El-Nashar S, Billow M. Gynecology, University Hospitals Cleveland Medical Center, Cleveland, Ohio

Study Objective: The primary objective is to compare postoperative pain in patients undergoing extracorporeal uterine morcellation during a total laparoscopic hysterectomy (TLH) for benign disease with patients that do not require morcellation. The secondary objective is to compare postoperative pain after vaginal and transumbilical extracorporeal uterine morcellation.

Design: Retrospective cohort study.

Setting: Academic tertiary care medical center.

Patients: Patients undergoing TLH with or without adnexal surgery from January 2015 to December 2016 by MIGS trained gynecologic surgeon for benign indications.

Intervention: Patients who underwent extracorporeal uterine morcellation at the time of TLH were compared to patients who did not require extracorporeal uterine morcellation. Patients were further divided into type of extracorporeal uterine morcellation (vaginal vs transumbilical). Postoperative pain was assessed by the visual analog scale (VAS) at 4 hour increments postoperatively.

Measurements and Main Results: A total of 60 patients with TLH were reviewed. Of these, 32 patients underwent extracorporeal uterine morcellation and 28 women did not require morcellation. Of the morcellation group, 19 underwent vaginal extracorporeal uterine morcellation and 13 underwent trans-umbilical extracorporeal morcellation. There was no difference in the maximum VAS pain scores at 12 hrs (p = .570) or at 24 hrs (p = .921) between the morcellation and non-morcellation groups. There were no differences in VAS pain scores between the vaginal and trans-umbilical extracorporeal morcellation groups (p = .193). There were no statistically significant differences in patient demographics including age, BMI, race, smoking status or insurance type, See Table 1.

Conclusion: Patients undergoing TLH did not experience more pain with extracorporeal uterine morcellation compared with patients who did not require morcellation. The mode of extracorporeal morcellation, vaginal versus transumbilical, did not demonstrate significant differences in postoperative pain scores.

Clinical characteristics

<table>
<thead>
<tr>
<th>Clinical characteristic</th>
<th>Morcellation</th>
<th>p-value</th>
<th>Mode of Morcellation</th>
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<td>Caucasian race</td>
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<td>Public insurance</td>
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<td>Smoker</td>
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<td>Indication for surgery - abnormal uterine bleeding</td>
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<td>Secondary indication for surgery - fibroids</td>
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<td>Secondary indication for surgery - pain</td>
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<td>Uterine weight (g)</td>
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<td>Estimated blood loss</td>
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<td>Prior pelvic surgery</td>
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<td>Prior spontaneous vaginal delivery</td>
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<td>Maximum VAS score in first 12 hrs post-op</td>
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<td>Maximum VAS score 12–24 hrs post-op</td>
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<td>Maximum VAS score in first 24 hrs postop</td>
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Study Objective: To determine pregnancy and fetal outcomes in women with uterine fibroids who conceived during or following treatment with ulipristal acetate (UPA).

Design: Retrospective case series.

Setting: Multi-center study including both university and academic affiliated hospitals.

Patients: Patients who became pregnant during or following UPA treatment for uterine fibroids with or without post-UPA myomectomy.

Measurements and Main Results: We report on 33 women who achieved a total of 40 pregnancies following UPA treatment: 35 (88%) spontaneous and 5 (13%) with assisted reproductive techniques. Twenty-two (55%) pregnancies resulted in the live births of 23 healthy babies. At higher doses, UPA is used as emergency contraception, however four patients in our series conceived while taking UPA and the pregnancies resulted in one therapeutic abortion, one live birth, one spontaneous abortion and one ongoing pregnancy. Thirteen women conceived directly following UPA treatment, without interval myomectomy, at a median time to pregnancy of 3.0 months (range 0.5–26.4). Three patients who did not undergo a myomectomy following UPA required myomectomy at the time of cesarean section. Overall, there was 1 intrauterine fetal death, 3 preterm deliveries and no reported fetal malformations. The average gestational age at delivery was 38.0 ± 3.0 weeks.

Conclusion: This is largest reported series in the literature evaluating pregnancy outcomes following UPA treatment. Our results add to the growing experience with SPRMs and pregnancy outcomes worldwide. Larger prospective studies are needed.

442 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

Resection of the Broad Ligament Peritoneum for Treatment of Allen-Masters Syndrome
Poppen K, Aihlawalia P. St. Elizabeth Medical Center, Utica, New York

Allen-Masters Syndrome is defined as defects in the broad ligament that result in peritoneal pockets. Classically, it was described in relationship to congenital defects and birth or operative trauma. More recently, Allen-Masters Syndrome has been found in patients with a history of pelvic inflammatory disease or endometriosis. Patients present with dyspareunia, dysmenorrhea, and/or deep pelvic pain. Their symptoms are often characterized as psychosomatic if not properly recognized by their clinician. The objective of this presentation is to discuss Allen-Masters syndrome, review the relevant anatomy, and demonstrate a technique for resecting the broad ligament peritoneum.

443 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

Risk Factors for Vaginal Cuff Dehiscence: a Case-Control Study
Maheshwari D,1 Solomon E,1 Harmanli O.2 Urogynecology and Pelvic Surgery, UMSMS-Baystate, Springfield, Massachusetts; 2Urogynecology and Pelvic Reconstructive Surgery, Yale School of Medicine, New Haven, Connecticut

Study Objective: To determine risk factors for vaginal cuff dehiscence after all modes of hysterectomy.

Design: Retrospective case-controlled study.

Setting: Academic affiliated community hospital.

Patients: Women undergoing laparoscopic, robotic, abdominal or vaginal hysterectomy for benign or malignant indications between 2006 and 2016.

Intervention: Cases and controls were identified from billing data using procedure codes, supplemented with review of electronic medical record and operative notes. Cases were identified as patients who experienced vaginal cuff dehiscence within 1 year of hysterectomy. Controls were matched by age and year of hysterectomy up to 1:4.

Measurements and Main Results: The analysis dataset included 32 cases and 122 controls. Mean (SD) age was 42.20 (11.91), mean (SD) BMI was 30.08 (7.53) with 46% having a BMI equal or greater than 30. Age and BMI were similar between cases and controls. Factors used in the multivariable analysis besides hysterectomy mode included race, BMI, tobacco use, history of diabetes, COPD, use of anticoagulant therapy, malignancy as indication for the hysterectomy and precipitating event for cuff dehiscence including postoperative pelvic hematoma and postoperative cuff cellulitis. None of the factors, apart from hysterectomy, were statistically significant. Compared with vaginal hysterectomy, subjects who received laparoscopic hysterectomy were more likely to experience a cuff dehiscence (OR 2.9, CI 1.1; 7.7). The odds ratio for robotic hysterectomy was also higher compared to vaginal hysterectomy but did not reach statistical significance (OR 1.8, CI 0.6; 5.0).

Conclusion: Our findings suggest that the most significant risk factor for vaginal cuff dehiscence may be route of closure of the vaginal cuff. Further large scale studies at multiple institutions would improve our understanding of risk factors for vaginal cuff dehiscence.
Size, Type and Location of Myoma as Predictors for Successful Laparoscopic Myomectomy: a Tertiary Government Hospital Experience

Bacolod Memorial Medical Center, Department of Obstetrics and Gynecology, Bacolod City, Philippines

Study Objective: Laparoscopic myomectomy (LM) is a preferred alternative to abdominal myomectomy due to shorter hospitalization, faster recovery, and decreased intraoperative adhesions. Subsequent conversion to either laparoscopic-assisted myomectomy (LAM) or laparotomy (EL) entails increased operative time and costs compared to an outright open procedure; hence, identifying characteristics associated with successful LM can aid in proper patient selection. This research evaluates size, location and type of myoma as predictors for LM.

Design: Retrospective cohort study.

Setting: Low-resource tertiary teaching hospital.

Patients: Healthy, non-pregnant women with symptomatic myomas who underwent LM from January 2014 to August 2016. No exclusion criteria for size, location or type of myoma were used and all women who desired future fertility or wished to retain their uteri were included in the study.

Intervention: Demographic data, intraoperative and post-operative records were obtained. Statistical analysis investigated associations between myoma size, location and type to surgical outcomes.

Measurements and Main Results: Among thirty patients, LM was performed in 12 cases while 18 cases were converted to open procedures. Intramural and subserous types of myomas were associated with successful LM; submucous myomas were associated with conversion to either LAM or EL (p-value 0.010). No significant association was found between size of myoma or its location to the procedure performed.

Conclusion: LM is a challenging procedure even for the most skilled laparoscopic surgeons. Proper patient selection lessens complications and decreases risk of conversion. The study shows that size of myoma may be a good predictor for successful LM. Size and location were not associated with either LM or open procedure; however, this conclusion may be limited by the small sample size. A large-scale multi-center prospective study may be necessary to validate the role of the proposed predictors to prevent unplanned conversion to an open procedure thereby reducing cost and increasing safety of LM.

Successful Surgical Management of Ovarian Ectopic Pregnancy

Forsoughi E, Ahmed MH, Omoruyi P, Kolentsov BZ, Papadakis K

Study Objective: To present a rare case of unruptured ovarian ectopic pregnancy.

Ectopic pregnancies are most commonly seen in fallopian tubes. The frequency of ovarian pregnancy is less than a tubal pregnancy and constitutes 0.5–1% of all ectopic pregnancies. Pelvic pain, amenorrhea and vaginal bleeding are the foremost classical symptoms found in these cases. Ovarian pregnancies could be misdiagnosed because they are mostly and easily confused with a ruptured corpus luteum. Unlike tubal gestation, ovarian pregnancy is neither associated with pelvic inflammatory disease nor infertility. Here we describe a case of ovarian ectopic pregnancy.

Patients: Background: 28 year old, Caucasian, BMI 21.6, first pregnancy. Previous 7 years infertility investigated with diagnostic laparoscopy 5 years ago showing partial right tube block. Presenting with 5 weeks amenorrhea, positive pregnancy test, mild abdominal pain, no vaginal bleeding, haemodynamically stable. TVS: empty uterus, free adnexa, no free fluid, right ovary - loculated cyst 55x59mm. Diagnosed as pregnancy of unknown location - bHCG (4830mlU/ml) and progesterone (15iu/ml) taken and patient discharged home. Readmitted following day with mild abdominal pain.

Intervention: The bHCG level was 3717 after 48h. Repeat TVS: heterogeneous mass adjacent to left ovary with increased vascularity, no free fluid. Diagnostic laparoscopy was arranged: findings intraoperatively suggested right ovarian ectopic pregnancy, this was confirmed on histology.

Conclusion: Ovarian pregnancies are prone to life-threatening internal bleeding therefore, when suspected, intervention is called for. Today this is typically by laparoscopy. Patients with an ovarian pregnancy have good prognosis for future fertility and conservation surgical management is advocated. Ovarian wedge resection can preserve ovarian tissue by removal of the pregnancy with only part of the ovary. Ovarian pregnancies have also been successfully treated with methotrexate since this was introduced into the management of ectopic pregnancy in 1988.
447 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:27 PM – STATION E

Technique for Laparoscopic Cervical Cerclage
Randle E, Thiel J, Kamencic H, Rattray D, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Saskatchewan, Regina, Saskatchewan, Canada

This video demonstrates an innovative technique for laparoscopic cervical cerclage. Abdominal cerclage is indicated in high risk pregnancies, especially in cases of previous vaginal cerclage failure. Laparoscopic techniques have been shown to reduce maternal morbidity compared to open, with good fetal outcomes. The largest barrier to laparoscopic cervical cerclage remains the difficulty of laparoscopic suturing. This video demonstrates the use of a laparoscopic suture passer to reduce the technical difficulty of laparoscopic suturing. With a simplified approach, this procedure can be made available to a larger number of patients and complications can be minimized.

448 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:27 PM – STATION F

The Clinical Validity of a Novel Bladder Dissection Method in Cases with Severe Adhesions on Vesico-Uterine Fold
Bodur S,1 Alabany I,1 Fidan U,1 Karashin KE,1 Ulubay M,1 Kinci MF,2 Yenen MC,1 Kilege GS,3 Obstetrics and Gynecology, Gulhane Training and Research Hospital, Ankara, Turkey; 2Obstetrics and Gynecology, The University of Texas Medical Branch, Galveston, Texas

Study Objective: To show the clinical validity of a previously described bladder dissection method during bladder flap development in total laparoscopic hysterectomy of patients with two or more cesarean sections (TLH). We claim that this easy maneuver has a potential to avoid the complications related with lower urinary tract injury even in patients with dense adhesions at the vesico-uterine fold.

Design: Retrospective cohort study.

Setting: Gulhane Training and Research Hospital, Ankara, Turkey.

Patients: Patients undergoing TLH performed for benign disease between 2012 and 2017 with a history of two or more cesarean sections.

Intervention: A novel surgical technique for bladder flap formation had been adapted in clinical use since 2014 for TLH. In this method, the bladder dissection is facilitated by backward rotatory uterine movement that is provided by the bedside assistant on the uterine manipulator.

This movement facilitates cup of the manipulator to become clearly prominent as a dissection landmark for bladder. Video records and patient charts of 30 TLH were reviewed and surgeries performed on patients with two and more cesarean sections by the help of aforementioned method were classified as the study group (n = 20) and others were assigned to the control group (n = 10).

Measurements and Main Results: The most common primary indication was abnormal uterine bleeding (n = 18; 60.0%). The time needed for formation of bladder flap was found 15.6 ± 5.2 min and 20.4 ± 7.6 min in study and control groups, respectively. While there were no significant complication was noticed in the study group, there was one incidental cystotomy (10.0%) and two conversions to open surgery (20.0%) were encountered in the control group.

Conclusion: Safer and faster colpotomy in laparoscopic hysterectomy is possible with this maneuver. We recommend minimally invasive surgeons to implement this simple uterine backward rotatory movement even in cases with severe adhesions to avoid lower urinary tract injuries.

449 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:27 PM – STATION G

The Usefulness of Mini-Laparoscopic Cystectomy for Small Endometrioma in Adolescent Women
Kim H,1 Choi HF,1 Kosin University, Busan, Republic of Korea;2 Inje University, Seoul, Republic of Korea

Study Objective: This study was done to evaluate the usefulness of mini-laparoscopic cystectomy for treatment for small endometrioma in adolescence.

Design: The prospective, randomized study was done in 54 adolescence patients with small endometriomas of less than 2 cm diameter.

Setting: Tertiary university Hospital, Busan, Korea.

Patients: The mini-laparoscopic cystectomy with 3 mm telescope and 3 mm instruments was performed in 18 patients (Group A), and conventional laparoscopic cystectomy with 10 mm telescope and 5 mm instruments (Group B) was performed in 20 patients.

Intervention: The mini-laparoscopic cystectomy with 3 mm telescope and 3 mm instruments was performed in 18 patients (Group A) and conventional laparoscopic cystectomy with 10 mm telescope and 5 mm instruments was performed in 20 patients (Group B). The Anesthesia of laparoscopy was performed in all 38 cases.

Measurements and Main Results: The procedures were performed satisfactorily in all patients of both groups without any difficulty. However in 8 patients (44.4%) of Group A, skillful doctor was necessary due to weak illumination of scope. There was no significant difference in operating time, average operating room costs, average ancillary department costs, instrument and supply costs, or length of hospital stay. Postoperative pain was significantly lesser in Group A than B, and patients requiring analgesia were lesser in Group A than B. The satisfaction of operation scar was higher in Group A than B. There was no postoperative complication and no recurrence of cyst for 2 years in both groups.

Conclusion: The success rate of mini-laparoscopic cystectomy of cyst wall does not differ from conventional laparoscopy, but acceptability and satisfaction of patients are more and postoperative pain is lesser. Therefore mini-laparoscopy seems to be better than conventional laparoscopy for the management of adolescence patients with small endometrioma of less than 2 cm diameter.

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(12:45 PM – 1:45 PM)

1:27 PM – STATION H

Thermal Injuries and Small Bowel Perforation after Laparoscopic Myomectomy
Goncalves Filho RP, Ferreira da Silva RR, Oshiro Rossi RR, Tomas Vitoria FM, Benjamin do Carmo LC, Gynecological Surgery, HANSL, Sao Paulo, SP, Brazil

This video presents a case of small bowel’s thermal lesions that were caused by energy spread throughout the myoma, during its intracorporeal fragmentations with the monopolar hook. Patient presented with fecal peritonitis 32 hours after the surgery, and was immediately submitted to diagnostic laparoscopy in which the complication was diagnosed and treated.
Two Cases of Heterotopic Pregnancy Which Successfully Conducted Laparoscopic Salpingectomy

Hiranuma K, Kitade M, Makoto J, Kuroda K, Kami kiri J. Gynecology, Juntendo University Hospital, Bunkyo-ku, Tokyo, Japan

Study Objective: We report two cases of heterotopic pregnancy resulting in successful laparoscopic resection of ectopic pregnancy.

Patients: Case 1: A 33-year-old 3 gravida 1 para woman, who conceived one embryo transfer, was referred to our hospital because of low abdominal pain at 6 weeks of gestation. She was conducted laparoscopic salpingectomy for ectopic pregnancy in left tube 2 years prior to this gestation. Ultrasound examination revealed fetus with heartbeat in uterus and left adnexa, and intra-abdominal hemorrhage. We diagnosed a heterotopic pregnancy and immediately conducted laparoscopic salpingectomy with resection of the interstitial portion. The operation was successfully conducted and she kept her pregnancy until 36 weeks of gestation and she admitted to our hospital because of low abdominal pain. Magnetic resonance imaging revealed hemorrhage in the left adnexa and emergency laparoscopic salpingectomy was planned. The operation was successfully conducted and she is keeping her pregnancy.

Conclusion: In the treatment of heterotopic pregnancy with a live intrauterine fetus, expectant management could be available if the ectopic pregnancy vanishing spontaneously. However, from these cases, laparoscopic operation should be elected for first choice in a heterotrophic pregnancy.
No ureteric and bladder injuries were subsequently diagnosed in any patients. No patient had any side effects on fluorescein.

Conclusion: Sodium fluorescein is an effective alternative for visualization of ureteral jets during intraoperative cystoscopy. It is a dye that is rapidly eliminated and stains strongly the urine making the ureteral ejection very visible during the cystoscopy.

Sutures
Nonabsorbable

456 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:33 PM – STATION F

Vaginal Cuff Dehiscence after Laparoscopic Assisted Vaginal Hysterectomy: Comparing Absorbable to Nonabsorbable Sutures

Baxi RP, Damiyants N, MacKoul PJ, van der Does L, Haworth L. The Center for Innovative Gyn Care, Rockville, Maryland

Study Objective: Suture material has been studied extensively in other fields, but there is surprisingly little research on suture material in gynecological literature. To date, there are no studies that examine how the biomechanical property of absorption impacts postoperative complications after laparoscopic assisted vaginal hysterectomy. The objective of the current study is to compare the risk of vaginal cuff dehiscence (VCD) using absorbable (Vicryl) versus non-absorbable (Ethibond) sutures for vaginal cuff closure during LAVH.

Design: Retrospective chart review.

Setting: An independent ambulatory surgery center specializing in minimally invasive gynecologic surgery in suburban Maryland.

Patients: Patients undergoing hysterectomy performed for benign disease between 2013 and 2016 by two gynecologic surgeons who specialize in minimally invasive laparoscopic surgery (N = 885).

Intervention: Laparoscopically-assisted vaginal hysterectomy.

Measurements and Main Results: Surgical outcomes included: estimated blood loss, operative time, laparotomy conversion, intraoperative complications and postoperative complications, including VCD. VCD was defined as any degree of palpable or visible separation of the vaginal cuff with or without abdominal or pelvic organ evisceration through the opening, irrespective of timing of its occurrence after surgery. There were 541 and 314 patients in the Ethibond and Vicryl groups respectively. Between the two groups, there was no statistically significant difference in age, weight, BMI, parity, uterine weight, number of previous abdominal surgeries, number of comorbidities, or race. At 90 days post-op, there was a 0.0% rate of VCD in the Ethibond group, compared to 1.3% in the Vicryl group (P = .04).

Conclusion: Our data suggests nonabsorbable sutures, such as Ethibond, may be well-suited to prevent VCD for laparoscopic hysterectomy, especially in certain high risk populations; however, the low risk of VCD must be weighed against the cost of a second surgery for suture removal.

457 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:33 PM – STATION G

Vaginal Extraction for Mesenchymal Tumor

Kojima R, Ando M, Hada T, Ota Y. Obstetrics & Gynecology, Kurashiki Medical Center, Kurashiki, Okayama, Japan

It is one of topics that how to extract huge specimen in laparoscopic surgery. In gynecologic laparoscopic surgery, we have three pathways, trocar site, additional scar and vaginal extraction. In our hospital, we perform vaginal extraction in laparoscopic myomectomy and hysterectomy. I show the operation video and explain our operative procedure. We have modified diamond trocar placement for benign disease. In association with extraction specimen, I report the frequency of the unexpected malignancy in our hospital between 1994 and 2015. To tal number of cases performed operation for uterine mesenchymal tumor is 9581.51 are malignannt. 11 were not suspected as malignancy by preoperative cytolgy and imaging test.(0.11%) 3 had normal range of lactate dehydrogenase(LDH) (0.03%).

In consideration with above date, we perform vaginal extraction with bag in case with suspected malignant. We think vaginal extraction is one of good ways in the gynecologic laparoscopic surgery.

LAPAROSCOPY – OBESE PATIENTS

458 Virtual Posters – Session 2
(12:45 PM – 1:45 PM)

1:33 PM – STATION H

Endometriosis Surgery in Patients with High Body Mass Index

O’Connor HD, Chen A, Harris A, Tsaluks J, Najjar H, McCaughey T, Barel O. Department of Gynaecological Endoscopy, Monash Health, Melbourne, Victoria, Australia

Study Objective: The aim of the current study was to evaluate the effect that high BMI (≥30) had on the surgical outcomes of patients undergoing operative laparoscopy for endometriosis.

Design: Retrospective Cohort Study.

Setting: Monash Health hospitals in Melbourne, Australia.


Intervention: None.

Measurements and Main Results: 831 patients were included. The median age of the patients was 33 years (15–64, SD 8.6). The average BMI in our patient population was 25.8 (13.1–52.1, SD 6). 163 patients had a BMI ≥30 (19.6%). 668 patients had a BMI <30 (80.4%). We did not find a significant impact of BMI on the stage of endometriosis in our study population. The main indication for surgery in both groups was pain (BMI ≥30: 83.4%, BMI <30: 82.9%). Obese patients had more chronic pain (13.5% vs 8.4%, p = .04). Low BMI patients had infertility as a more frequent indication for surgery than obese patients (20.9% vs 14.1%, p = .04).

Both groups had similar complication rates (4.9% for obese patients vs 3.14%). Obese patients had an increased conversion to laparotomy rate (3.06% vs 1.6%), however, this was not statistically significant (p = .1). We also did not find a difference in operating time between the two groups. Length of stay was not significantly longer for patients with BMI ≥30 compared to BMI <30 (1.4 vs 1.5 days, p = .2).

Conclusion: In this study we found that there was no difference in operating time or complication rates in women with BMI ≥30. These findings suggest that when advanced laparoscopic surgery for endometriosis is performed in a unit with a high volume of obese patients, the complication rate is comparable to those with a BMI <30.
Virtual Posters – Session 2

1:39 PM – STATION A

Outcomes of Robotic-Assisted Laparoscopic Hysterectomy Stratified by Body Mass Index

Parsell N, El-Neemany D, Greenberg P, Giglio A, Curcio E, Chen Y, Elsamhi K. Obstetrics and Gynecology, Jersey Shore University Medical Center, Neptune, New Jersey; Office of Research Administration, Jersey Shore University Medical Center, Neptune, New Jersey

Study Objective: To describe operative complications of patients with a body mass index (BMI) ≤ 35 to those of patients with BMI ≥ 35 who underwent robotic-assisted hysterectomy by a single surgeon.

Design: A retrospective chart review.

Setting: Two academic community hospitals.

Patients: All patients with endometrial cancer who underwent robotic-assisted hysterectomy at two community hospitals by a single surgeon from January 2012 to December 2015.

Measurements and Main Results: 163 women ages 29 to 95 were included in this study. 72 (44%) were found to have a BMI ≥ 35 and 91 (56%) had a BMI < 35. Of the preoperative risk factors, only cardiovascular disease was found to be significantly different between the groups where 62 (86.1%) of patients with a BMI ≥ 35 were found to have the risk factor, compared to 62 (68.1%) of those with a BMI < 35 (p-value = .01). Median operative robotic console time was 118 minutes in patients with a BMI ≥ 35 compared to 147 minutes in those with BMI < 35 (p-value = .048). Additionally, 80 (87.9%) patients in the BMI < 35 group underwent lymph node dissection, while 54 (75%) underwent lymph node dissection in the BMI ≥ 35 group (p-value 0.01). Intra-operative and post-operative complications occurred in 5 (6.9%) and 11 (15.3%) cases within the BMI ≥ 35 group, respectively, whereas intra-operative and postoperative complications occurred among 9 (9.9%) and 15 (16.5%) cases respectively in patients with a BMI < 35.

Conclusion: Despite increased preoperative risks in patients with a BMI ≥ 35, the patients in this study had similar rates of intraoperative and postoperative complications to those with a BMI < 35. Robotic hysterectomy should be considered a safe and effective option for obese women with endometrial cancer.

Virtual Posters – Session 2

1:39 PM – STATION B

Recurrence of Uterine Myoma after Myomectomy: Laparotomy vs Laparoscopic Myomectomy


Study Objective: This study is the retrospective investigation of myoma recurrence by comparing laparotomy and laparoscopic myomectomy.

Design: A retrospective study.

Setting: A university hospital.

Patients: 753 patients undergoing myomectomy.

Intervention: Open myomectomy has previously often been performed; however, recently, LM procedures have been performed more frequently. Nevertheless, myoma can recur after LM and open myomectomy. In this study, we report our retrospective investigation of myoma recurrence by comparing LM and open surgery. Due to the nature of our study, there may be bias in surgery selection and cases that are specific to a single institution.

Measurements and Main Results: A total of 474 patients underwent laparoscopic myomectomy and 279 patients underwent open myomectomy. These were followed from the sixth month to the eighth year postoperatively. Recurrence was confirmed when a myoma with a diameter of 1 cm or greater was detected. Post-LM and open myomectomy recurrence rates were investigated as well as the cumulative recurrence rates and Cox hazard test. The cumulative recurrence rates between the two groups were 76.2% vs. 63.4% at postoperative year 8. There was a significant difference between the two groups by the Log-rank test. The Cox Hazard test revealed that LM, a larger number of enucleated myoma masses, and the absence of post-operative gestation contribute significantly to the post-operative recurrence rate.

Conclusion: This study showed that LM yielded a higher recurrence rate than did open surgery. This is likely due to manual myoma removal in open surgery, which is a more exhaustive extraction of smaller myoma masses than is performed in LM. In other words, a few residual myoma masses after open surgery contribute to the lower post-operative recurrence rate.

Virtual Posters – Session 2

1:39 PM – STATION C

Tips and Tricks for Laparoscopy in the Obese Patient

Papillon-Smith J, Secter M, Gagnon L-H, Marji A. Department of Obstetrics and Gynecology, Mount Sinai Hospital, Toronto, Ontario, Canada; Department of Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Obesity is a chronic disease that has become a global epidemic. Laparoscopy in obese patients presents specific challenges. The goal of this video is to demonstrate some practical solutions to manage these peri-operative challenges. First, we review the use of steep Trendelenburg positioners, which prevent patients from sliding up the table during surgery. Next, we discuss the placement of laparoscopic ports, using a left upper quadrant approach with optical trocar for entry, and placing ancillary ports more lateral and cephalad than in lean patients. Finally, we consider ways to optimize surgical exposure: we demonstrate the use of a unique technique, wherein the anterior abdominal wall is mechanically elevated with a Foley catheter to decrease operative pressures. Finally, we show how to retract and suspend surrounding viscera to remove them from the operative field. Overall, mastering such techniques will facilitate surgery in this challenging population, thereby decreasing conversion to laparotomy.

LAPAROSCOPY – SINGLE-PORT

Virtual Posters – Session 2

1:39 PM – STATION D

A Simplified Novel Approach to Laparo-Endoscopic Single-Site Hysterectomy

Sappenfield J, Mikhail E. Department of Obstetrics and Gynecology, University of South Florida College of Medicine, Tampa, Florida

To describe a simplified novel approach to the laparo-endoscopic single-site (LESS) hysterectomy in order to decrease need for triangulation.


Setting: LESS hysterectomy allows for improved cosmesis and decreased postoperative pain. (1,2) Challenges to performing the LESS hysterectomy include loss of instrument triangulation, reduced operative working space, instrument crowding, and ergonomic challenges. (3)

Intervention: A 36-year-old G1P1 patient who underwent a LESS hysterectomy. We utilized this novel approach:

1. Start with incising the vesico-uterine peritoneal fold to create the bladder flap first.
2. Followed by incising the recto-vaginal septum above the level of the attachment of the uterosacral ligaments
3. Then sealing the lateral attachments of the uterus in a standard fashion

The patient was discharged home POD#0 without complication.

Conclusion: This novel approach is a feasible and efficient approach to decrease need for triangulation during LESS hysterectomy.
Abdominal Binder Use Following Single-Incision Laparoscopic Surgery

Kliethermes C,1 Blazek K,1 Nijjar B,1 Ali K,1 Kliethermes S,2 Guan X1,2
1Department of Obstetrics and Gynecology, Baylor College of Medicine, Houston, Texas; 2Department of Orthopedics and Rehabilitation, University of Wisconsin-Madison, Madison, Wisconsin

Study Objective: To evaluate the effectiveness of an abdominal binder following single-incision laparoscopic surgery.

Design: Blinded randomized control trial. Canadian Task Force Level I.

Setting: Patients were selected from all patients undergoing single-incision laparoscopic surgery.

Patients: 90 total patients were randomized for this study after undergoing single-incision laparoscopic surgery. Patients were blinded to the intervention and randomized in a 2:1 ratio with 59 patients randomized to receiving a binder and 31 patients without a binder. They were then given a post-operative questionnaire to evaluate post-operative pain for the following 3 weeks, along with medication usage.

Intervention: All patients underwent a single-incision laparoscopic surgery and either received a binder or did not.

Measurements and Main Results: Using a 10-point verbal analog scale, patients recorded pain for 3 weeks post-operatively on a variety of measures, including overall and incisional pain. They recorded on post-operative days 0, 1, 2, 3, 4, 7, 14, and 21. Overall, across all time points there was an average reduction of pain by over 30% for patients using a binder. On post-op days 0 and 1 the patients reported approximately a 25% reduction in overall pain. On post-op days 2, 3, and 4 there was a greater than 30% reduction in pain with abdominal binder use.

Conclusion: There appears to be a significant reduction in post-operative pain in single-site surgery with abdominal binder use. Complete data analysis is currently underway and will be necessary to verify these results before accepting them into clinical practice.

Long-Term Outcomes of Single-Port and Modified Suture Technique


Study Objective: We aimed to compare long term outcomes of a new technique of laparoscopic myomectomy (LM) using single-port access and a modified suture technique with conventional method.

Design: Retrospective study.

Setting: Tertiary center.

Patients: Long term outcomes of 55 patients who underwent single-port LM using a modified suture technique with Hem-o-lock ligation clips and myoma morcellation through the umbilical incision site (Choi’s LM), and 102 patients who underwent conventional multi-port LM from 2008 through 2012 were compared by retrospective chart review.

Intervention: Single-port LM using a modified suture technique with Hem-o-lock ligation clips and myoma morcellation through the umbilical incision site (Choi’s LM) vs. conventional multi-port LM.

Measurements and Main Results: Basal characteristics such as age, symptoms resulting from myomas, location and type of dominant myomas were not significantly different between two group. For surgical outcomes, Choi’s LM resulted in a statistically significant decrease in blood loss (median, 100 mL vs 150 mL; p < 001) and shorter operation time (95 min vs. 150 min p < .001). Rate of recurrence (20% vs 31.3%, p = .170) and pregnancy (5.5% vs 6.9%, p = .986) after surgery did not show significant differences between two groups. No patients demonstrated complications regarding LM in follow-up period. In investigating pregnancy after LM, 10 patients had full-term delivery with cesarean section (3 after Choi’s LM, 7 after conventional LM). No complication regarding LM during pregnancy, and no abnormal finding during cesarean section were shown.

Conclusion: Long term outcome regarding recurrence and pregnancy after Choi’s LM with modified suture technique was not different from conventional LM. A larger scale trial is needed to confirm the results.
Pain Outcomes in Single- Incision Laparoscopic Surgery Versus Multiport Hysterectomy
Kliethermes CJ, Blazek K, Nijjar B, Ali K, Kliethermes SA, Guan Y, Obstetrics, and Gynecology, Baylor College of Medicine, Houston, Texas; Department of Orthopedics and Rehabilitation, University of Wisconsin-Madison, Madison, Wisconsin

Study Objective: To compare post-operative pain in single-incision to traditional multiport hysterectomy.

Design: This is a prospective cohort study. Canadian Task Force Level II-2.

Setting: Patients were selected from patients undergoing hysterectomy at the public hospital or at two private hospitals scheduled to be performed by a single primary minimally invasive gynecologic surgeon.

Patients: 70 total patients were selected for this study. 35 patients underwent multiport hysterectomy at a public teaching hospital or a combined surgery with a private physician. The single-incision hysterectomy patient was selected from the primary surgeons’ private clinic.

Intervention: All patients underwent a hysterectomy as the primary intervention in similar fashions for both groups. All multi-incision hysterectomies performed laparoscopically. 6 patients underwent single-incision laparoscopic surgery and 29 patients underwent robotic-assisted single-incision laparoscopy.

Measurements and Main Results: Using a 10-point verbal analog scale, patients recorded post-operative pain for 3 weeks on a variety of measures, including overall and incisional pain. They recorded on post-operative days 0, 1, 2, 3, 4, 7, 14, and 21. Overall, across all time points there was an average reduction of pain by 1.26 points in the SILS group (p = .06). Days 3 and 14 saw marginally significant reductions in pain (p = .06 and 0.058, respectively). Days 4 and 7 showed significant reduction in pain (p = .04).

Conclusion: Based on the data, it does appear that SILS results in less pain and return to a low pain score faster than in multiport surgery. A randomized control trial would be necessary to confirm these results before accepting them into clinical practice due to the selection bias in this prospective cohort study.

Retrospective Analysis of 164 Cases between Single-Port Laparoscopic Ligation of Uterine Vessels and Conventional Multiport Laparoscopic Ligation of Uterine Vessels in Laparoscopic Supracervical Hysterectomy (LSH)
Mun ST, Department of ObGyn, Soonchunhyang University Hospital, Cheonan-Si, Chungnam, Republic of Korea

Study Objective: To compare the efficacy and safety between single-port laparoscopic ligation of uterine vessels and conventional multiport laparoscopic ligation of uterine vessels in LSH.

Design: Retrospective analysis of 164 consecutive cases of LSH.

Setting: University Hospital.

Patients: 164 women (ages 32–52 yrs) undergoing Laparoscopic supravcral hysterectomy. 82 women was single-port uterine vessel ligation group, 82 women was multiport uterine vessel suturing group.

Intervention: Charts were reviewed to determine post-operative complications and surgical values. A comparison was made between two groups in post-operative hemoglobin, and hematocrit changes, operation time, blood loss during operation, post-operative drainage volume, post operative pain (n = 164).

Measurements and Main Results: There were no statistically significant difference between two groups in terms of age, indication for surgery, uterine size, body mass index, parity. There were significant difference in the average time of the procedure between two groups (single-port ligation of uterine vessels vs multiport ligation of uterine vessels), 63.2 min vs 51.1 min. There were no significant differences in blood loss, 110.1 ml vs 109.0 ml, change in hemoglobin, 1.12 vs 1.11 and hematocrit, 6.21 vs 6.11.

Conclusion: Single-port Ligation of Uterine vessels was safe and effective methods same as multiport ligation of uterine vessels in LSH.
duces a novel skill set in laparoscopic single-incision vaginal cuff closure as well as knot tying after hysterectomy. A key bile duct needle is used to retract the bladder flap superiorly for better exposure. Triangulation is performed for knot tying with articulated instrument and straight needle driver. This video demonstrates how to maximize the surgical field exposure and key techniques of successful single-site suturing and knot tying without reverting to multi-port surgery.

**LAPAROSCOPY – TISSUE CONTAINMENT TECHNOLOGIES**

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Abstract Withdrawn

471 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

9:51 AM – STATION A

Different Types of Myomectomies with Minimally Invasive Procedures
Kershenovich J, Alfaro J, Diaz BP, Dickter C, Cherem B. Obstetrics and Gynecology, American British Cowdray Medical Center, Mexico, Mexico

Fibroids are benign tumours that arise from individual smooth muscle cells. They are usually found in the uterus and constitute the most common benign tumours among women. Myomectomy surgery removal of fibroids with conservation of the uterus may be the preferred option for several reasons, including retention of fertility. Laparoscopic myomectomy is a less painful procedure compared with all types of open myomectomy. It reduces tissue damage and operating time compared with open myomectomy. Diferents studies also shown a decreased in intraoperative blood loss, a shorter postoperative recovery time and the risk of infection. In November, 2014 the FDA ruled that power morcellation was contraindicated in “the majority of women” having surgery for uterine fibroids due to the potential risk of spreading occult uterine sarcoma. Although problems with this ruling were immediately apparent, the passage of time has allowed for more clarity on the related medical issues on morcellation.

472 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

9:51 AM – STATION B

Initial Experience Using Morsafe
Raimundo TS,1 Crispi CP,2 Oliveira MAP,1 Panisset KS,1 Demôro AE,1 Pereira TR,1 Kershenovich J,2 Obstetrics and Gynecology, State University of Rio de Janeiro, Rio de Janeiro, Brazil; 1Gynecology, Crispi Institute, Rio de Janeiro, Brazil; 1Gynecology, Flaminiense Federal University, Niterói, Rio de Janeiro, Brazil

**Study Objective:** The main objective of this study was to describe the initial experience using contained power morcellation within an insufflated isolation bag (Morsafe Bag) to morcelate myoma or uterus.

**Design:** Prospective study between September 2016 to April 2017.

**Setting:** Private Practice.

**Patients:** We analyzed 15 consecutive patients submitted to laparoscopy for abnormal uterine bleeding and/or myomas.

**Intervention:** All patients were submitted to myomectomy or hysterectomy. We used contained power morcellation within an insufflated isolation bag (Morsafe Bag) during the 15 procedures.

**Measurements and Main Results:** We analyzed the data of the 15 procedures performed. The mean age of the patients were 35.8 (range 25-48). We performed 13 myomectomies and 2 hysterectomies. The mean size of the myomas were 5.6 cm (range 4-11). The mean volume of the uterus of both hysterectomies were 758 cm³. The mean time between the insertion of the Morsafe Bag and the start of the morcelattion were 344 seconds. We tested all the 15 bags after the procedure filling them with water. We didn’t identify any leakage.

**Conclusion:** Morsafe Bag is a useful tool to help gynecologists to keep performing myomectomies and hysterectomies without spreading any tissue in the abdominal cavity. Its additional advantage is to avoid accidents because after the insufflation of the bag the distance between the tissue to be morcelated and the abdominal organs becomes wider. The time between the insertion of the Morsafe Bag and the start of the morcelation did not compromise the total time of the procedures. Contained power morcellation within an insulated isolation bag will become a standard procedure in a near future.

473 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

9:51 AM – STATION C

Low-Cost and Easy-to-Make Laparoscopic Extraction Bag
Nicolalde V1, Guerrero A1, Nicolalde G2.1Gynecology and Obstetrics, Hospital San Francisco De Quito, Quito, Pichincha, Ecuador; 2Faculty of Medical Sciences, Universidad Central Del Ecuador, Quito, Pichincha, Ecuador

The laparoscopic extraction bag described below, is a low cost and easy-to-make instrument that is of great help for minimally invasive surgery, the materials we need are easy to get compared to the devices available in the market and that serve the same function, which consist of a common zip lock bag folded at its proximal end and sutured at its edges with a polyglactin suture 1-0 with ct-1 needle that has been previously sterilized with the sterrad® system. Some examples of tissues in gynecological surgery that we can extract are: endometrioma, hydrosalpinx, simple cyst, ovary, even for the removal of the uterus. The main advantages of the device are: various bag sizes that allow adjustment to different needs, resistance, controlled traction for exteriorization, low cost and memory effect that allows easy introduction of the sample during surgery.
Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

9:51 AM – STATION D

Manual Morcellation Compared to Power Morcellation during Robotic Myomectomy
Sanderson DJ,1 Cleason D,1 Sanderson R,2 Seaman C,3 Ghomi A.1
1Obstetrics and Gynecology, Sisters of Charity Hospital, Buffalo, New York; 2W.H. Thompson School of Business, Brescia University, Owensboro, Kentucky; 3Jacobs School of Medicine and Biomedical Sciences, University at Buffalo, Buffalo, New York

Study Objective: To study the associated perioperative outcomes of contained manual morcellation compared to electric power morcellation in women undergoing robotic myomectomy.

Design: Retrospective case-control study.

Setting: Academic affiliated community hospital(s).

Patients: Women undergoing robotic myomectomy before and after the 2014 US Food and Drug Administration (FDA) warning statement on power morcellation.

Intervention: Robotic myomectomy for benign indications.

Measurements and Main Results: A total of 100 women underwent robotic myomectomy from October 2010 to January 2017. Performing manual morcellation (n = 38) resulted in a 21-minute decrease in mean operative time (105.4 ± 42.2 min vs 126.1 ± 44.1 min, p = .02) compared to controls with power morcellation (n = 62). Women were younger (33 years vs 36 years, p = .03) in the manual morcellation group, with all other patient demographics being similar. Specimen weight (149.5 ± 183.16 g vs 179.1 ± 156.9 g, p = .44) and number of fibroids removed (3.1 ± 4.4 vs 2.5 ± 2.32, p = .09) were similar between the groups. The two groups were also comparable with respect to estimated blood loss (90.0 mL vs 96.2 mL, p = .79), required post-operative morphine equivalents (5.57 ± 4.57 vs 5.29 ± 4.39, p = .76), and length of stay (0.14 days versus 0.10 days, p = .67). Multivariate linear regression modeling identified that the number of fibroids removed, specimen weight, use of power morcellator, and concomitant ovarian cystectomy had a significant impact on surgical time.

Conclusion: Contained manual morcellation during robotic myomectomy is associated with a significant decrease in surgical time when compared to electric power morcellation, with similar post-operative narcotic administration and length of stay.

9:51 AM – STATION F

Robotic-Assisted Hysterectomy for Endometrial Cancer: Comparing Outcomes of Two Methods for Intact Uterine Extraction
Mashuk Z, Mohling S, Ellahattah R, Boren T, Depasquale S. Obstetrics and Gynecology, University of Tennessee - Chattanooga, Chattanooga, Tennessee

Study Objective: The objective of this study was to compare perioperative outcomes among patients with endometrial cancer undergoing robotic-assisted laparoscopic hysterectomy (RALH) with either vaginal extraction of the uterine specimen or RALH with uterine extraction via extended incision secondary to large uteri.

Design: Retrospective cohort study.

Setting: Academic affiliated community hospital.


Intervention: Patients with enlarged uterus and endometrial cancer undergoing surgical treatment were counseled to have a robotic hysterectomy with extraction of specimen via extended incision when specimen is too large to be extracted vaginally.

Measurements and Main Results: 114 patients underwent RALH for endometrial cancer, 82 of whom had the uterus removed vaginally and 32 who had the uterus removed via extended incision between two of the robotic ports for uteri that could not be extracted vaginally. Statistically significant differences were found between the vaginal extraction group and the extended incision group with respect to mean uterine weight [107g vs 418g (p < .00)], mean EBL [105 ml vs. 153 ml (p = .02)], mean operative time [195 min vs. 228 min (p < .00)], and median length of hospital stay [20 hours vs. 27 hours (p = .02)]. No significant differences were found with respect to perioperative complication rate [12.2% vs. 12.5% (p = .56)].

Conclusion: Large uterine specimens may be extracted through an extended incision following robotic-assisted hysterectomy without compromising the benefits of a minimally invasive procedure. This obviates the need for contained morcellation or laparotomy when an intact specimen is preferred. Although there is a statistically significant difference with respect to length of hospital stay, most patients were discharged by postoperative day one.

Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

9:51 AM – STATION G

Safety and Performance Evaluation of Tissue Containment Bags for Power Morcellation
Herman A,1 Duraitswamy N,1 Claiiborne TE,2 Gibely GJ,3 Price VA,4 Nandy P,3 Hartharan P.3 1Division of Applied Mechanics, Office of Science and Engineering Laboratories, Center for Devices and Radiological Health, U.S. Food and Drug Administration, Silver Spring, Maryland; 2General Surgery Devices Branch II, Division of Surgical Devices, Office of Device Evaluation, Center for Devices and Radiological Health, U.S. Food and Drug Administration, Silver Spring, Maryland; 3Plastic and Reconstructive Surgery Branch I, Division of Surgical Devices, Office of Device Evaluation, Center for Devices and Radiological Health, U.S. Food and Drug Administration, Silver Spring, Maryland; 4Obstetrics and Gynecology Devices Branch, Division of Reproductive, Gastro-Renal and Urology Devices, Office of Device Evaluation, Center for Devices and Radiological Health, U.S. Food and Drug Administration, Silver Spring, Maryland

Study Objective: Evaluate the performance of tissue containment bags using current standard test methods.
Design: Samples from six different legally marketed tissue containment bags (three per brand) were subjected to tensile (ASTM D412) and bacteriophage penetration tests (ASTM F1671). The ASTM D412 test requires that tensile force is imparted on a section of the bag cut into a dumbbell shape. The test is run until failure to estimate the yield and ultimate strengths of the material. The ASTM F1671 test quantifies the amount of bacteriophage, a cancer-cell surrogate, that leak through a sample of the bag material maintained under a pressure of 2 psi (4-6x average insufflation pressure).

Setting: A Medical Device Testing Laboratory.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: The amount of tensile force required to cause bag failure was dependent on the material and thickness of the bag. The polymer bags (n = 9) were able to withstand tensile strains that were ~15 times more than nylon based bags (n = 9). For the bacteriophage testing, 5 out of 18 (28%) samples failed the test resulting in leakage of bacteriophage through the bag material. Our initial bacteriophage results suggest that some of the bags could potentially allow leakage of cells (both cancerous and non-cancerous). More bacteriophage tests are being performed to establish the statistical significance of the leakage measurements.

Conclusion: Currently marketed tissue containment bags not specifically labeled for insufflated contained tissue extraction may not prevent leakage of cancerous cells when inflated. Current standard test methods are not sufficient to examine all the potential failure modes for insufflated tissue containment bags intended for use during laparoscopic power morcellation procedures. We will be developing protocols for burst testing, puncture testing, and clinical simulations of the bags. The results from these studies may aid in the development of FDA guidance documents and pre-clinical testing standards for tissue containment bags used in power morcellation.

478 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

Shark Tooth Technique for Tissue Extraction
Smith RB, Borodulin O, Aguirre A, Mourad J. Minimally Invasive Gynecologic Surgery, University of Arizona Phoenix, Banner University Medical Center Phoenix, Phoenix, Arizona

This video demonstrates a step-by-step approach to extracorporeal contained tissue extraction known as the Shark Tooth technique. There are several well-known methods for extracorporeal tissue extraction, including the paper roll, ribbon, coring, or ExCITE techniques. We believe the Shark Tooth technique is comparable to the others. This video includes a simulation of the technique with a beef tongue, a detailed description of the technique including a diagram simulation, and a case presentation of a degenerating fibroid tissue extraction. This technique is easily reproducible and teachable, which decreases length of OR time and thereby decreases cost. We argue this technique allows for greater patient safety as it requires less depth of scalpel penetration and allows for improved visualization of scalp movement. The purpose of this instructional video is to demonstrate the Shark Tooth tissue extraction approach and why this may serve as a useful tool in a surgeon’s acumen.

479 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

Transcervical Specimen Removal: An Opportunity for Natural Orifice Surgery
Baum S, Chu A, Seckin T. Obstetrics and Gynecology, Lenox Hill Hospital/Northwell Health, New York, New York

We present a case of a 44-year-old female with abnormal uterine bleeding due to a fibroid uterus. Attempts were made to remove the majority of a Grade 2 fibroid hysteroscopically. When this could not be achieved the remainder was removed laparoscopically. A second fibroid was also removed laparoscopically. Entry into the uterine cavity could not be avoided during removal of the fibroid. An opportunity for entry into the peritoneal cavity was created. The cervix was easily dilated to accommodate the Endocatch bag, which was then easily passed through the uterine defect. The specimens were deposited into the bag and removed through the cervix without complication. In summary, the surgeon must use creativity and ingenuity when it comes to specimen removal without morcellation. To our knowledge, this is the first time a transcervical approach for specimen removal with the Endocatch bag has been achieved.

NEW INSTRUMENTATION OR TECHNOLOGY

480 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

9:57 AM – STATION B

1.5 Ports Laparoscopic Myomectomy: A Novel Technique Using a Subcutaneous Abdominal Wall Lifting Method
Takamizawa S, Ito H, Thapa Y, Moritake T, Isaka K. Obstetrics and Gynecology, Tokyo Medical University, Tokyo, Japan

This video shows the 1.5 ports laparoscopic myomectomy (LM) which is a novel technique using a subcutaneous abdominal wall lifting method. It is fundamentally different to conventional laparoscopic surgery. 1001 cases of 1.5 ports LM were performed at our hospital between 2005 and 2016. Patients’ average operation time was 163 minutes, blood loss was 163 ml, and number of extracted fibroids was 4.9. There were three cases converted to 2.5 ports LM, and four cases carried out autologous blood transfusion. However, there was no case converted to open surgery and carried out re-operation and cross blood transfusion. 1.5 ports LM has many advantages that do not exist with the pneumoperitoneum method such as strong traction by single port, easier suture ligation, and therefore this method is considered a superior surgical technique in terms of safety, operability, and economically.

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9:57 AM – STATION C

Benefits to Treatment of Symptomatic Fibroids with Laparoscopic Radiofrequency Ablation (Lap-RFA) Alone and Lap-RFA Plus Concomitant Therapeutic Surgery: A Retrospective Comparative Cohort Analysis
Greenberg A. Health Central Women’s Care, Frisco, Texas

Study Objective: Compare clinical features and outcomes associated with treatment of symptomatic fibroids by Lap-RFA alone and by Lap-RFA with concomitant surgical therapy.

Design: Retrospective analysis of consecutive cases performed by a single surgeon from February 7, 2013 through April 19, 2016.

Setting: Community hospital in Texas.

Patients: Sixty-two women were indicated for surgical treatment of their symptomatic fibroids. Cohort A (n = 25) underwent Lap-RFA and Cohort B (n = 37) underwent Lap-RFA plus one or more concomitant therapeutic surgeries. The two cohorts were of comparable mean age, body mass index, distribution of ethnicities, and baseline fibroid symptoms.

Intervention: Lap-RFA.

Measurements and Main Results: The 3 most prominent patient-reported baseline symptoms within Cohorts A and B, respectively, were: heavy menstrual bleeding (80.0% and 81.1%), pelvic discomfort/pain (32.0% and 42.0%),...
and dysmenorrhea (32.0% and 46.0%). Patients in Cohort B underwent 56 concomitant procedures: cystectomy, dilation and curettage, endometrial ablation, hysteroscopic and laparoscopic myomectomy, adhesiolysis, Myosure, polypectomy, repair of umbilical hernia, and oophorectomy. Patients in both cohorts were followed post-procedure to 3.1 ± 1.0 months. Patient-reported symptoms decreased significantly from baseline: Cohort A and Cohort B reports of heavy menstrual bleeding decreased to 25.0% and 17.6% [both, p < .0001], pelvic discomfort/pain decreased to 9.4% and 5.9% [p = .0001 and p = .001], and dysmenorrhea decreased to 3.1% and 11.8% [p = .003 and p = .002]. In addition, Cohort A demonstrated significant decreases in reported backache, urinary retention, urinary frequency, and increased abdominal girth; Cohort B showed significant decreases in reported urinary frequency, dyspareunia, and increased abdominal girth. There were no reports of intraoperative or postoperative complications or surgical re-interventions in either group.

Conclusion: Lap-RFA plus concomitant surgical therapy is feasible and can provide comparable patient safety and symptom reduction to Lap-RFA alone.

482 Virtual Posters – Session 3
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9:57 AM – STATION D
Cost-Analysis of Surgical Treatment for Endometriosis: Helium Gas Plasma vs. Laser Laparoscopy
Yeung GW, Satkanaratnam A. Department of Gynecology, St. Michael’s Hospital, University of Toronto, Toronto, Ontario, Canada

Study Objective: To compare the costs to treat endometriosis with laser CO2 laparoscopy and helium gas plasma energy (HGPE).

Design: Cost-analysis.

Setting: Tertiary-care academic teaching hospital.

Patients: Women undergoing surgical treatment of endometriosis by minimally invasive gynecologists.

Intervention: Projected 5 and 10 year costs (CAD dollars) were compared between HGPE and laser laparoscopy for treatment of endometriosis.

Measurements and Main Results: Costs including capital, operational, maintenance, nursing, and amortization of capital were analyzed at 5 and 10 year intervals. For n = 10 cases/month (120 cases/annum), HGPE is less costly than laser at 5 years ($429,760.11 vs. $791,385.37) and at 10 years ($786,660.11 vs. $1,358,065.37). The costs of HGPE and laser are comparable at 5 years for 21 cases/month (264 cases/annum) ($822,350.11 vs. $791,385.37) and at 10 years for 19 cases/month (228 cases/annum) ($1,429,080.11 vs. $1,358,065.37).

Conclusion: HGPE is a FDA approved electrosurgical alternative device that can be used to treat endometriosis. HGPE is less expensive than laser laparoscopy with respect to cost at 5 and 10 years if <20 cases/month. Cost of a technician operator is necessary for laser and escalates the elevated cost unlike HGPE. Despite disposable costs, HGPE can be an economical and comparable option in lieu of laser for low-medium volume centres that perform <20 cases/month for surgical treatment of endometriosis. Detailed cost analysis as performed in this study is beneficial to centres evaluating a business case to implementing newer technologies such as HGPE where clinical benefits are comparable to traditional modalities.

483 Virtual Posters – Session 3
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9:57 AM – STATION E
Demonstration in a Cadaver of a Novel Device and Method for Cuff Closure in Hysterectomy
Mazzucco DC,1 Crombie J1, Hamzlik JA,1 Batch J1, Hayth T1, Patel N2. 1College of Engineering, Rowan University, Glassboro, New Jersey; 2Newark College of Engineering, New Jersey Institute of Technology, Newark, New Jersey; ZSX Medical, LLC, Philadelphia, Pennsylvania; Obstetrics and Gynecology, Christiana Care Health System, Newark, Delaware

This video demonstrates, in a cadaver, the use of a novel system for closing the vaginal cuff in three-port laparoscopic hysterectomy. The new device, called Zip-Stitch™, is a series of PDS clips and a laparoscopic applicator. The clips are designed to be non-penetrating and to spread the force symmetrically, reducing stress on the tissue. The video takes the audience through a step-by-step process of approximating tissue and applying the clips with specialized tools designed for this purpose. At the end of this closure, the surgical team evaluated the closure both vaginally and laparoscopically, and found it satisfactory. The cuff is closed in less than five minutes.

This video further describes the use of a cuff integrity test to evaluate the strength of closure. The Zip-Stitch closure was able to withstand well over five times the maximum load expected post-operatively. even in misuse. Clinical trials of this device are ongoing.

484 Virtual Posters – Session 3
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9:57 AM – STATION F
Difficult Hysterectomy Combining Mini- and Micro-Laparoscopic Instruments in a Patient with Severe Endometriosis
Arslan T, Misirlioglu S,2 Urman B,2 Taskiran C,2 Gynaecology, VKV American Hospital, Istanbul, Sisli, Turkey; 2Gynaecology, Koc University Hospital, Istanbul, Topkapi, Turkey

Improvement of instruments has made mini-laparoscopy a prominence option in minimally invasive surgery nowadays. Second generation instruments are sturdier enabling better grasping and traction than before. Sufficient light and high-quality images, as good as 10-mm telescopes provide, can be obtained through smaller telescopes. Reduction in diameter of telescopes makes it possible for the surgeon to utilize all ports. In this video article we demonstrated that more delicate dissection of the tissues is manageable with mini- and micro-laparoscopy even in advanced stage endometriosis. We have also illustrated the configuration of ancillary ports in our technique. The lower quadrant trocars are placed to the points that are marked on ASIS before insufflation, and suprapubic entries are not preferred. Carrying scars more laterally supports the cosmetic outcome. We indicated that mini-laparoscopy in combination with micro-laparoscopic instruments is a feasible and reliable approach in difficult hysterectomies.

485 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

9:57 AM – STATION G
Digital Image Analysis with Full Connected Convolutional Neural Network to Facilitate Complete Fibroid Resection
Török P1, Harangi B2. 1Department of Obstetrics and Gynecology, University of Debrecen, Debrecen, H-Bihar, Hungary; 2Faculty of Informatics, University of Debrecen, Debrecen, H-Bihar, Hungary

Study Objective: Facilitate to find the correct layer between the fibroid and the normal myometrium by analyzing videos of hysteroscopic fibroid resection.

Design: Images are cut off of recorded videos of TCRMs. These images were analyzed by full connected convolutional neural network. Images and sub-images were created. Different filters and procedures were applied by the convolutional neural network for identifying previously annotated structures.

Setting: On the images of surgery, different structures were signed and annotated for the training phase. After the appropriate training of the deep neural convolutional network with 4700 images from that training set, 1600 formerly unseen images were used for testing.
Patients: Indication for surgery was heavy menstrual bleeding and hysteroscopic finding was sub mucous fibroid. Operative intervention was fibroid resection. Recorded videos of transcervical resection of myoma were used for the study.

Intervention: Resection of fibroid happened by monopolar resectoscope (11.5 mm diameter), with glycine as distention media.

Measurements and Main Results: Previously manually annotated images were used for training the convolutional neural network and then this pre-trained network was used for automatic segmentation of normal myometrium in an unseen video frame. The segmentation pixel-wise accuracy was 86.19% considering the intersection over union between the manually drawn and the automatic segmented regions.

Conclusion: Using deep learning technique in analyzing process of endoscopic video frame could help in real-time identification of structures while performing endoscopic surgery.

486 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)
9:57 AM – STATION H
Early Clinical Outcomes of the Sonata® Pivotal IDE
Trial: Sonography-Guided Transcervical Ablation of Uterine Fibroids
Chudnoff S,1 Guido R,2 Roy K,2 Levine D,3 Mihalov L,3 Garza-Leal JG,3 1Stanford Hospital, Stanford, Connecticut; 2Magee-Women’s Hospital, Pittsburgh, Pennsylvania; 3Arizona Gynecology Consultants, Phoenix, Arizona; 4Mercy Hospital, St. Louis, Missouri; 5Virginia Mason Medical Center, Seattle, Washington; 6Hospital Universitario “Dr. José Eleuterio González,” de Universidad Autónoma de Nuevo León, Monterrey, NL, Mexico

Study Objective: To establish the safety and effectiveness of the Sonata® System in the treatment of symptomatic uterine fibroids.

Design: Prospective, longitudinal, multicenter, single-arm trial conducted under an FDA Investigational Device Exemption (IDE).

Setting: 22 clinical sites in the US and Mexico.

Patients: 147 premenopausal women between the ages of 25 and 50 with heavy menstrual bleeding secondary to fibroids (consistent with a Pictorial Blood Loss Assessment Chart (PBAC) score from 150–500) along with other requirements for inclusion.

Intervention: Transcervical, intrauterine ultrasound-guided radiofrequency ablation with the Sonata® System performed on up to 10 fibroids per subject ranging from 1–5 cm in diameter as determined by transvaginal sonography. Anesthesia was at the discretion of each investigator and choices included conscious sedation, regional anesthesia and general anesthesia.

Measurements and Main Results: The study has completed enrollment and selected data will be presented. The co-primary endpoints are menstrual blood loss reduction and absence of surgical re-intervention at 12 months. Additional assessments include the UFS-QOL, EQ-5D and Overall Treatment Effect questionnaires, as well as patient satisfaction, safety and reduction in perfused and total fibroid volume.

Conclusion: The SONATA pivotal IDE trial (NCT02228174) is designed to confirm the safety and establish the effectiveness of an investigational transcervical device that ablates uterine fibroids with radiofrequency energy with built-in intrauterine sonography guidance. As the Sonata System is an investigational device within the US and Mexico, its use is limited by law to investigational use until cleared.

487 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)
10:03 AM – STATION A
Endometrial Ablation with the Next Generation NovaSure® Device
Arrington DE, Dupage Medical Group, Olympia Fields, Illinois

Study Objective: To evaluate the NovaSure® Advanced device for endometrial ablation.

Design: Prospective, open-label, survey.

Setting: Obstetrician practices in the U.S. and Europe. Procedures were performed in office/ambulatory surgery center (39.8%) or hospital (60.2%) settings.

Patients: 300 women with abnormal uterine bleeding.

Intervention: Endometrial ablation using the NovaSure® Classic device or the NovaSure® Advanced device, a next-generation design with new features such as reduced diameter, rounded tips, and increased cervical sealing surface.

Measurements and Main Results: A total of 128 procedures were performed through April 2017. The remaining procedures are planned to be completed by September 2017. Eighty-nine procedures (69.5%) were performed using NovaSure® Advanced while 39 procedures (30.5%) were performed using NovaSure® Classic. The average uterine sound length for all procedures was 8.58 +/−1.33 cm.

Compared to patients treated with NovaSure Classic, patients treated with NovaSure ADVANCED had a significantly smaller average cervical dilation (5.88 +/−1.47 mm vs 7.71 +/−0.82 mm, p < 0.01) and trended towards reduced dilatation time (81.1 +/−72.6 sec vs 104.24 +/−101.68 sec, p = 0.17).

Two patients treated with NovaSure ADVANCED did not require any cervical dilation. The average ablation time was shorter (p = 0.04) for NovaSure ADVANCED patients (73.8 +/−26.6 sec) compared to those treated with NovaSure CLASSIC (84.5 +/−25.8 sec). Post-procedure pain scores were recorded for 45 patients (scale: 0 = no pain to 10 = severe) and showed no difference (p = 0.22) in average score between NovaSure ADVANCED (1.93) and NovaSure CLASSIC (1.75) patients. No intraoperative complications were reported for procedures with either device.

Seventy-four of 78 survey responders (94.9%) who used NovaSure ADVANCED stated that insertion was preferred to the previous generation. Seventy-three of 81 responders (90.1%) who used NovaSure ADVANCED and 16 of 17 responders (94.1%) who used NovaSure CLASSIC reported that they were “very satisfied” with the performance of the device.

Conclusion: The NovaSure ADVANCED device was associated with reduced cervical dilation and was preferred for insertion compared to the previous generation device.

488 Virtual Posters – Session 3
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10:03 AM – STATION B
Endoscopic Retrieval Baskets: A Novel Technique for Hysteroscopic Polypectomy
Casey J1, De S2, Harvey LFB1. 1Division of Minimally Invasive Gynecology, Vanderbilt University Medical Center, Nashville, Tennessee; 2Department of Urology, Vanderbilt University Medical Center, Nashville, Tennessee

Endoscopic retrieval instruments are used in many specialties. Our video demonstrates a novel hysteroscopic technique to remove endometrial polyps using an endoscopic retrieval basket often used by urologic surgeons for removal of kidney stones. These devices offer features different from the traditional array of hysteroscopic instruments. The flexible and blunt tip devices are conducive to office hysteroscopy. We demonstrate they can be safely and cost-effectively used in hysteroscopy. Additionally, they keep pathologic specimens secure during removal.

489 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)
10:03 AM – STATION C
Investigational Treatment of Uterine Fibroids with Transcervical Radiofrequency Ablation in a Patient with Concomitant Adenomyosis
Levine DJ. Minimally Invasive Gynecology, Mercy Hospital, St. Louis, Missouri
Study Objective: To describe a case in which radiofrequency ablation of uterine fibroids led to symptom relief in a patient with adenomyosis.

Design: Case report.

Setting: Community hospital.

Patients: A 49-year-old G2P0 woman with two clinically relevant fibroids and heavy menstrual bleeding undergoing transcervical fibroid ablation with the investigational Sonata® System as a participant in the Sonata® pivotal IDE trial (NCT02228174). Her baseline pictorial blood loss assessment chart (PBAC) score was 300, which was abnormally high. She noted regular but heavy menstrual cycles, denied dysmenorrhea and no additional uterine pathology was noted on sonographic or MR imaging at baseline per the investigational site’s sonography and radiology reports. Core imaging laboratory assessment of the baseline MR images subsequently revealed diffuse adenomyosis.

Intervention: Transcervical, intrauterine ultrasound-guided RF ablation was performed on a 1.6 cm x 1.5 cm type 3 myoma; the other type 3 fibroid was not amenable to treatment. The adenomyosis was not ablated during the procedure.

Measurements and Main Results: The patient’s PBAC score at 3 months decreased to 203 from her baseline of 300; by 6 months it had further decreased to 80.8 (73.1% reduction from baseline). Pending data from her 12-month visit will be presented.

Conclusion: This is the first case report of transcervical RF ablation of uterine fibroids in a woman with adenomyosis documented by MR imaging. There was symptom improvement after fibroid ablation despite the presence of diffuse adenomyosis that was not ablated. The data presented here is only hypothesis-generating, as the effectiveness of RF ablation of fibroids in the presence of adenomyosis has not been studied.

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10:03 AM – STATION D

IS-001: A Novel New Intravenously Administered Ureteral Fluorescence Compound for Robotic Hysterectomy

Farnam RW1, 2, Urogynecology, Las Palmas Medical Center, El Paso, Texas; 2Ob/Gyn, Texas Tech University Health Sciences Center, El Paso, Texas

Urinary tract injury is a rare but potentially catastrophic complication of hysterectomy including injury readmission and reoperation. IS-001 is a novel new intraoperative fluorescent compound. It is readily excreted and binds to urine proteins. The da Vinci Firefly system allows transperitoneal visualization of the ureter. Prior attempts to safeguard the ureter (including ureteral stent placement) have barriers to access due to cumbersome setup, training limitations, and hospital privileging requirements. Furthermore ureteral stenting alone has not been shown to reduce the risk of ureteric injury. IS-001 has the potential to overcome these limitations. Intravenous administration will allow access for all surgeons when appropriate. Minimal set-up is required. Transperitoneal visualization has the potential to guide avoidance of the ureter or facilitate skeletonization when needed. Our 2017 “first-in-human” phase one trial has demonstrated safety of usage over a range of doses and hysterectomy pathology.

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10:03 AM – STATION E

Laparoscopic Peritoneal Vaginoplasty in Mayer Rokitansky Kuster Hauser Syndrome – An Experience at Tertiary Care Center

Kripilani A, Mahery R, Kachhawa G, Karthik S, Kripilani I. Obstetrics & Gynaeology, All India Institute of Medical Sciences, New Delhi, Delhi, India

MRKH syndrome is the second most common cause of primary amenorrhea and is characterized by congenital aplasia or severe hypoplasia of Mullerian ducts. The procedure of Laparoscopic Davydov’s vaginoplasty is presented. Thirteen patients of diagnosed MRKH syndrome were re-evaluated after proper counseling and need of post operative care, the procedure was done. All cases were done 3–4 months before planned marriage. Average vaginal length before the procedure was 1.38 (1–3) cm and after procedure was 7.84 (6–9) cm. There were no bladder/ bowel/ureteric or vessel injury reported. Patients were advised to keep vaginal glass mould continuously for 6 weeks followed by only during night for next 6 weeks. Mean follow up was 24 ± 8 (8–50) months. All patients experienced adequate vaginal length with good sexual satisfaction. Laparoscopic Davydov’s vaginoplasty is safe, feasible, relatively easy procedure for achieving satisfactory neo vaginal length with good anatomical and functional outcomes.

492 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:03 AM – STATION F

Mini Laparoscopic Myomectomy

Naki MM1, Alkhan FA2, Aykanat Y1, Karabak E1, Gungor M3, Kose MF4, 1Acibadem Atakent Hospital University, Istanbul, Turkey; 2Medipol Mega University Hospital, Istanbul, Turkey; 3Acibadem Maslak Hospital, Istanbul, Turkey

To demonstrate step-by-step mini laparoscopic with narration. A 32-year-old lady presented with menorrhagia. Pelvic Ultrasound showed a 7 cm subserosal myoma involving the entirety anterior wall of the uterus. Laparoscopic myomectomy recommended. During the procedure, a 5-mm trocar inserted in the umbilicus and used for energy device. While 3 more, 3-mm trocars inserted, 2 ipsilateral and one contralateral. A 3-mm camera used. The utrine defect closed continuously in 2 layers by 300 V lok. The myoma extracted vaginally through posterior colpotomy by vaginal mor-cellation using scalpel. The mini laparoscopic myomectomy is feasible for large myoma to be removed through small cosmetically incisions.

493 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:03 AM – STATION G

Mini-Plus Percutaneous Setting in Total Laparoscopic Hysterectomy

Misirlioglu S1, Boza A1, Arslan T1, Urgan B1, Taskiran C2, 1VKF Koc University Hospital, Istanbul, Turkey; 2VKF American Hospital, Istanbul, Turkey

Study Objective: To analyse the preliminary experience of mini-plus percutaneous (MPPc) setting in total laparoscopic hysterectomy (TLH).

Design: Prospective observational study.

Setting: Tertiary-care university-based teaching hospital and academic affiliated private hospital.

Patients: Twenty-seven women who underwent Mini-plus percutaneous total laparoscopic hysterectomy, between December 2015 and March 2017.

Intervention: MPPc - TLH was performed through one optical transumbilical 5-mm trocar, one 5-mm ancillary port on the right side, one 2-mm percutaneous endoscopic instrument (MiniGrip® Handle, Teleflex, USA) on the right-upper quadrant and if it required one 3.5-mm ancillary port on left-lower quadrant. A 5-mm 30-degree endoscope, 3.5 mm laparoscopic instruments (Karl Storz, Tuttingen, Germany) and integrated bipolar and ultrasonic technology (Thundebeat, Olympus, Japan) were used. The umbilical incision was sutured with a 4/0 Monocryl, whereas 3-and 2-mm incisions were closed with sterile strip. All operations were performed by the same surgeon.
Nerve-Sparing Laparoscopic Colposacropexy Using a Percutaneous Surgical System: A Case Report
Romano F,1 Legge F,2 Scambia G,3 Guido M.1 Division of Gynecology, Department of Obstetrics and Gynecology, “F. Miiuli” General Hospital, Acquaviva delle Fonti, Bari, Italy; 2Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Catholic University of the Sacred Hearth, Rome, Italy

Objective: to evaluate the feasibility, efficacy, and safeness of nerve-sparing laparoscopic colposacropexy performed with a minimally invasive approach by using 2.9-mm Percuvance percutaneous surgical system (PSS).

Design: video demonstration of the surgical technique.

Intervention: Nerve-sparing laparoscopic colposacropexy with positioning of two polypropylene titanized meshes and concomitant subtotal hysterectomy and salpingo-oophorectomy entirely performed with a 2.9-mm PSS.

Results: The operative time was 150 minutes, and blood loss was 50 mL. No intra or postoperative complications occurred. Follow up showed no prolapse recurrence neither long term complications.

Conclusion: This case report is the first to report a nerve-sparing laparoscopic colposacropexy performed with a 2.9-mm PSS. The advance of this technique is the possibility of performing a major gynecologic surgery with a scarless approach, with fewer traumas in the postoperative time, without increasing the operation time or the rate early or late complications, most of all prolapse recurrence.

Percutaneous Assisted-Total Laparoscopic Hysterectomy Using Novel Trocar Configuration: 5-5-2
Misrioglu S,1 Arslan T,1 Urman B,1 Taskiran C,1 Department of Obst/Gyn, VKF Koc University Hospital, Istanbul, Turkey; 2Department of Obst/Gyn, VKF American Hospital, Istanbul, Turkey; 3Department of Obst/Gyn, VKF Koc University School of Medicine, Istanbul, Turkey

Advances in technology have been created worthwhile interest to further the miniaturization of scar and instruments in minimally invasive surgery. As a consequence, collaboration of surgeons and industry have been focused on to reduce the number of the access ports, decreasing the dimension of trocars from 5- to -3 mm, improving the smaller caliber instruments, and obtaining high resolution optical clarity. Our case is a 52 y-old woman was admitted to outpatient clinic with heavy uterine bleeding. After that endometrial biopsy was performed and it showed benign histologic architecture. Hormonal IUD was suggested, but she has opted for surgery instead. Total laparoscopic hysterectomy (TLH) was performed without any complication. She was discharged on postoperative 2nd day. The purpose of this video was to demonstrate the efficacy and feasibility of mini-laparoscopy in combination with percutaneous instrument during TLH.

Minilaparoscopy used for gynecologic procedures is limited, recent studies continue to demonstrate the utility of this surgical technique for a variety of gynecology procedures. To best of our knowledge, there is no report published yet about using minilaparoscopy for dermoid cyst. Minilaparoscopy may provide an improved cosmetic outcome without additional operating time or complications.

Conclusion: Preliminary data suggests that MpPc approach is a feasible and safe surgical modality for total laparoscopic hysterectomy.

 Measurements and Main Results: A total of 27 patients were included. The median age was 49 years (range, 41–62 years); body-mass index was 29 kg/m2 (range, 25–35 kg/m2), and uterine weight was 200 gr (range, 80–260 gr). Of the 27 patients, 14 had uterine myomas; 5 benign adnexal mass; 4 had endometrial intraepithelial neoplasia and 4 had adenomyosis + abnormal uterine bleeding. The median operating time was 110 minutes (range, 65–185 min), and estimated blood loss was 60 ml (range, 40–180 ml). Conversion to laparotomy and transfusion was not required. Recovery of gastrointestinal activity and spontaneous urination started at median 14 hours (range, 8–24 hour) and 7 hours (range, 4–9 hour), respectively. Postoperative abdominal pain at rest was evaluated via VAS (Visual Analog Scale) score 0 to 10 and median VAS score was 3 (0–6). Intra- and postoperative complications were not observed.
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10:09 AM – STATION C

Percutaneous Surgery in Unilateral Adnexitomy by Using CCL Extractor
Misirlouglu S,1 Arslan T,1 Urun B,2 Taskiran C,1 1Department of Ob/Gyn, VKF Koc University Hospital, Istanbul, Turkey; 2Department of Ob/Gyn, VKF American Hospital, Istanbul, Turkey

A 40 y-old woman was admitted with right- lower quadrant pain. Right adnexal mass was detected on MRI. Laparoscopic right salpingo-oophorectomy was performed. Final Pathology was reported as an ovarian fibroma. The use of minilaparoscopy allows for smaller incision size compared with traditional laparoscopy, with 3-mm ports requiring neither fascia nor skin suture. These ports can be closed by reapproximation with Steri-Strips or skin glue. In this video article, Percutaneous minilaparoscopic approach for unilateral adnexitomy is performed. The specimen retrieval was performed via the vaginal extractor (CCL, Karl Storz Endoskope, Tuttingen, Germany) within the endobag system. Combining Percutaneous minilaparoscopy and contained tissue extraction, in addition to conventional laparoscopy, is a feasible and safe approach.

Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:09 AM – STATION D

Preliminary Outcomes of the OPEN Clinical Trial: Evaluation of Uterine Patency Following Sonography-Guided Transcervical Radiofrequency Ablation of Fibroids
De Wilde RL,1 Quinn S,1 Kroemer B,1 Renner SP,1 1Pius-Hospital University Hospital for Gynecology, Oldenburg, Lower Saxony, Germany; 2St. Mary’s Hospital, London, United Kingdom; 3Universitäts Klinikum Tübingen, Tübingen, Germany; 4Universitätsklinikum Erlangen, Erlangen, Germany

Study Objective: To document the presence or absence of intrauterine adhesions after treatment with the Sonata® System when used in women with submucous and/or transmural fibroids.
Design: Post-market prospective, multicenter, single-arm cohort study.
Setting: Two academic affiliated teaching hospital and private community hospital.
Patients: Up to 12 clinical sites in Europe.

Study Objective: To document the presence or absence of intrauterine adhesions after treatment with the Sonata® System when used in women with submucous and/or transmural fibroids.
Design: Post-market prospective, multicenter, single-arm cohort study.
Setting: Two academic affiliated teaching hospital and private community hospital.
Patients: Up to 12 clinical sites in Europe.

Intervention: Transcervical, intrauterine ultrasound-guided radiofrequency (RF) ablation of symptomatic uterine fibroids. All patients must have at least one FI GO type 1, type 2 or type 2-5 (transmural) fibroid, and a baseline European Society for Hysteroscopy (ESH) adhesion score of 0 as determined by baseline diagnostic hysteroscopy.

Measurements and Main Results: Preliminary outcomes of the OPEN trial (NCT02844920) will be presented. The incidence of new intrauterine syn- echiae at 6 weeks will be assessed via second-look hysteroscopy. Video from each hysteroscopy performed at the baseline and 6-week visits will be as- sessed and scored by two external reviewers (a third reviewer will resolve any disputes). Adverse events, subject satisfaction and other qualitative patient reported outcomes with validated instruments will also be assessed.

Conclusion: The literature indicates a varying level of adhesiogenesis associated with hysteroscopic myomectomy and other intrauterine procedures. This may relate to the presence of disruption of the basalis layer of the endome- trium. The Sonata System is designed to minimize or avoid disruption of this layer. The ongoing OPEN clinical trial will assess the adhesiogenic potential of transcervical RF ablation of uterine fibroids with the Sonata System.

Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:09 AM – STATION E

Safety Profile of Uterine Myoma Treatment Using Noninvasive Robotic Ultrasound-Guided Shell Ablation
Parsons JE,1 Lau MPH,1 Martin PJ,1 Islas Lagos JJ,2 Aguilar Aguirre JM,2 Garza Leal JG,2 1Mirabilis Medical, Inc., Bothell, Washington; 2Hospital Torre Medica, Ciudad de Mexico, Distrito Federal, Mexico; 3Obstetrics and Gynecology, Hospital Universitario, Universidad Autonoma de Nuevo Leon, Monterrey, Nuevo Leon, Mexico

Study Objective: To assess the safety profile of uterine myoma treatment using a noninvasive robotic ultrasound-guided ablation device that combines thermal and ischemic necrosis to minimize treatment time.
Design: Prospective single-arm pilot study.
Setting: Academic affiliated teaching hospital and private community hospital.
Patients: Patients seeking hysterectomy for symptomatic uterine myomas who met enrollment criteria.

Intervention: The ablation device is a portable transabdominal ultrasound-guided high-intensity focused ultrasound system. Ultrasound image guidance is used to locate the myoma and select the region to be ablated via touch- screen controls. During treatment, a robotic motion system automatically positions ablation cells along the outer portion of the targeted region, producing a “shell” of ablated tissue that reduces perfusion to the interior and results in a combi- nation of thermal and ischemic necrosis. 73 patients underwent treatment, 65 of whom received prophyactic analgesia (tramadol and/or ketorolac) without IV anesthesa. Median follow-up was 15 days post-treatment.

Measurements and Main Results: There were no serious adverse events related to treatment. Only three types of adverse device effects (ADEs) were re- ported, all of which were minor: vaginal bleeding (9.6%), abdominal pain during treatment (57.5%), and abdominal pain after treatment (19.2%). The most significant ADEs were high pain scores (8-10 out of 10) reported during treatment in 14 patients. Analysis found that these high pain scores were not indicative of serious complications or damage to unintended tissue. The most likely reasons for these elevated pain scores were 1) the pretreatment medication regimen was not optimized, and 2) the ultrasound focus was 0.8 ± 0.6 cm closer to the anterior uterine serosa than current device settings allow.

Conclusion: All treatments were delivered safely even when intraprocedural pain was elevated. Pain can be mitigated by optimizing the pretreatment med- ication regimen and by maintaining the current settings for the distance between the ultrasound focus and serosa.

Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:09 AM – STATION F

Short-Term Improvements in Menstrual Bleeding, Uterine Myoma Volume, and Myoma-Related Symptoms Following Noninvasive Robotic Ultrasound-Guided Shell Ablation
Garza Leal JG,1 Islas Lagos JJ,2 Aguilar Aguirre JM,2 Parsons JE,1 Lau MPH,1 Martin PJ,1 1Obstetrics and Gynecology, Hospital Universitario, Universidad Autonoma de Nuevo Leon, Monterrey, Nuevo Leon, Mexico; 2Hospital Torre Medica, Ciudad de Mexico, Distrito Federal, Mexico; 3Mirabilis Medical, Inc., Bothell, Washington

Study Objective: To measure preliminary changes in menstrual bleeding, myoma volume, and myoma-related symptoms 3–6 months after treatment with a noninvasive robotic ultrasound-guided ablation device that combines thermal and ischemic necrosis to minimize treatment time.
Design: Prospective single-arm pilot study.
Setting: Academic affiliated teaching hospital and private community hospital.
Patients: Patients seeking hysterectomy for symptomatic myomas who met enrollment criteria and were prospectively scheduled to delay hysterecto- my for at least 3 months.
Intervention: The ablation device is a portable transabdominal ultrasound-guided high-intensity focused ultrasound system. Ultrasound image guidance is used to locate the myoma and select the region to be ablated via touch-screen controls. During treatment, a robotic motion system automatically positions ablation cells along the outer portion of the targeted region, producing a “shell” of ablated tissue that reduces perfusion to the interior. This strategy leverages both thermal and ischemic necrosis to minimize the treatment time required. 73 patients underwent treatment, a subset of whom were followed for 3–6 months to assess preliminary symptom improvement.

Measurements and Main Results: Menstrual bleeding, quality-of-life, and symptom scores were assessed in a subset of 10 patients at baseline and at 3 months post-treatment using the validated Menstrual Pictogram and Uterine Fibroid Symptom and Quality of Life questionnaire. Myoma volume was assessed in 14 patients immediately post-treatment and at 3–6 months post-treatment using MRI. There was a median 16.5 point increase in quality-of-life score (p = .011), a median 13.5 point decrease in symptom score (p = .254), and a median 24.0% decrease in treated myoma volume (p = .013). In 8 patients with above-average bleeding scores at baseline and regular menstrual cycle lengths during follow-up, there was a median 40.8% decrease in bleeding score (p = .035).

Conclusion: The shell ablation method resulted in significant short-term improvements in myoma-related symptoms. Further study is necessary to assess the durability of the preliminary improvements observed.

501 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:09 AM – STATION G

Single-Port Laparoscopic Myomectomy Using in-Bag Manual Extraction for Huge Uterine Myomas
Kim Y-W,1 Jeong M-J,1 Song J-H,1 Kim J-H,2 1Department of Obstetrics and Gynecology, Incheon St. Mary’s Hospital, Incheon, Republic of Korea; 2Department of Obstetrics and Gynecology, Seoul St. Mary’s Hospital, The Catholic University of Korea, Seoul, Republic of Korea

The aim of this video presentation is to show that even for huge uterine myomas, the transsacral in-bag manual extraction is feasible and could be a safe alternative to the power morcellation. We present two cases. One is a 38 year-old, gravida 1, para 1 woman with a uterine myoma of 20 x 15 cm in size and the other is a 35 year-old, gravida 0, para 0 woman with a uterine myoma of 15x13 cm in size. We performed single-port laparoscopic myomectomy through a 1.5- to 2.0-cm umbilical incision. The myomas were cut in the bag with a knife and then extracted. The two patients were discharged from the hospital on the third postoperative day with an uneventful postoperative period. Even for huge uterine myomas, transsacral in-bag manual extraction with a knife is a feasible and safe alternative to avoid the potential risk of spreading malignancy.

502 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:09 AM – STATION H

SPRM (Selective Progesterone Receptor Modulator): a Real Option for Abnormal Uterine Bleeding with Myoma and Anticoagulation Therapy?
Capmas P, Venet-Legue L, Fernandez H, Bicetre Hospital, Le Kremlin Bicetre, Metropolitan, France

Study Objective: Uterine myomas often lead to abnormal uterine bleeding. These bleedings led to high morbidity including anemia, blood transfusion and repeated medical appointment. These bleedings are often enhanced in women with long-term anticoagulation therapy and management of these women with contra indication to most of therapeutics is tricky. Aim of this study is to report cases of ulipristal acetate treatment at the same time of anticoagulation therapy for women with heavy menstrual bleeding due to myoma.

Design: It is a multicentric retrospective study.
Setting: Cases were collected from different departments of gynecology. All eligible cases have been included.
Patients: Nine women with anticoagulant therapy, myoma and heavy menstrual bleeding treated by ulipristal acetate are reported here.

Intervention: Anticoagulant therapy was introduced for phlebitis, cerebral thrombophlebitis or pulmonary embolism. They all start bleeding after introduction of anticoagulant therapy with severe anemia in most of cases. Ulipristal acetate therapy was introduced.

Measurements and Main Results: For all of them except one ulipristal acetate led to amenorrhea and allowed to differ surgery after the end of the anticoagulant therapy. The other option in these cases is GnRH analog but it requires an intramuscular injection and led to disabling side effects (hot flashes, vaginal dryness and headaches principally).

Conclusion: Management of heavy genital bleeding in women with a myoma and a anticoagulant therapy is frequent and led to difficulties because of contraindication of numerous treatment but also because of anemia; which also complicates the surgical management. Selective progesterin receptor modulator (SPRM) such as ulipristal acetate seems to be a real option in these difficult conditions. More important studies should be conducted to assess this benefit.
Video records and patient charts of 32 RATLH were reviewed and surgeries performed by the help of aforementioned method was classified as the study group (n = 16) and others were assigned to the control group (n = 16).

**Measurements and Main Results:** The most common primary indication was uterine fibroids (n = 22; 61.1%). The colpotomy time and time needed for preparation of the surgical field for colpotomy were found 6.6 ± 2.2 min and 10.4 ± 4.6 min in study group and 10.5 ± 3.2 min and 15 ± 5.8 min in control group, respectively. Previous abdominal surgery and obesity were found to be correlated with colpotomy time and time consumed for preparation of colpotomy field (p < 0.01 and p < 0.05, respectively). While there were no significant complication was noticed in the study group, there was one incidental cystotomy in the control group (6,25%).

**Conclusion:** Safer and faster colpotomy in laparoscopic hysterectomy is possible with this maneuver. It is necessary to renew the classical surgical concepts and may be adapt new manipulators and/or techniques into the daily routines to achieve more competent and easy performed laparoscopic hysterectomies.

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**505 Virtual Posters – Session 3**

**9:45 AM - 10:45 AM**

**Total Laparoscopic Hysterectomy with Contained Power Morcellation System in Large Uteri**

Misirlioglu S, Eraslan A, Arslan T, Urmân B, Taskiran C.

1. Department of Obstetrics and Gynecology, Koc University Hospital, Istanbul, Turkey;
2. Department of Obstetrics and Gynecology, American Hospital, Istanbul, Turkey;
3. Department of Obstetrics and Gynecology, Koc University School of Medicine, Istanbul, Turkey

Uterine leiomyomata or fibroids are the most common pelvic tumor experienced in women. The incidence of uterine morcellation, the process of making a uterine specimen smaller for purposes of removal via a minimal invasive approach, has increased for this reason. In this video, we would like to present a 48-year-old woman presented with heavy uterine bleeding. Transvaginal ultrasound revealed a bulky uterus more than 16 weeks of gestation with adenomyosis. Endometrial biopsy showed benign histologic architecture. Total laparoscopic hysterectomy was performed without any complication. Uterus was extracted by using contained power morcellation system within the insufflated isolation bag (Versator™ morcellator and Morsafe™ bag, Veol Medical Technologies, Mumbai, India). She was discharged on postoperative 3rd day. In conclusion, morcellation should be performed within a contained environment to minimize any potential tumor spread in the event of an undiagnosed malignancy.

**Study Objective:** To correlate the ultrasonographic appearance of highly vascularized uterine myomas with the histopathological diagnosis.

**Design:** Retrospective Study.

**Setting:** University Hospital.

**Patients:** Patients who showed a uterine myoma with a circumferential and intraligamentous vascular pattern with a color score assessment of 3 or 4, according to the Morphological Uterus Sonographic Assessment (MUSA) paper. Echogenicity of each myoma, the presence of cystic areas and the total myomas volume were recorded. The ultrasound characteristics were compared with the histological findings.

**Measurements and Main Results:** 52 patients were included in this study. Mean patient age was 42.5 years. 45 (86%) were in premenopause, 26 (50%) showed symptoms (pelvic pain, menorrhagia). At pathological examination 25 (48%) myomas were compatible with a diagnosis of atypical leiomyoma (76% (19) hypercellular leiomyoma, 16% (4) myxoid leiomyoma, 8% (2) apoplectic leiomyoma). 25 (48%) were typical leiomyomas and 2 (4%) were adenomyomas. Cystic areas within the lesion were found in 32% (8/25) of atypical leiomyomas and in 16% (4/25) of typical leiomyomas.
Conclusion: Circumferential and intrallesional vascularization (color score of 3 or 4) and the presence of cystic areas could be useful to differentiate typical and atypical myoma in a pre-operative setting or in the decision of a conservative medical or radiological treatment.

ONCOLOGY

508 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:15 AM – STATION F

A Refined Method for Laparoscopic Pelvic Lymphadenectomy in Gynecologic Cancers Using the “Lateral Approach Technique”
Choi JS, Bae JW, Bae J, Lee WM, Jung US, Eom JM. Hanyang University College of Medicine, Seoul, South Korea

The following video clip demonstrates a refined method for laparoscopic pelvic lymphadenectomy in gynecologic malignancies using the “lateral approach technique.” Laparoscopic staging surgery in gynecologic malignancies is safe and feasible. Pelvic lymphadenectomy is a crucial procedure for the surgical staging. This video introduces a novel procedure for safe and simple laparoscopic pelvic lymphadenectomy using the “lateral approach technique.” The procedure was initiated incising the peritoneum over the proximal left common iliac artery. The key to this technique is lateral approach along the pelvic side wall. Lymphatic tissue is dissected from pelvic floor muscles. This method makes it possible to minimizing bleeding from microvessels of the lymph node. Perform the dissection on the external iliac vessels the same way on the pelvic wall. The nodal tissue is retrieved in an impermeable sac. The described refined procedure would be sufficient and convenient for laparoscopic pelvic lymphadenectomy in gynecologic malignancies.

510 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:15 AM – STATION H

Does Neuraxial Analgesia Reduce Pain but Delay Recovery in Gynecologic Surgery?
Arruda J, Mixon-Walker D, Flink D, Sheeder J. Obstetrics & Gynecology, University of Colorado School of Medicine, Aurora, Colorado

Study Objective: To compare pain control, operating room delays, post-operative milestones and factors influencing clinical care between women receiving perioperative neuraxial analgesia versus traditional analgesia for gynecologic surgery.

Design: A retrospective chart review.

Setting: Academic affiliated tertiary-care centers.

Patients: We included all women with the histopathological diagnosis of uterine leiomyosarcoma in Saskatchewan, Canada, between January 2000 and December 2014. Women with metastatic leiomyosarcomas at diagnosis or other types of uterine sarcomas were excluded. Data including patient characteristics, clinical presentation, physical exam findings, imaging, pathology reports, surgical interventions, and survival outcomes were retrieved.

Intervention: N/A.

Measurements and Main Results: There were a total of 28 patients with confirmed histopathological diagnosis of leiomyosarcomas over the 15-year study period. Approximately 33,251 hysterectomies were performed in Saskatchewan over the same time frame. The incidence of uterine leiomyosarcomas in our patient population is estimated to be 1 in 641. Mean age at diagnosis is 32.3 ± 10.5 years old. Medical records of 25 such patients could be retrieved, and 15 (60%) cases were of occult diagnosis. There were 5 cases of unintended morcellation (1 power, 4 mechanical). Survival outcomes were comparable in cases of unintended morcellation of leiomyosarcomas in our province.

Conclusion: Neuraxial analgesia improves post-operative pain control but may extend the time to meet milestones and length of stay following laparotomy with hysterectomy. Providers are more likely to elect neuraxial analgesia for patients with malignancy; neuraxial analgesia does not delay time in the operating room.

511 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:21 AM – STATION A

Incidence of Occult Leiomyosarcomas in a Canadian Province: a Retrospective Cohort Study
Wu CQ, Giede KC, Thiel J, Karrerman E, Rattray DD. Obstetrics, Gynaecology and Reproductive Sciences, University of Saskatchewan, Regina, Saskatchewan, Canada; Research and Performance Support, Regina Qu'Appelle Health Region, Regina, Saskatchewan, Canada

Study Objective: The risk of an unexpected uterine leiomyosarcoma following surgery for presumed benign leiomyoma is quoted in the literature to be between 1 in 350 and 1 in 1000. Recent evidence indicates that disease dissemination may result from morcellation of occult uterine leiomyosarcomas. The objective of the present study is to determine the incidence of uterine leiomyosarcomas in our patient population, the rate of preoperative diagnosis of uterine leiomyosarcomas, and to evaluate the risk of unintended morcellation of leiomyosarcomas in our province.

Design: Multicenter prospective cohort study.

Setting: Academic affiliated tertiary-care centers.

Patients: We included all women with the histopathological diagnosis of uterine leiomyosarcoma in Saskatchewan, Canada, between January 2000 and December 2014. Women with metastatic leiomyosarcomas at diagnosis or other types of uterine sarcomas were excluded. Data including patient characteristics, clinical presentation, physical exam findings, imaging, pathology reports, surgical interventions, and survival outcomes were retrieved.

Intervention: N/A.

Measurements and Main Results: There were a total of 28 patients with confirmed histopathological diagnosis of leiomyosarcomas over the 15-year study period. Approximately 33,251 hysterectomies were performed in Saskatchewan over the same time frame. The incidence of uterine leiomyosarcoma in our patient population is estimated to be 1 in 641. Mean age at diagnosis is 32.3 ± 10.5 years old. Medical records of 25 such patients could be retrieved, and 15 (60%) cases were of occult diagnosis. There were 5 cases of unintended morcellation (1 power, 4 mechanical). Survival outcomes were comparable in cases of unintended morcellation of occult disease and those without morcellation.

Conclusion: This study contributes to the existing body of literature on morcellation of occult leiomyosarcomas, and ascertainment the rate of leiomyosarcomas in our patient population. The results of this study provides valuable information to healthcare professionals, policy makers, and women in our province so that they may make more informed decisions concerning uterine masses.
The objective of video is to present venous anomalies of the inferior venae cava(IVC) and renal vein that found in laparoscopic extraperitoneal paraaortic lymphadenectomy. A 60-year-old patient with G3 endometrioid adenocarcinoma was scheduled to laparoscopic extraperitoneal paraaortic lymphadenectomy. Preoperative 18F-FDG PET/CT showed intratumor metabolic activity whereas MRI and renal vessels angiography revealed a negative expression. Nodal dissection starts from the top of the common iliac artery and ends with renal vessels. During the operation, venous anomalies that double left renal veins and the IVC divided into two branches and clamping the aorta were accidentally found. The operation was completed in 60 min without perioperative complications.32 lymph nodes were dissected and no metastasis was detected. The final pathological result and stage was G3 endometrioid adenocarcinoma and IA, respectively. No recurrence was detected in 3-month follow-up. Identification of the venous anomalies which are rare can prevent the injuries of great vessels.

513 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)
10:21 AM – STATION C
Laparoscopic Para-Aortic Lymph Node Dissection
Sharma V,1 Kumar A,1 Khanna P,2 Mediratta G,2 Gupta N,1 Naik S,3 Sharma RS3. 1Department of Oncosurgery, Pushpawati Singhania Research Institute, New Delhi, Delhi, India; 2Department of Gynae-Onco, Sir Ganga Ram Hospital, New Delhi, Delhi, India; 3Department of Gynaeology, Meenakshi Hospital, Ghaziabad, UP, India
Laparoscopic Para-aortic lymph node dissection was performed for 10 patients with FIGO stage 1-2A endometrial carcinoma since Dec 2016 and analysed prospectively. After completing type B2 radical hysterectomy for Carcinoma Endometrium, peritoneal cut on right side extended proximal to expose bifurcation of aorta and IVC. Right ureter lateralised and cut edge of peritoneum is hung in a tent shape using 2.0 nylon. Fibro-fatty tissue an- terior to aorta and IVC is dissected using suction cannula, harmonicTM/ligasureTM shears upto crossing of left renal vein seen as cranial limit. Para-aortic fibro-fatty tissue swept clearing the inferior mesenteric artery nodes. Inter aorto-caval nodes and nodes at aortic bifurcation till proximal third of common iliac vessels are cleared in similar fashion. The mean number of lymph nodes retrieved was 12 (range, 9–21). Surgical margins were negative in all patients. Para-Aortic lymphadenectomy is arguably easier to perform laparoscopically due to better access, illumination and magnification.

514 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)
10:21 AM – STATION D
Laparoscopic Vascular Injury Repair-How Can We Avoid Conversion to Emergency Laparotomy?
Andou M, Ebisawa K, Nakajima S, Shirane A, Kojima R, Osama K. Gynecology, Keshikashi Medical Center, Keshikashi-shi, Okayama-ken, Japan
Since 1998 we have experienced 1100 laparoscopic or robotic retroperito- neal lymphadenectomies including para-aortic and pelvic dissection. 28 of these cases required vessel repair for inadvertent injury. We will present tech- niques for safe and sequel-free vascular injury repair. Case 1- Right external iliac artery was injured during robotic pelvic lymphadenectomy. Case 2- Left external iliac artery was injured during laparoscopic pelvic lymphadenec- tomy. Case 3- Avulsion injury to the left external iliac vein. Case 4- Avulsion injury to the left renal vein during a left-sided para-aortic dissection. Case 5- IVC was injured during right-sided para-aortic lymphadenectomy. All these cases required temporary bleeding control with vascular clamps, atrumatic forceps, vascular tape and/ or pressure application with sponge. All cases were administered with high molecular heparin and holes closed with 4.0-6.0 prolene suture. No blood transfusions or emergency conversions to lapa-rotomy were required. Laparoscopic suturing techniques are vital to the safety of retroperitoneal lymphadenectomy.

515 Abstract Withdrawn

516 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)
10:21 AM – STATION F
Mini-Laparoscopic Approach with Indocyanine Green Fluorescence Imaging for Endometrial Cancer
Taskiran C,1 Misirliloglu S,2 Arslan T,1 Ayhan C,3 Bengisu E,1 VKF Koc University School of Medicine, Istanbul, Turkey; 2VKF Koc University Hospital, Istanbul, Turkey; 3VKF American Hospital, Istanbul, Turkey
A 60-years-old woman was admitted to outpatient clinic with heavy uterine bleeding. Transvaginal ultrasound revealed heterogeneous endometrial lining. Endo- metrial biopsy showed stage 3 endometrial adenocarcinoma. No distant metastasis detected on Thorax CT and Abdomen MRI. Sentinel lymph node mapping is done by using ICG - fluorescence imaging. Total hysterectomy, bilateral adnexectomy, total omentectomy and bilateral pelvic paraaortic lymphadenectomy was performed using mini-laparoscopic approach without conversion to conventional or open surgery. A two-sided superficial and deep cervical injection of indocyanine green (2 mL diluted to 1.25 mg/mL) was used for inoculation before the procedure. A 10-mm 30° optical camera with near-infrared high intensity light source for detection of fluorescence imaging was inserted through the umbilicus. One optical transumbilical 10-mm trocar, one 3.5-mm ancillary port on the right-upper quadrant, one 3.5-mm port on the left-lower quadrant and one 5-mm trocar on right-lower quadrant was used. Surgery was accomplished using 3-mm instruments.

517 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)
10:21 AM – STATION G
Minimally Invasive Radical Hysterectomy for Cervical Cancer Compared with Laparotomy: Single-Institution Experience
El-Balat A, Abbasova A, Schmeil I, Bogdanova S, Becker S. University Hospital Frankfurt, Frankfurt am Main, Hessen, Germany
Study Objective: Radical hysterectomy (RH) via laparotomy has been for many decades the traditional surgical approach for early stage cervical cancer. Many cancer centers worldwide have shown laparoscopic radical hysterecto- my to be a safe and feasible alternative to the conventional laparotomy for early cervical cancer management. The aim of this study was to assess outcomes of patients with cervical cancer undergoing upfront RH and lymphadenectomy to determine if mode of surgery affects these outcomes.
Design: Retrospective cohort study.
Setting: University academic medical institution.
Intervention: Laparoscopy for RH compared with Laparotomy.
Measurements and Main Results: 44 women met eligibility require- ments. Of these, 17 underwent a laparoscopic approach, and 27 underwent laparotomy. Regarding disease free survival there was no significant diff- ference between both groups (p = .526). The mean operating time was almost equal in both groups (274.65 minutes for the laparoscopy vs. 251.81 minutes for the laparotomy, p = .324). The mean number of pelvic lymph nodes re- retrieved was higher in the Laparotomy group (39.41 versus 29.12, p = .044).
Preoperative hemoglobin difference was significantly higher for patients receiving laparotomy ($3.29 \text{ g/dl} \text{ vs. } 1.81 \text{ g/dl}, p = .002$). Laparotomy was associated with higher rates of postoperative urinary retention (40.7\% vs.11.8\%, $p = .050$). And finally the Length of hospital stay was shorter in the laparoscopy group (Mean: 8 days vs.17 days, $p < .001$).

**Conclusion:** Laparoscopic RH does not compromise patient outcomes including disease free survival and rate of recurrences. The lesser surgical morbidities and shorter hospital stay are marks of laparoscopic RH.

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**Objective:** To analyze prognostic factors for locoregional recurrence (LRR), distant metastasis (DM), and overall survival (OS) in cervical cancer patients who underwent radical hysterectomy with positive or negative vaginal resection margin, and evaluate quality of life followed by postoperative radiotherapy (PORT).

**Setting:** Clinicopathologic data of 104 patients with clinical stage IIA2 cervical cancer treated with PORT for positive VRMs from 2008 to 2016 were reviewed, retrospectively.

**Patients:** Cases matched for lymph node metastasis, direct extension of parametrium, histology, lymphovascular invasion, tumor size, depth of stromal invasion was selected in negative vaginal resection margin group.

**Intervention:** The median treatment dosage of external beam radiotherapy (EBRT) to the whole pelvis was 50.4 Gy in 1.8 Gy/fraction. High-dose-rate vaginal brachytherapy after EBRT was given to patients with positive or close VRMs. Analyze the impact of PORT for quality of life of patients and radiotherapy toxicity of the reaction occurrence. Kaplan-Meier method and log-rank test were used for analyzing LRR, DM, and OS; Cox regression was applied to analyze prognostic factors.

**Measurements and Main Results:** The 3-year disease-free survival was 74.2\% and 80.6\% in positive and negative VRMs respectively. In multivariate analysis, PRM and LN metastasis remained independent prognostic factors for OS. VRMs was not independent prognostic factors for OS. However, patients with negative VRMs who could avoid vaginal brachytherapy and experience less organ toxicity of the bladder and rectum.

**Conclusion:** Preoperative "mapping" colposcopy combining with intraoperative frozen pathology should be considered to ensure optimal vaginal resection to avoid PORT as much as possible.

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**Objective:** The primary objective was to determine the incidence of unsuspected sarcoma in hysterectomies and myomectomies in patients having a their procedure with a diagnosis of fibroids. The secondary objective was to establish the mortality of patients with occult sarcoma.

**Setting:** A community hospital system.

**Patients:** Patients undergoing myomectomies or hysterectomies with a differential diagnosis of presumed fibroids.

**Design:** Retrospective cohort study.

**Study Objective:** The primary objective was to determine the incidence of unsuspected sarcoma in hysterectomies and myomectomies performed with a preoperative diagnosis of fibroids. The overall incidence of uterine sarcomas (both leiomyosarcoma and endometrial stromal sarcoma) was $1 \text{ in } 150 (0.67\%)$. The incidence of leiomyosarcoma was $1 \text{ in } 225 (0.44\%)$. The incidence of unsuspected uterine sarcomas – excluding patients where a malignancy was suspected preoperatively – was $1 \text{ in } 451 (0.22\%)$. Cumulative 5-year survival from time of diagnosis was 50%.
Conclusion: Power morcellation without the use of a bag poses a risk of dissemination of malignancy in patients with an undiagnosed incidental malignancy.

522 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:27 AM – STATION D

Systemic Pelvic and Para-Aortic Lymphadenectomy, is It Necessary during Laparoscopic Interval Debulking Surgery in Advanced Ovarian Cancer?

Eom JM, Choi JS, Bae JW, Bae J, Lee WM, Jung US. Hanyang University College of Medicine, Seoul, South Korea

Study Objective: To investigate the safety and the clinical significance of systematic pelvic and para-aortic lymphadenectomy during laparoscopic interval debulking surgery in advanced ovarian cancer.

Design: Case series.

Setting: University hospital in Korea.

Patients: 8 consecutive undergoing laparoscopic interval debulking surgery after neoadjuvant chemotherapy for advanced ovarian cancer from January 2012 to December 2016.

Intervention: Laparoscopic interval debulking surgery.

Measurements and Main Results: A total of 8 patients were included. They had clinical complete response after neoadjuvant chemotherapy, according to Gynecologic Cancer Intergroup and Response Evaluation Criteria in Solid Tumors criteria. Surgical procedures included complete cytoreduction included pelvic and para-aortic lymphadenectomy. Intraoperative and postoperative outcomes were evaluated. Following interval debulking surgery, all patient had no gross residual tumor. Positive pelvic and para-aortic lymph node were detected in all patients. There were no significant complications during intraoperative and postoperative state.

Conclusion: Systemic pelvic and para-aortic lymphadenectomy during laparoscopic interval debulking surgery after neoadjuvant chemotherapy in advanced ovarian cancer may be considered feasible and safe.

PELVIC PAIN

523 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:27 AM – STATION E

Efficacy of Bladder Hydrodistension Under Combined General and Spinal Anesthesia in Patients with Interstitial Cystitis with and Without the Addition of Botulinum Toxin Injection Into the Pelvic Floor Muscles: a Prospective Trial

Mehandru N, 1 Hibner M, 1 Castellanos M, 1 Desai N, 1 Wilson JR. 1Division of Advanced Gynecologic Surgery & Chronic Pelvic Pain, St. Joseph’s Hospital and Medical Center, Phoenix, Arizona; 2Honors Faculty, Barrett, The Honors College & W.P. Carey School of Business, Arizona State University, Tempe, Arizona

Study Objective: To determine the efficacy of bladder hydrodistension (BOD) in patients with interstitial cystitis (IC) and botulinum toxin injection (botox) into the pelvic floor muscles (PFM) for pelvic floor tension myalgia (PFTM). To examine the number of patients with underlying endometriosis.

Design: Prospective cohort study.

Setting: Academic affiliated community hospital.

Patients: Patients from the Advanced Gynecology Pelvic Pain Clinic scheduled for BOD with or without botox beginning September 2016.

Intervention: Patients completed a survey the day of surgery, and again 6 weeks, 3 months, and 6 months postoperatively. The survey assessed self-reported IC symptoms which was the primary outcome, as well as pelvic pain, urinary urgency, sexual function, and overall health. The number of patients with underlying endometriosis was also examined.

Measurements and Main Results: 18 patients have thus far been recruited, 14 have endometriosis. In the subanalysis, overall pelvic pain scores and urinary symptoms improved 6 weeks and 3 months postoperatively. A majority underwent a repeat procedure prior to 6 months. The mean duration of IC symptoms in those with endometriosis is 10.57 years with a standard deviation (SD) of 5.46, and in those without endometriosis is 5.50 years with a SD of 1.73.

Duration of IC and PFTM in Patients with Underlying Endometriosis

<table>
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<th>Mean (yrs)</th>
<th>Std. Deviation</th>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>PFTM</td>
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</table>

There are 18 complete subjects, 14 with endometriosis and 4 without. Mean, standard deviation, and standard errors are reported in the table above. The duration of PFTM in those with endometriosis is 11.36 years with a SD of 5.47, and in those without endometriosis is 4.75 years with a SD of 3.20. There is a significant difference between those with endometriosis and those without in regards to IC duration with a p-value of .09, and with regards to duration of PFTM with a p-value of .014.

Conclusion: BOD for IC and botox for PFTM appear efficacious. Patients with endometriosis appear to have a longer duration of IC symptoms. Our current sample size is small and serves as preliminary data for our ongoing prospective trial.

524 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:27 AM – STATION F

Incidental Finding of Neuroendocrine Tumor of the Appendix in the Setting of Chronic Pelvic Pain

Henderson SD, Glassman D. Obstetrics & Gynecology, University of Arizona College of Medicine - Phoenix; Banner - University Medical Center Phoenix, Phoenix, Arizona

Study Objective: To describe the incidental finding of neuroendocrine tumor (carcinoid) of the appendix in normal appearing appendectomy specimens removed during laparoscopy for chronic pelvic pain.

Design: Case reports of two patients.

Setting: Academic teaching hospital.

Patients: Thirty patients underwent elective laparoscopic appendectomy for pelvic pain during a 5-year period. Neuroendocrine tumor (carcinoid) of the appendix in normal appearing appendectomy specimens were removed during laparoscopy for chronic pelvic pain.

Intervention: Elective incidental laparoscopic appendectomy during other indicated gynecologic procedures.

Measurements and Main Results: Patient A had a 47-year-old with abnormal uterine bleeding, chronic pelvic pain, dyspareunia, leiomyomata, endometrial and endocervical polyps and a history of endometriosis who underwent a laparoscopic hysterectomy, bilateral salpingectomy and appendectomy. Patient B was a 40-year-old with abnormal uterine bleeding, chronic pelvic pain, dyspareunia and leiomyomata who underwent a laparoscopic hysterectomy, bilateral salpingectomy and appendectomy. Both patients had normal appearing appendixes on visual inspection.

Conclusion: The baseline incidence of neuroendocrine tumors in the general population is less than 0.5%. The prevalence might be significantly higher in women with pelvic pain, with or without a clinical or histological diag-
nosis of endometriosis. Elective appendectomy should be considered in women undergoing gynecologic surgery in the setting of chronic pelvic pain.

525 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:27 AM – STATION G

Laparoscopic Removal of Essure Sterilization Device
Evans CT, Saad CA, Templeman C. Department of Obstetrics and Gynecology, Kaiser Permanente Los Angeles Medical Center, Los Angeles, California

We present the technique of laparoscopic bilateral salpingectomy for removal of Essure implant devices in a patient with chronic pelvic pain. Extensive preoperative counseling was performed. Preoperative imaging confirmed proper location of the Essure devices within the fallopian tubes. Laparoscopically, on the left side, vasopressin was injected in the mesosalpinx for hemostasis, then performed salpingotomy. On the right side, we proceeded directly with salpingectomy to decrease the blood supply to the area, allowing us to forego use of vasopressin for hemostasis. Bilaterally, bipolar Maryland and cold scissors were used to circumferentially dissect the Essure devices from the cornua and carefully follow Essure coils to ensure complete removal. Diagnostic hysterectomy and intraoperative x-ray were used to confirm removal of Essure devices in their entirety. We recommend that salpingectomy, as opposed to salpingostomy, for Essure removal can address pelvic pain while also reducing risk for ectopic pregnancy.

527 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:33 AM – STATION A

Pelvic Floor Myofascial Spasm: How and When to Perform Pelvic Floor Trigger Point and Botulinum A Injections
DeStephano CC, Chen AH. Mayo Clinic, Jacksonville, Florida

As chronic pelvic pain can be a challenge for both patients and their physicians, we present our approach to the management of pelvic floor myofascial spasm and how/when to perform pelvic floor trigger point and botulinum A injections. The video summarizes therapeutic options for pelvic floor myofascial spasm and details the procedure used for office-based pelvic floor trigger point injections and botulinum A injections in the operating room. In cases of myofascial pain syndrome, multi-modal therapy including physical therapy, medical management, and trigger point injections is often required.

528 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:33 AM – STATION B

Radiofrequency Ablation of Iliinguinal Nerve for the Management of Inguinodynia–Our Experience
Kanwar S, Castellanos M. Center for Chronic Pelvic Pain, St. Joseph’s Hospital and Medical Center, Phoenix, Arizona

Study Objective: The authors assessed the effectiveness of US guided radiofrequency ablation of ilioinguinal nerve for inguinodynia.

Design: Retrospective review of all the patients treated for ilioinguinal neuralgia after abdominal incisions were included in the study. This inclusion period extended from January of 2013 to 2017 and included follow up visits. Setting: Study was conducted in tertiary referral center for Chronic Pelvic Pain. Patients were seen in out patient clinical setting and outpatient surgical treatment area.

Patients: Six women with ilioinguinal neuralgia were identified between January 2013 and 2017. All 6 patients received diagnostic ilioinguinal nerve block providing adequate pain relief.

Patients were given a questionnaire assessing pain intensity (by 5-point verbal rating scale) both in pre-operative and post-operative period. Operative complications and overall satisfaction was documented.

Intervention: Out of 6 patients 4 were selected for radiofrequency ablation and 2 for chemical neurolysis of ilioinguinal nerve. Out of 4 patients, pain was only reproduced in 3 with radiofrequency needle. So only 3 patients had the procedure.

Measurements and Main Results: Pre-and postoperative 5-point pain scores were calculated including post-operative overall procedure satisfaction survey in these 3 patients. Total pain relief (good to excellent in) was achieved in (n:2) 67%, moderate in 33% (n = 1).

Procedure was repeated in 1 patient with moderate pain relief in 3 months and total resolution of pain was achieved with repeat procedure. Complications were not recorded. Successful treatment improved inguinal pain and quality of life. Failure of initial procedure was likely due to increased procedural temperature requirement.

Conclusion: Radiofrequency ablation of ilioinguinal nerve provides good pain relief from inguinodynia. It is a good alternative to surgical management; is minimally invasive and could be performed in outpatient setup without complications. If initial pain relief is inadequate, procedure could be repeated with good success. Postoperative recovery is quick without any impairment of day to day activities.

529 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:33 AM – STATION C

Redefining Pelvic Landmarks in Patients with Müllerian Anomalies Undergoing Hysterectomy
Lothe M, Carey E. Department of Obstetrics and Gynecology, University of North Carolina, Chapel Hill, North Carolina

In this video, we review the pelvic landmarks that are relevant to a safe and efficient hysterectomy, especially in the setting of abnormal müllerian structures. We also review female reproductive system embryology and müllerian anomalies.

We present the case of patient MG who was ultimately diagnosed with müllerian agenesis. In the setting of abnormal müllerian structures and the possibility of atypical anatomic relationships, both pararectal spaces were opened and we performed complete ureterolysis and bilateral uterine artery ligation at the vascular origin. Our video demonstrates the use of the external iliac artery, internal iliac/pelvic ligament, and the medial umbilical ligament as pelvic landmarks to maintain accurate orientation and locate key structures such as the ureter and uterine artery. We demonstrate dissection techniques and review pertinent female reproductive system embryology. We also describe the critical view of safety and tips for colpotomy when a colpotomy ring cannot be placed.

530 Virtual Posters – Session 3 (9:45 AM - 10:45 AM)

10:33 AM – STATION D

Resolution of Pudendal Neuralgia in Chronic Pelvic Pain: a Single-Site Observational Study Using a Novel Regenerative Therapy
Jarnagin SE, Jarnagin BK, Hunter K, Turlenko T, Lincoln Memorial University, Harrogate, Tennessee; Radiofrequency Ablation of Iliinguinal Nerve, Franklin, Tennessee; Cooper University Hospital, Camden, New Jersey; Regenerative Medicine and Stem Cell Therapy, Ambler, Pennsylvania

Study Objective: Chronic pelvic pain (CPP) is a relatively common and debilitating condition among women that greatly affects their quality of life. Unfortunately, it is a poorly understood condition, often difficult to treat and many patients with CPP have neuropathic pain associated with the territories innervated by the pudendal nerve.
We looked at a new and innovative treatment for the pudendal neuralgia component of the patient’s chronic pelvic pain utilizing amniotic fluid injections at the level of Alcock’s canal to determine if this would help the patient’s pelvic pain.

**Design:** A retrospective chart review study was conducted in 64 patients presenting with a pudendal neuralgia component to their CPP who were treated with a transvaginal wall injection of an FDA regulated amniotic tissue product that has immunomodulatory activity.

**Setting:** The charts of 64 patients who underwent injection of amniotic fluid to the pudendal nerve at Alcock’s canal in a single practice office were analyzed for response rate.

**Patients:** 64 patients with chronic pelvic pain who had a component of pudendal nerve neuralgia as a part of their pain were injected with the amniotic fluid.

**Intervention:** Injections of commercially prepared amniotic fluid were injected around the pudendal nerve at the level of Alcock’s canal.

**Measurements and Main Results:** Review of charts was performed to determine response rate and the extent of response.

**Conclusion:** In this study we demonstrate that treatment of women with CPP having a pudendal neuropathy component using a commercially available and novel amniotic tissue product with immunomodulatory activity resulted in complete to moderate pain relief in almost 90% of patients treated. Considering the well known difficulty in treating CPP patients, this study opens a new therapeutic option that is effective in the majority of qualifying CPP patients.

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**Virtual Posters – Session 3**

(9:45 AM - 10:45 AM)

**10:33 AM – STATION E**

**Treatment with Radiofrequency in Patients with Chronic Pelvic Pain and Endometriosis: Pilot Study**

Rius M, Gracia M, Martinez-Zamora M-A, Perez A, Carmona F. Institut Clinic of Gynecology, Obstetrics and Neonatology, Hospital Clinic, Barcelona, Spain

**Study Objective:** Managing chronic pelvic pain in patients with a past history of endometriosis might be a challenge for the gynaecologist.

The objective of this study was to evaluate pelvic pain after treatment with radiofrequency in patients with chronic pelvic pain and surgery for endometriosis.

**Design:** A prospective study was designed. The duration of the study was eight weeks and the follow-up was one month after treatment.

**Setting:** The study took place in a tertiary referral centre.

**Patients:** Ten patients were enrolled in the study. All of them had chronic pelvic pain and previous surgery for endometriosis. At the moment of inclusion, there was no evidence of an active disease (imaging and laparoscopy confirmed) and other causes of chronic pelvic pain were dismissed.

**Intervention:** Before starting the treatment, patients answered the Short Form 36 Health Questionnaire (SF-36), the Brief Pain Inventory and the VAS score.

The treatment consisted in eight sessions of one hour per week. At the beginning and at the end of each session, VAS score was obtained. At the end of the eighth session, the SF-36 Health Questionnaire, the Brief Pain Inventory and the VAS score were answered again. The same setting was repeated one month after.

**Measurements and Main Results:** Mean age of patients was 32.8 years. All patients were under treatment for chronic pelvic pain without a correct control. Statistically significant differences were found at the beginning of the treatment and at the end in the VAS score ($p = .03$), the SF-36 ($p = .049$) and the Brief Pain Inventory ($p = .023$ for intensity and $p = .034$ for interference with daily activities).

**Conclusion:** Although it is not a randomized clinical trial, this study shows that radiofrequency could be an alternative treatment for these patients with chronic pelvic pain and a past history of endometriosis. A randomized clinical trial is now conducted in our centre to confirm these findings.

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**Virtual Posters – Session 3**

(9:45 AM - 10:45 AM)

**10:33 AM – STATION F**

**Ulipristal Acetate and Pelvic Pain**

Scattolon SA, Ballen A, Leyland NA. Obstetrics & Gynecology, McMaster University, Hamilton, Ontario, Canada

**Study Objective:** Ulipristal acetate (UPA) is a selective progesterone receptor modulator (SPRM) that has been available in Canada for the treatment of symptomatic uterine fibroids. Anecdotally, patients on UPA with pelvic pain have noted improvement in pain symptomatology, and small case series have noted similar outcomes with use of other SPRMs. This study seeks to identify if there is a relationship between UPA and pelvic pain.

**Design:** Retrospective chart review of patients followed in a specialty gynecology clinic.

**Setting:** McMaster University Medical Centre, a tertiary care specialty gynecology clinic in Hamilton, Ontario, Canada.

**Patients:** Diagnostic codes for menorrhagia, abnormal uterine bleeding and endometriosis were used to identify 755 charts from June 2013 to May 2016 and these were all reviewed to identify patients on UPA with concomitant pelvic pain. 27 patients met study criteria and were included in the final review.

**Intervention:** n/a.

**Measurements and Main Results:** The mean age was 38 years and most patients had 3 months of UPA 5 mg daily. They experienced dysmenorrhea, endometriosis, or pelvic pain.

Eighteen women characterized their pre-UPA pain, all of which were of moderate to severe intensity. Of these patients, 89% noted improvement or resolution of pain with UPA, one found no change, and one described mixed results. Ten of these women underwent surgery, and nine had pathology showing adenomyosis, endometriosis or both.

Nine women did not rate their pre-UPA pain, but 67% endorsed improvement or cessation of pain while on UPA, one noted no difference, and two complained of worsening pain.

Fifteen women described their analgesia use, and 87% reported less or zero analgesia requirements during UPA, whereas two women noted no change.

**Conclusion:** Despite the limitations of a small retrospective study, this series lends support that UPA may have a role in reducing pain in women with endometriosis, adenomyosis and other concurrent pelvic pathology. Further large scale randomized studies are required to support this finding.

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**Virtual Posters – Session 3**

(9:45 AM - 10:45 AM)

**10:33 AM – STATION G**

**Ultrasound Guided Peripheral Nerve Blocks for Patients with Chronic Vulvar Pain**

Banks E,1 Atashroo D2. 1University of Chicago Hospital, Chicago, Illinois; 2NorthShore University Health Systems, Evanston, Illinois

Vulvodynia is characterized by burning vulvar/vaginal pain of at least 3 months duration that occurs in the absence of any clinically identifiable infection, neoplasia, inflammation or neurogenic disorder. Classification of vulvodynia is based on the site of the pain (generalized, localized or mixed). It can occur with provocation or spontaneously. Treatment options include vulvar hygiene changes, medical management, physical therapy and cognitive behavioral therapy.

More invasive treatments (botox injection, nerve block, and surgery) can be offered for those patients that have either failed medical therapy or didn’t tolerate the side effects. For a highly sensitized vulvar patient, nerve block offers a less invasive treatment option compared to surgery.

This video will demonstrate a novel approach to treating a patient with chronic vulvar pain who has failed traditional conservative therapy options. We will review the relevant vulvar and perineal neural anatomy and the supplies needed to perform these blocks.
**Virtual Posters – Session 3**

**(9:45 AM - 10:45 AM)**

**10:33 AM – STATION H**

**Uncommon Sequelae of Myomectomy and Morcellation**

Fritton K, Patzkowsky K. Gynecology and Obstetrics, Johns Hopkins Hospital, Baltimore, Maryland

Uterine diverticula and parasitic fibroids and/or adenomyomas are uncommon entities but they should be included on the differential of a painful pelvic mass in a woman with a history of uterine surgery. Herein we present a case of a woman with a history of robotic myomectomy. At the time of two subsequent C-sections, a large uterine mass was identified. At the time of the first C-section, it was noted that the mass was communicating with the endometrial cavity, consistent with a uterine diverticulum. After her second C-section, the mass continued to enlarge and cause pain. During her work-up, an MRI revealed a second mass in her right upper quadrant. She underwent a robotic hysterectomy. The uterine mass was identified as likely cystic adenomyosis and the abdominal mass was a parasitic adenomyoma.

**REPRODUCTIVE MEDICINE**

**534 Virtual Posters – Session 3**

**(9:45 AM - 10:45 AM)**

**10:39 AM – STATION A**

**An Unconventional Choice of Embryo Transfer Day of a Frozen Embryo Transfer on a Fresh Endometrium Following Retrieval**

Baum S,1 Gulersen M,1 Herslag A,3 Mullin C,2 Chu A,1 Shan A,1 Singer T,1 Obstetrics and Gynecology, Lenox Hill Hospital/Northwell Health, New York, New York;2 Reproductive Endocrinology and Infertility, Northwell Health, Manhasset, New York;3 IVF Lab and Wolfe PGD-Stem Cell Lab, Racin IVF Unit, Lis Maternity Hospital, Tel-Aviv Sourasky Medical Center, Tel Aviv, Israel

**Study Objective:** To present a case series in which three pregnancies were achieved by transferring a euploid blastocyst only 2 or 3 days following oocyte retrieval based on progesterone rise.

**Design:** Case series.

**Setting:** An IVF center at a single academic institution.

**Patients:** We review the case of three patients who achieved successful implantation following a frozen euploid embryo transfer during a fresh IVF cycle.

**Intervention:** Patients underwent IVF cycles and frozen embryo transfer (FET).

**Measurements and Main Results:** The first patient is a 35-year-old P0 with unexplained infertility. She failed 1 IVF and 1 FET cycle. She then underwent IVF/ICSI/PGS cycles with cryopreservation. During a subsequent fresh cycle, her serum progesterone level maturedly rose to 1.7 ng/mL the day of the trigger (9 ng/mL the following day). Therefore, two frozen euploid embryos were transferred on what is traditionally considered to be a “Day 2” endometrium. The second patient is a 37-year-old P1 with male factor infertility. She failed 3 IUI cycles and then a successful IVF/ICSI/PGS cycle and a term delivery. After she failed another IVF cycle with a plan to transfer a thawed euploid embryo from a prior cycle. Due to the natural expected rise in progesterone on the post trigger day, a single euploid embryo was transferred on a “Day 2” endometrium. The third patient is a 35-year-old P1 with PCOS and secondary infertility. In her third IVF/ICSI/PGS cycle, she underwent a frozen embryo transfer using a euploid embryo from a prior cycle. Given a premature rise of serum progesterone (1.3 ng/mL on the day of trigger and 9 ng/mL the following day) the embryo was transferred on a “Day 3” endometrium.

**Conclusion:** Successful implantation during IVF requires synchrony between the endometrium and the embryo. We believe that in some patients, an earlier frozen euploid embryo transfer on a fresh endometrium may yield better results.

**536 Virtual Posters – Session 3**

**(9:45 AM - 10:45 AM)**

**10:39 AM – STATION B**

**Comparing the Euploidy Rate of Embryos Biopsied on Day 5 Versus Day 6**

Baum S,1 Gulersen M,1 Herslag A,3 Bar-El L, Mullin C,2 Singer T,1 Obstetrics and Gynecology, Lenox Hill Hospital/Northwell Health, New York, New York;2 Reproductive Endocrinology and Infertility, Northwell Health, Manhasset, New York;3 IVF Lab and Wolfe PGD-Stem Cell Lab, Racin IVF Unit, Lis Maternity Hospital, Tel-Aviv Sourasky Medical Center, Tel Aviv, Israel

**Study Objective:** To assess whether the rate of development to a blastocyst can help predict the euploidy rate of an embryo analyzed by Preimplantation Genetic Screening (PGS).

**Design:** Retrospective analysis.

**Setting:** An IVF center at a single academic institution.

**Patients:** We reviewed 293 biopsied blastocysts derived from all patients undergoing oocyte retrieval for IVF/ICSI/PGS cycles in a single academic institution in 2016. We excluded patients with serum FSH >15 IU/mL, older than age 45, those who did not have blastocyst embryos, and embryos from TESA sperm cases. The embryos were divided into 2 groups: biopsied Day 5 blastocysts and biopsied Day 6 blastocysts.

**Intervention:** The patients underwent IVF/ICSI/PGS cycles.

**Measurements and Main Results:** 771 embryos were analyzed. Of those, 293 underwent embryo biopsy on Day 5 or Day 6. The other 478 embryos either did not progress to Day 5 or Day 6 in order to undergo biopsy, or they underwent embryo transfer. Of the 293 embryos that underwent biopsy, 78 were Day 5 (27%), and 215 were Day 6 (73%). Day 5 blastocysts were found to have a euploidy rate of 41% and an aneuploidy rate of 59%. Day 6 blastocysts were found to have a very similar euploidy and aneuploidy rate.

**Euploidy Rate of Day 5 vs. Day 6 Blastocysts**

<table>
<thead>
<tr>
<th></th>
<th>Day 5 Blastocyst</th>
<th>Day 6 Blastocyst</th>
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</thead>
<tbody>
<tr>
<td>Euploid</td>
<td>41%</td>
<td>41%</td>
</tr>
<tr>
<td>Aneuploid</td>
<td>59%</td>
<td>59%</td>
</tr>
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</table>

Rate of aneuploidy based on aCGH analysis.

**Conclusion:** Our study suggests that both Day 5 and Day 6 blastocysts have similar euploidy rate. This reassuring data allows reproductive endocrinologists and embryologists to determine the optimal time for biopsy based on morphological characteristics alone.

**537 Virtual Posters – Session 3**

**(9:45 AM - 10:45 AM)**

**10:39 AM – STATION C**

**Cornual Pregnancy: Conservative Management by Laparoscopic Methotrexate Administration and Resection of Rudimentary Horn in a Two-Stages Surgery**

Capmas P, Marty O, Fernandez H. Bicetre Hospital, Le Kremlin Bicetre, Metropolitan, France

Cornual pregnancy is a pregnancy developed within the rudimentary horn of a pseudo-uncornuate uterus. They are rare and knowledge about management of these pregnancies has to be spread. The treatment can either be conservative by methotrexate administration or radical by resection of the rudimentary horn. Cornual resection during ongoing pregnancy led to a high risk of haemorrhagic complications. Cornual pregnancy should be managed conservatively by methotrexate administration except for horn rupture. For non-tubal ectopic pregnancy, local
injection of methotrexate should be preferred to systemic injection when possible. Laparoscopic guidance is preferred to sonographic guidance for local administration in cervical pregnancy due to the risk of interposition of digestive loops during sonographic guidance. Therefore management to be preferred in the absence of suspected horn rupture is a local administration of methotrexate carried out under laparoscopy followed by a rudimentary horn resection two to three months after the acute disease.

538 Virtual Posters – Session 3
(9:45 AM - 10:45 AM)

10:39 AM – STATION D

Factors Influencing Postoperative Fertility and Perinatal Outcomes after Laparoscopic Myomectomy
Murakami K, Kitade M, Jinushi M, Karoda K, Kamakiri J, Takeda S. Obstetrics and Gynecology, Juntendo University, Bunkyo-ku, Tokyo, Japan

Study Objective: Laparoscopic myomectomy (LM) has been frequently performed for infertile women. However, recently, cases of advanced age are increasing, thus postoperative fertility and perinatal risks are becoming great matter of concerns. We aimed to clarify factors influencing postoperative fertility and perinatal outcomes after LM.

Design: Retrospective study.

Setting: University hospital.

Patients: 178 infertile cases who underwent LM at our hospital from 2010 to 2014 and had at least 1-year follow-up.

Intervention: Laparoscopic myomectomy.

Measurements and Main Results: Of 178 cases, 99 cases (56%) conceived after LM (spontaneous: 53 case, ART: 46 cases) and 79 cases (44%) did not achieve conception (spontaneous: 65 cases, ART: 14 cases). In spontaneous cases, age at LM (OR 0.79, 95% CI 0.66–0.94, p < .0001), diameter of enucleated largest myoma (OR 1.27, 95% CI 1.04–1.54, p = .02), and count of enucleated myomas (OR 1.06, 95% CI 1.00–1.13, p = .04) contributed for achieving conception. In ART cases, age at LM (OR 0.79, 95% CI 0.66–0.94, p = .006) and the presence of preoperative embryo cryopreservation (OR 5.02, 95% CI 1.99–12.7, p = .006) contributed for achieving conception. Spontaneous pregnancy rate was gradually decreasing over 35 years old, whereas, pregnancy rate in ART was relatively favorable under 42 years old. Of 74 pregnancies who delivered at our hospital, uterine rupture was none, however, 3 cases who were enucleated large number of myomas suffered placenta percreta.

Conclusion: LM is effective for providing suitable environment for implantation, however, surgical indication should be determined carefully with consideration of patient age, pregnancy plan and perinatal risks.

WEDNESDAY, NOVEMBER 15, 2017

539 Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

12:45 PM – STATION A

Fibroid Degeneration - Myriad Presentation and Laparoscopic Management
Bharadwaj P, Batra S, Dhopte S, Das T. Obh/Gyn, Sir Ganga Ram Hospital, New Delhi, Delhi, India

Fibroid degeneration – Myriad presentation and management. Uterine fibroid is one of the most common tumours in women of reproductive age. Degenerative changes is a result of excessive growth that outmatches the blood supply or mechanical compression of feeder arteries. Increase in size of fibroid is a result of hyaline / cystic degeneration due to accumulation of extracellular matrix. Large fibroids with degeneration with pressure symptoms can be managed laparoscopically with handling tricks to enucleate. Large fibroids post abortal can undergo rapid degeneration masquerading acute abdomen – pain abdomen, low grade fever and leukocytosis. Degenerating fibroids move towards the uterine cavity further reducing blood supply. Judicious option of conservative management followed by surgical intervention in young patients can give optimum reproductive results for the future. Chronic ectopics can mimic degenerating fibroids. Extensive cystic degeneration result in unusual presentation and should be kept as differential diagnosis in pelvic masses.
Laparoscopic Myomectomy before IVF: Influence on Endometrial Receptivity, Conception and Implantation Rate
Kozachenko IV1, Smolnikova VY1, Adamyan LV1, Stepanian AA1.
1Department of Operative Gynecology, Federal Research Center for Obstetrics, Gynecology, and Perinatology, Ministry of Healthcare of the Russian Federation, Moscow, Russian Federation; 2Academia of Women’s Health and Endoscopic Surgery, Atlanta, Georgia

Study Objective: To assess the level of endometrial receptivity markers (pinopodia, leukemia inhibitory factor (LIF), vascular endothelial growth factor-A (VEGF-A), claudin-5 (CLDN-5)) and effectiveness of IVF program before and after laparoscopic myomectomy (LM).

Design: Prospective trial.

Setting: Department of operative gynecology, Federal Research Center.

Patients: 52 patients that underwent laparoscopic myomectomy before IVF.

Intervention: The morphological and immunohistochemical features of the endometrium and the outcomes of the IVF program were studied in 52 patients with intramural uterine myoma of 4 cm in diameter with no deformation of uterine cavity before (Group 1A) and after laparoscopic myomectomy (Group 1B) performed before inclusion into the IVF program. 53 women with tuboperitoneal factor of infertility with no myometrial pathology were a control group.

Measurements and Main Results: Conception rates were 23.1% in Group 1A, 30.2% in Group 1B, and 41.5% in the control group, the decrease in the conception rates being statistically significant in the uterine myoma group as compared with the control. Implantation rates were 11.9, 16.2, and 33.9%, respectively, those being significantly higher in the control group than in the uterine myoma (p < .02) and postmyomectomy groups (p < .05). The endometrium of patients with a successful attempt of IVF and embryo transfer showed a higher level of mature pinopodia-containing cells, higher expression of LIF and VEGF-A in the stroma and epithelial layer. The vascular endometrial epithelium was characterized by a higher level of VEGF-A and a lower concentration of CLDN-5.

Conclusion: In the patients who have undergone LM prior to the IVF program, the conception and implantation rate is comparable with that in the patients without uterine myoma, which supports the need for myomectomy if intramural myomas are 4 cm or more in diameter. It is necessary to conduct investigation with the determination of a wider range of markers to evaluate the influence of myoma on reproduction.

Laparoscopic Uterine Retrieval with Preservation of Uterine and Ovarian Vascular Pedicles: Promising Application for Human Uterine Transplants
Ramirez ER1, Churchill S1, Silver R1, Ehrenburg M1, Yodfat H1.
1Obstetrics and Gynecology, Community Memorial Hospital, Oxnard, California; 2Reproductive Endocrinology and Infertility, Stanford University, Sunnyvale, California; 3Obstetrics and Gynecology, California Hospital, Los Angeles, California; 4Obstetrics and Gynecology, St. John’s Regional Medical Center, Oxnard, California

Study Objective: The treatment of uterine factor infertility has been limited to surrogacy and adoption. Over the past decade, extensive research has been conducted looking at the technical feasibility of uterine transplantation as a therapeutic option for uterine factor infertility. The purpose of the present study was to evaluate the technical feasibility of performing a laparoscopic uterine retrieval with preservation of uterine and ovarian vascular pedicles.

Design: Prospective non-randomized study, Canadian Task Force II-1.

Setting: University Hospital.

Patients: The same primary surgeon operated on 32 female patients with benign indications for hysterectomy. The women were divided into two groups: laparoscopic hysterectomy with preservation of uterine and ovarian vascular pedicles (n=12) and without preservation of uterine and ovarian vascular pedicles (n=20). Patients were excluded for gynecologic malignancy of either the cervix, uterus or ovarian origin.

Intervention: In the study group, twelve patients underwent a total laparoscopic hysterectomy with preservation of the uterine and ovarian vascular pedicles. Both uterine arteries were separated and removed at it’s proximal attachment to the internal iliacs and the ovarian veins were preserved.

Measurements and Main Results: Several variables were looked at in order to assess surgical outcome (age, body mass index, rate of complications and hospital stay). The median operative time was 155 minutes while the average blood loss was 50 ml. The uterine artery length was between 70 and 85 mm and the utero-ovarian venous complex was between 60 and 120 mm. Operative time tended to be longer in the uterine vascular preservation group while blood loss was decreased.

Conclusion: Our data suggests that a uterine retrieval procedure with the preservation of uterine and ovarian vascular pedicles can be safely performed using a minimally invasive approach. Further studies are needed to confirm whether the increased technical difficulty of this approach justifies its use for future application in reproductive surgery.
Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

12:45 PM – STATION G

Predictors of Reproductive Outcomes Following Myomectomy for Intramural Fibroids

Pepin KJ, Lebovitz O, James K, Styer A, Brown D. Obstetrics and Gynecology, Massachusetts General Hospital, Boston, Massachusetts

Study Objective: Assess the Reproductive Outcomes following Myomectomy for Intramural Fibroids in Patients with Infertility.

Design: Retrospective cohort study.

Setting: Massachusetts General Hospital, Boston, MA.

Patients: All fertility desiring women, who underwent myomectomy (all routes) for removal of intramural fibroids at Massachusetts General Hospital from January 1, 2012 through December 31, 2015. Inclusion criteria consisted of infertility for at least 12 months, concomitant with at least one intramural fibroid (defined as >50% within myometrium). Patients with exclusively submucosal or subserosal fibroids were excluded.

Intervention: Myomectomy.

Measurements and Main Results: 112 patients met inclusion criteria, comprised of 38% Caucasian, 41% African American, 12% Asian, and 9% Hispanic women. The mean (±SD) age was 37 ± 2.39 years. After myomectomy, 48 (42.8%) women conceived. The group that conceived were significantly younger compared to the group who did not conceive (36.5 ± 4.1 versus, 38 ± 4.5 years; p < .05). Pregnancy rate was higher among Caucasian women compared to African American (62.8% vs. 26.1% respectively, p = .0004). There were significantly more cases of cavity entry among patients who did not conceive, compared to those who conceived (28% vs. 13% respectively, p = .04). Complications were significantly higher in the group who failed to conceive, compared to the patients who conceived (25% vs. 8% respectively, p = .02). When adjusting for covariates that could impact fertility, the chances of conception following myomectomy for intramural fibroids were significantly lower in African-American women. African–American women were less likely to conceive following myomectomy compared to Caucasians (OR = 0.20; 95% CI 0.08-0.74, p = .01). No significant differences were found between patients who conceived versus those who did not with respect to surgical approach, operative time, and estimated blood loss.

Conclusion: Our results support that myomectomy improves reproductive outcomes in patients with infertility and intramural fibroids. The reproductive success was higher in patients that were younger, Caucasian, had no complications, and exhibited no evidence of cavity entry during myomectomy.

Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

12:45 PM – STATION H

Presentation and Treatment of Patients with Atypical Ectopic Pregnancies at an Academic Urban Health Center

Wang A, Fridman D, Wu C, Levie M, Rotenberg O, Dar P. Department of Obstetrics and Gynecology, Montefiore Medical Center; Bronx, New York

Study Objective: Report prevalence and management of atypical ectopic pregnancies (AEP) in the urban community.

Design: Retrospective cohort.

Setting: North Eastern urban academic medical center.


Intervention: Chart review.

Measurements and Main Results: 1481 patients were treated for EP during that time frame. There were a total of 72 (4.9%) patients with AEP – 1 with abdominal, 23 with cervical, 20 with cesarean scar, 26 interstitial and 2 heterotopic. There was no difference in demographic, clinical and/or laboratory presentation among these patients. The only parameter reliably distinguishing AEP from tubal EP was imaging (all were diagnosed using ultrasound examination). Various treatment modalities were implemented individualized to the clinical situation. Most of them underwent treatment with systemic methotrexate even though that was associated with the highest failure rate. Those with cervical EP had the highest proportion of treatment involving UAE, while those with cesarean EP had the highest proportion of treatment involving local administration of methotrexate and/or potassium chloride. The failure rate for systemic methotrexate requiring additional intervention and/or surgery was 26%, 10% and 16.7% for cervical, cesarean and interstitial pregnancy respectively. No specific treatment protocol was used.

Conclusion: AEP in our population constitutes about 5% of all ectopic pregnancies. The only diagnostic tool distinguishing AEP from tubal EP was ultrasound imaging. There was a significant diversity in managing cases of AEP. Each individual was clinically assessed on presentation and no specific protocol was followed. Majority favored systemic methotrexate only, even though it was associated with highest failure rate. Physicians should be familiar with clinical presentation of patients with AEP.

Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

12:51 PM – STATION A

Racial and Ethnic Disparities in Complication Rate in Patients Undergoing Myomectomy

Pepin KJ, Lebovitz O, James K, Styer A, Brown D. Vincent Obstetrics & Gynecology, Massachusetts General Hospital, Boston, Massachusetts

Study Objective: To Assess for Outcome Disparities Among Patients Undergoing Myomectomy.

Design: Retrospective cohort study.

Setting: Massachusetts General Hospital.

Patients: All women who underwent myomectomy (all routes) at Massachusetts General Hospital from 1/13-12/15.

Intervention: Myomectomy.

Measurements and Main Results: A total of 547 women were identified and comprised of 51.9% (n = 284) Caucasian (C), 26.9% (n = 158) African–American, 7.7% (n = 42) Asian, and 11.5% (n = 63) Hispanic women. Intraoperative and postoperative complications according to Clavien-Dindo classification were evaluated. Overall, complications occurred in 14 % of patients. At the time of surgery, African–American women had a significantly
Cases of fluid intravasation involve rapid entry of irrigation fluid into the systemic circulation. This process can cause morbidity and death. Intravasation is a process by which fluid enters the systemic circulation. In our case we did not see a difference in intravasation rate with vasopressin use. Once again this was complicated by rapid intravasation despite intracervical vasopressin use.

Conclusions: Identifying patients at increased risk for intravasation based on HSG or previous hysteroscopy can aid in pre-operative planning. Although, in our case we did not see a difference in intravasation rate with vasopressin, this along with GnRH agonists should be considered in women known to have rapid intravasation.

549 Virtual Posters – Session 4
(12:45 PM – 2:00 PM)
12:51 PM – STATION C
Reproductive Outcomes Following Minimally Invasive Fertility-Sparing Treatment of Uterine Fibroids
Glasure LM,1 Kotarska M,2 Alvi FA,1 Milad MP,1 Vogelzang R,1 Lin A1.1Division of Minimally Invasive Gynecology, Northwestern University Feinberg School of Medicine, Chicago, Illinois; 2Division of Interventional Radiology, Northwestern University Feinberg School of Medicine, Chicago, Illinois
Study Objective: To evaluate differences in patient characteristics and reproductive outcomes following robotic-assisted laparoscopic myomectomy and uterine fibroid embolization (UFE) in patients with symptomatic fibroids, and to evaluate risk factors for subsequent adverse pregnancy outcomes.
Design: Retrospective cohort study.
Setting: Academic tertiary care center.
Patients: Thirty-four patients undergoing robotic-assisted laparoscopic myomectomy and sixteen patients undergoing uterine fibroid embolization between 2006 and 2016, all of whom achieved subsequent pregnancy at the same institution.
Intervention: Robotic-assisted laparoscopic myomectomy or UFE for symptomatic fibroids.
Measurements and Main Results: When compared with patients with pregnancy after robotic myomectomy, those with pregnancy after UFE were more likely to be African-American or Asian (p = .003), have predominant bulk symptoms (p = .001), and have predominately intramural fibroid

larger uterine volume (679 mL ± 121) and a larger fibroid burden (57% > 5 fibroids) when compared to Caucasian (374 mL ± 26, 22% > 5 fibroids), Asian (453 mL ± 33, 20% > 5 fibroids), and Hispanic women (386 mL ± 52, 24% > 5 fibroids) (p < .001). African–American women were less likely to have a hysterectomy (19%), and more likely to have abdominal (51%) compared to other races (p < .001). Asian women were more likely to have fibroids presenting with cavity impingement (93%), compared to Caucasian women (77%), African–American Women (84%), and Hispanic Women (87%) (p = .035). African–American women had longer operative times, mean = 179 min (range 16–470), and a greater estimated blood loss, mean = 200 cc (range 10–3000) compared to other races (p < .002). Hispanic and African–American women had greater overall complication rates (19%, 20%) compared to Caucasian and Asian women (10%, 12%) (P = .020).

Conclusion: There may be multiple significant factors associated with increased complications in patients undergoing myomectomy, including patient race, surgical modality, uterine volume, and number of fibroids. African–American women had a larger burden of these potential risk factors when compared to other races. Larger, prospective studies are warranted to better understand these racial and ethnic differences, with the goal of decreasing health disparities.
Uterine volume at the time of treatment was similar for both groups. Forty-one percent of patients in the UFE group had a prior abdominal myomectomy; 3% of patients in the robotic myomectomy group had a prior robotic myomectomy. Risk of spontaneous abortion and route/timing of delivery did not significantly differ between groups. The rate of composite adverse pregnancy outcomes for deliveries over 24 weeks, including uterine rupture, postpartum hemorrhage, abruption, and intrauterine growth restriction, did not differ significantly between the UFE and robotic myomectomy groups (36% vs 28%; p = .728).

Pre-procedure uterine volume, number of uterine incisions at myomectomy, predominant fibroid location, and time from procedure to pregnancy were not associated with the risk of adverse pregnancy outcomes.

**Conclusion:** In patients achieving subsequent pregnancy, robotic-assisted laparoscopic myomectomy and UFE are associated with similar reproductive outcomes. UFE may be a safe alternative to minimally invasive myomectomy in patients desiring future fertility.

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**550 Virtual Posters – Session 4**

**12:45 PM – 1:45 PM**

**Reproductive Surgery of Uterine Anomalies**


**Study Objective:** To optimize the surgical correction and reproductive outcomes for females with uterine anomalies using blood flow parameters obtained by dynamic contrast-enhanced magnetic resonance imaging (DCE MRI).

**Design:** Retrospective analysis of reproductive outcomes after surgery with uterine anomalies comparison with data of DCE MRI.

**Setting:** Federal Scientific Center of Obstetrics, Gynaecology and Perinatology, Moscow, Russia.

**Patients:** Between 1992–2017 the 2025 patients was operated with various uterovaginal anomalies.

**Intervention:** Surgical reconstruction performed for: utero-vaginal aplasia – creation of neovagyna (352 cases); uterus duplex (296), bicornuate uterus (210) – correction of other infertile factors; unicornuate uterus – laparoscopic removing of rudimentary horn (245); partial vaginal aplasia– vagnyoplasty (240), cervico-vaginal aplasia (64) – hysterectomy of rudimental uterus performed in 45 cases, for 21 patients successfully created the neo-cervical canal with intrauterine stentation; septate uterus - hysterectomy of rudimentary uterus performed in 45 cases, for 21 patients successfully created the neo-cervical canal with intrauterine stentation; septate uterus for estimate the blood flow in myometrium and in uterus septum and to determine the surgical tactics.

**Measurements and Main Results:** More than 52% patients had concomitant infertile factors: tubal and peritoneal adhesions (34%), intrauterine synchia (7%), polycystic ovary (17%) and hormonal disorders – anovulation (19%). According to the DCE MRI in patients with intrauterine septum were 2 groups: 1 group – patients without disorders of blood flow in intrauterine septum, which in 86% of successfully carrying the pregnancy; 2 group – patients with reduced blood flow, which 84% have reproductive losses in the anamnesis (p < 0.01). Thise patients are necessary to provide surgical treatment for eliminant areas of disturbed blood flow, preventing reproductive losses.

**Conclusion:** The reconstructive surgical correction and method of DCE MRI allows studying the characteristics of blood flow in myometrium and improving reproductive outcomes of 57% women with uterine anomalies.
551  Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

12:51 PM – STATION E

Successful Management of Live Caesarean Scar Ectopic Pregnancies with Ultrasound Guided Local Potassium Chloride and Systemic Methotrexate

Kriplani A, Mahay R, Kachhawa G, Gupta M, Kriplani I. Obstetrics & Gynaecology, All India Institute of Medical Sciences, New Delhi, Delhi, India

Study Objective: To demonstrate efficacy of local intrasac potassium chloride (KCL) and systemic methotrexate in successful management of live caesarean scar ectopic pregnancies with high initial hBhCG.

Design: Evidence obtained from several timed series with or without intervention (Canadian Task Force classification II-3).

Setting: Tertiary care referral hospital.

Patients: Two patients with caesarean scar live ectopic presenting at 6–7 weeks gestation with very high hBhCG (50 000–300 000 IU/ml).

Intervention: After proper counselling, regarding the options available and need of follow up, both patients opted for surgical assisted medical management. The need of emergency surgery was explained. Transvaginal ultrasound (TVS) guided intrasac KCL (2–4 meq, 15% w/v) instillation into ectopic gestation under sedation followed by systemic methotrexate injection 1 mg/kg as multiple dose protocol (4 doses) alternating with leucovorin (0.1 mg/kg).

Measurements and Main Results: B-hCG at presentation in first patient was 50 099 IU/ml and in second patient was 297 969 IU/ml. B-hCG was measured on alternate days during systemic methotrexate therapy till a fall of more than 15% was observed and thereafter it was measured weekly. B-hCG started declining after the third dose in first patient and after 4th dose in second patient. The patients were followed up weekly till bHCG was negative. Mean duration for bHCG to become negative was 14–16 weeks.

Conclusion: Caesarean scar ectopic pregnancy with very high hBhCG and fetal cardiac activity is a potentially serious condition which can lead to life threatening complications. Incidence is increasing due to increasing caesarean section rate. Patients who are hemodynamically stable, desiring future fertility and willing for follow up, medical management with combined ultrasound guided intrasac KCL and systemic methotrexate is a viable option even in patients with very high hBhCG and fetal cardiac activity in ectopic gestation.

552  Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

12:51 PM – STATION F

Surgical Management of a Large Leiomyoma Embedded in a Complete Uterine Septum

Abuzeid O, Hebert J, Abuzeid M. Obst/Gyn, Hurley Medical Center/ Michigan State University College of Human Medicine, Flint, Michigan

The objective of this video presentation is to describe the surgical technique of hysteroscopic myomectomy of a large leiomyoma that was found embedded at the base of a complete uterine septum during hysteroscopic division of the septum. This video focuses on one case of a patient that was undergoing infertility workup due to recurrent pregnancy loss secondary to advanced maternal age and diminished ovarian reserve. Patient underwent operative hysteroscopy for septoplasty, and was found to have a complete uterine septum and during hysteroscopic division was found to have a large fibroids embedded in the septum. Post op SIH was done and the patient is currently trying to conceive on her own. In experienced hands hysteroscopic myomectomy of a large leiomyoma that is embedded at the base of a complete uterine septum can be safely performed at the same setting of hysteroscopic division of the septum.

553  Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

12:51 PM – STATION G

Temporal Trends in the Insertion to Removal Interval for LARCs in a Diverse Private-Practice Patient Population

Howard DL, Ford A, Ceballos S, Volker KW. Las Vegas Minimally Invasive Surgery and Women’s Pelvic Health Center, Las Vegas, Nevada

Study Objective: To assess temporal trends in continuation of long-acting methods of reversible contraception (LARC) in the private practice setting.

Design: Retrospective cohort study based on billing records. The “outcome” was LARC discontinuation. The “exposure” was year of insertion. The Kaplan-Meier method was used to estimate 12-month continuation rates, stratified by year of insertion. Women were censored at 12-months if there was no claim for removal within 12 months after insertion date.

Setting: The largest gynecological practice in Las Vegas, Nevada in terms of surgical volume and the only location in Nevada with an accredited fellowship in Minimally Invasive Gynecology. The practice has nine clinic sites throughout the city and serves a diverse population both racially and geographically.

Patients: We studied 2266 LARC insertions between January 1, 2013 and December 31, 2015. There were 589, 658, and 1019 insertions in 2013, 2014 and 2015 respectively.

Intervention: None.

Measurements and Main Results: Average age of this population, by year of insertion, was 30.8, 31.2, and 30.7 years for 2013, 2014 and 2015.
respectively. The proportion with Medicaid insurance was 2.6% (n = 15), 5.0% (n = 33) and 8.4% (n = 86) for 2013, 2014, and 2015 respectively (trend statistically significant, chi square = 34.1, p < .001). Using Kaplan-Meier estimation, the 12-month LARC continuation rates were 85.4%, 75.3% and 64.3% for 2013, 2014 and 2015, respectively. The three survivor curves were significantly different (log rank test p-value = .009).

Conclusion: This study makes a suggestion that 12-month LARC continuation rates in this large private practice setting have decreased over time. Considering the high cost of LARCs, further studies are needed to determine the source of this trend.

Association between year of insertion, age and insurance status, respectively and the uptake of the etonogestrel implant.

<table>
<thead>
<tr>
<th>Model strata</th>
<th>Odds of LARC being implant versus IUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age&lt;30</td>
<td>OR(95% CI)</td>
</tr>
<tr>
<td>Age&lt;30</td>
<td>OR(95% CI)</td>
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</tbody>
</table>

Model terms

<table>
<thead>
<tr>
<th>Age(continuous)</th>
<th>Private Insurance(vs. Medicaid/self-pay)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.93(0.89–0.98)</td>
<td>1.06(0.52–2.15)</td>
</tr>
<tr>
<td>0.81(0.78–0.83)</td>
<td>2.48(1.73–3.54)</td>
</tr>
</tbody>
</table>

année = Long acting reversible contraception. IUD = Intrauterine device.

Conclusion: In this large private practice setting the implant was significantly more popular among women under 30. However, among women 30 years and older, we observed a 3-fold increase in the uptake of the subdermal implant from 2013–2016. Further studies of implant uptake in the private practice setting are needed.

Virtual Posters – Session 4
(12:45 PM–1:45 PM)

12:51 PM – STATION H

Temporal Trends in the Uptake of the Etonogestrel Implant in a Large Private Practice Setting
Howard D, Ford A, Ceballos S, Volker K. Las Vegas Minimally Invasive Surgery and Women’s Pelvic Health Center, Las Vegas, Nevada

Study Objective: To assess temporal trends in the uptake of the etonogestrel subdermal implant in a large private practice setting.

Design: This was a retrospective cohort study based on billing records.

Setting: A large multi-specialty private practice in Las Vegas, Nevada.

Patients: We looked at women of all ages seeking long-acting reversible contraception between January 1, 2013 and December 31, 2016.

Intervention: None.

Measurements and Main Results: The main outcome measure was uptake of the etonogestrel subdermal implant, expressed as a fraction of all insertions of long acting reversible contraceptives (LARCs), across four calendar years (2013–2016). There were 3477 total LARC insertions across the 4 year study period. In 2013, 51.6% of LARC insertions were in women under 30 years compared to 47.7% in 2016 (p = .04). In 2013, 5.1% of LARC insertions occurred in women with Medicaid compared to 19.6% in 2016 (p < .001). In unadjusted analyses, the uptake of the etonogestrel implant increased from 3.0% of LARC insertions in 2013 to 4.5% in 2015 to 9% in 2016 among women 30 years and older. For women under 30 years old, the uptake of the implant stayed stable from 2013–2015 (22.8%, 21.7%, 22.4%) but increased to 30.9% in 2016. We modeled the uptake of the implant as a function of year of insertion adjusted for age (continuous) and insurance status (Private vs. Medicaid) and we stratified the models by age (less than 30 and 30 years and older). The positive association between year of insertion and uptake of the implant was significantly stronger for women 30 and older compared to women under 30 years old.

Conclusion: This study makes a suggestion that 12-month LARC continuation rates in this large private practice setting have decreased over time. Considering the high cost of LARCs, further studies are needed to determine the source of this trend.

Enrolled = Long acting reversible contraception. IUD = Intrauterine device.

Conclusion: In this large private practice setting the implant was significantly more popular among women under 30. However, among women 30 years and older, we observed a 3-fold increase in the uptake of the subdermal implant from 2013–2016. Further studies of implant uptake in the private practice setting are needed.

555 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

12:57 PM – STATION A

The Endometriosis Fertility Index Accurately Predicts Fertility Outcomes in Women Having Surgery for Severe Endometriosis
Maheux-Lacroix S, Nesbitt-Hawes E, Deans R, Won H, Budden A, Abbott J. Royal Hospital for Women, University of New South Wales, Sydney, NSW, Australia

Study Objective: To determine fertility outcomes and predictors of live births following resection of stage III–IV endometriosis.

Design: We performed a retrospective cohort study and assessed fertility outcomes after a minimum of six months of follow-up.

Setting: Two tertiary hospitals in Sydney, Australia: Prince of Wales Private Hospital and Royal Hospital for Women.

Patients: A total of 279 women with stage III-IV endometriosis who attempted to conceive post-operatively were included in the study (participation rate = 84%) with a mean follow-up of four years.

Intervention: Laparoscopic resection of stage III-IV endometriosis.

Measurements and Main Results: The endometriosis fertility index (EFI) was calculated based on detailed operative reports and surgical images. Fertility outcomes were obtained by direct patient contact. Kaplan-Meier model, log rank test and Cox regression were used for analyses. A total of 147 women (63%) obtained a live birth following surgery, 94 of them (64%) without assisted reproductive technology (ART). The EFI was highly associated with non-ART live births (p < .001), the estimated cumulative rate at 5 years being 0% for women with an EFI of 0–2 and steadily increasing up to 91% for women with an EFI of 9–10 (Fig. 1).

A low least function score (taking into account the impact of lesions on the function of the adnexa) was the most significant predictors of failure (p = .037), followed by having had a previous resection (p = .019) or incomplete resection (p = .028) of endometriosis, being older (p = .027), and having leiomyomas (p = .037).

Conclusion: Women with a high EFI have excellent fertility prognosis and may be advised to try to conceive naturally compared to women with a low score for which prompt referral to ART seems more reasonable. Other prognostic factors can be used to guide the management of women with intermediate EFI score. Localization and impact of lesions on the function of the adnexa seems crucial for the fertility prognosis.
The Incidence of Mechanical Complications of Intrauterine Devices in the United States

Howard DL, Ceballos S, Volker KW. Las Vegas Minimally Invasive Surgery and Women’s Pelvic Health Center, Las Vegas, Nevada

Study Objective: No large-scale study has specifically aimed to estimate the incidence of mechanical complications of intra-uterine devices (IUDs) in the United States. The purpose of this study was to attempt to estimate the incidence of mechanical complications of IUDs in the course of routine clinical practice in the United States.

Design: Retrospective cohort study. Study period was from January 1, 2015 to December 31, 2016. Primary data source was billing records. We used ICD-10 codes T83.32XA, T83.32XD, T83.32XS, T83.39XA, T83.39XD, and T83.39XS to identify claims for a mechanical complication of an intrauterine device.

Setting: A large multi-specialty practice in Las Vegas, Nevada. This practice is the only site in Nevada that has an accredited 2-year fellowship in Minimally Invasive Gynecological Surgery.

Patients: All women who presented to this large multi-specialty practice for an insertion or removal of an intrauterine device and for whom a claim was generated.

Measurements and Main Results: There were 1123 and 1410 IUD insertions “at risk” for removal at the start of 2015 and 2016 respectively. In terms of IUD removals with an associated ICD-10 code indicating a mechanical complication, there were 6 claims during 2015 and 24 claims during 2016. The resulting incidence of mechanical complications of IUDs was calculated as 5.3 per 1000 insertions (6/1123) for 2015 and 17.0 per 1000 insertions (24/1410) for 2016. Combining both years, the overall incidence over the 2-year period was 11.8 per 1000 insertions (30/2533).

Conclusion: The results of this study suggest that the incidence of mechanical complications of IUDs in the United States may be higher than estimates of 1.1–1.6 per 1000 insertions in recent studies from Europe and New Zealand. If the findings of this study are corroborated by other studies in the United States, the clinical and policy implications are potentially significant.
Patients: From September 2013 to July 2016, 30 patients (10 treated by robot-assisted and 20 by conventional laparotomy) diagnosed with endometrial cancer were enrolled.

Intervention: All of patients were performed with simple hysterectomy, bilateral salping-oophorectomy, pelvic lymphadenectomy and sampling of omental tissue.

Measurements and Main Results: The two groups did not significantly differ in patient age and BMI. No differences between the surgical outcomes were observed in relation to estimated blood loss, pelvic lymphnode retrieval, and perioperative complication rates. Conventional laparoscopic surgery was faster to perform than robotic-assisted laparoscopic surgery (laparoscopic: 295 ± 38.2 min vs robotic: 375 ± 30.5 min p < .0001). Otherwise, the surgical outcome was similar between the groups.

Conclusion: Our results showed that both the conventional laparoscopic surgery and robot-assisted surgery for endometrial cancer were technically feasible. Initial experience at our hospital, robotic surgery is not necessary for early stage endometrial cancer surgery if done by the skilled laparoscopic surgeon. We need further studies to evaluate advantages and disadvantages of robotic-assisted surgery.

Fertility and Pregnancy Outcomes Following Robotic-Assisted Laparoscopic Myomectomy (RALM) in a Canadian Cohort

McCaffrey CM,1 Anjum H,1 Moore S,1 Kives SL,1 1Department of Obstetrics & Gynecology, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada; 2Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada

Study Objective: The primary objective of this study is to analyze fertility and pregnancy outcomes in patients who underwent Robotic-Assisted Laparoscopic Myomectomy (RALM) in Canada. We also evaluated symptom relief, cosmetic satisfaction and fibroid recurrence.

Design: This is a retrospective chart review in which patients who underwent RALM between 2008 and 2013 were followed up through telephone interviews over two years following their RALM surgery.

Setting: The study took place at the only hospital site in Canada where Robotic-Assisted Laparoscopic Myomectomies are currently performed.

Patients: All 126 women who underwent RALM from October 2008 – September 2013 under the care of three surgeons at the clinical site were contacted to participate in the study. Of these patients, 102 women agreed to participate and completed the study (mean age = 37y).

Intervention: Robotic-Assisted Laparoscopic Myomectomy.

Measurements and Main Results: Through follow-up with standardized telephone interviews, participants reported post-surgery pregnancy outcomes, fertility outcomes, symptoms, cosmetic satisfaction and recurrence of fibroids. These results, as well as pre-surgery uterine fibroid characteristics, such as size and location, were analyzed through patient chart review. Following RALM surgery, 59 women attempted to conceive for 1 month or more. Of those trying to conceive, 42 (42/59; 71%) became pregnant. 35 women (35/42; 83%) have successfully delivered or are greater than 24 weeks pregnant at the time of data collection. 8 (8/42; 19%) women experienced at least 1 miscarriage. All women who delivered following RALM had a cesarean section. 83 women (83/102; 81%) were asymptomatic following their RALM surgery. Uterine fibroids recurred in 47 women (47/102; 46%) at time of data collection, the majority of which were asymptomatic.

Conclusion: RALM may provide a viable and minimally invasive surgical alternative to conventional laparoscopic myomectomy and open myomectomy for women with uterine fibroids desiring symptom relief, and importantly, future fertility.
561 Virtual Posters – Session 4 (12:45 PM–1:45 PM)

12:57 PM – STATION G

Long-Term Outcomes of Robotic Sacrocolpopexy Using Barbed Delayed Absorbable Sutures for Vaginal Mesh Fixation
Kilic SG,1 Borahay M2,3,4 Zeybek B,4 Ulu§u BS,5 1Department of Obstetrics and Gynecology, University of Texas Medical Branch at Galveston, Galveston, Texas; 2Department of Obstetrics and Gynecology, Johns Hopkins University School of Medicine, Baltimore, Maryland

Study Objective: To evaluate long-term outcomes of robotic sacrocolpopexy (RSC) for pelvic organ prolapse using barbed delayed absorbable sutures in fixation of the vaginal portion of the mesh graft.

Design: Retrospective cohort study (Class II-3).

Setting: University-based hospital in Southeast Texas.

Patients: Women who underwent RSC over a 53 month period by a single provider.

Intervention: BDA suture was used (n = 36) in fixation of the vaginal portion of the mesh graft.

Measurements and Main Results: A total of 36 patients with apical vaginal prolapse which is repaired with RSC using barbed delayed absorbable sutures for vaginal mesh fixation was identified. The BDA suture was 2-0 V-Loc™ 180. The primary outcome were mesh exposure, postoperative complications, and recurrence of prolapse. Sacrocolpopexy failure was defined as patients undergoing either repeat prolapse surgery or pessary use for recurrent prolapse. The mean (SD) ages at surgery were 53.2 (10.9) years and the mean (SD) lengths of postoperative follow-up were 40.5 (19.5) months. The mean (SD) body mass indexes were 29.1 (5.2) kg/m2. During follow-up, 3 (8%) patients underwent prolapse retreatment. There were 1 apical recurrence, 1 anterior recurrence, and 1 posterior recurrence. Apical recurrence was found in routine postoperative clinic visit at 3rd months after surgery. Among those with recurrence, the mean time (SD) to recurrence was 18.3 (4.9) months. The only significant difference in the comparison of the two groups with and without postoperative complications was in the group without urinary incontinence surgery (p = .05). Mesh exposure has not been observed in any of cases.

Conclusion: With a mean follow-up of 40 months, the use of barbed delayed absorbable suture for vaginal attachments during RSC is safe and effective after the previously published our 1-year results.

562 Virtual Posters – Session 4 (12:45 PM–1:45 PM)

12:57 PM – STATION H

Ovarian Torsion After Robotic Ovarian Transposition in Patients with Cervical Cancer: A Report of Two Cases
Naki MM,1 Sanverdi I,2 Akyanay Y,3 Alkhan F,4 Kose FM,4 1Ob/Gyn, Acibadem Medical Faculty, Istanbul, Turkey; 2Ob/Gyn, Zeynep Kamil Maternity and Children’s Health Training and Research Hospital, Istanbul, Turkey

Study Objective: Ovarian torsion (OT) is considered to be an efficient method to prevent radiation-induced ovarian damage and thus to preserve ovarian function in young women with early stage cervical malignancy who require pelvic irradiation treatment. Herein we report 2 cases of ovarian torsion after robotic OT in young women scheduled for radiation therapy for treatment of cervical cancer.

Design: Case report.

Setting: Obstetrics and Gynaecology Department of Acibadem Medical Faculty.

Patients: In Case 1 with stage IB1 squamous cell carcinoma of the cervix who had sentinel lymph node mapping without radical hysterectomy, uneventful postoperative period, pelvic radiotherapy, and normal cyclic menstrual period after OT, ovarian torsion developed in the 2nd postoperative year. In Case 2 with stage I adenocarcinoma of cervix, following patient had robotic sentinel lymph node mapping, type III radical hysterectomy, bilateral pelvic and para-aortic lymph node dissection and ovarian transposition, unilateral ovarian torsion developed on the postoperative 3rd day of ovarian transposition.

Intervention: In first case, Patient had emergency laparoscopy. Upon findings of normal left ovary along with enlarged and necrotized right ovary which torsed several times, patient underwent right oophorectomy and discharged on 2nd postoperative day (Fig. 1). In second case, Patient had emergency laparoscopy which revealed right ovarian torsion and patient underwent right oophorectomy (Fig. 2).

Measurements and Main Results:

Conclusion: To our knowledge, two similar cases have recently been published by other authors, with these two cases it seems that this kind of unexpected surgical outcome may not be rare and possibility of this outcome should be kept in mind during patient follow-up.

563 Virtual Posters – Session 4 (12:45 PM–1:45 PM)

1:03 PM – STATION A

Robotic Tumor Debulking with Partial Cystectomy, Bladder Reconstruction, and Ureteral Implantation in Recurrent Endometrial Cancer
Seifi F, Davis MK, Clark M, Paraizo E, Azodi M. Ob/Gyn, Gyn/Onc, Yale New Haven Health/Bridgeport Hospital, Bridgeport, Connecticut

Robotic-Assisted Laparoscopy, debulking of tumor in recurrent endometrial cancer, in a 68 years old female who was diagnosed with endometroid type endometrial cancer stage IB in 2005, underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy and staging followed by vaginal cuff radiation. Subsequently she had recurrence in right pelvic, received chemotheraphy and pelvic radiation in 2014. Isolated tumor started to grow in 2016, at right pelvic side invading to lower part of right ureter, base of bladder and upper vagina. Isolating of tumor around the iliac vessels was performed, followed by resection of upper vagina, distal right ureter, dome and base of bladder and partial cystectomy done with no complication. Followed by ureteroneocystotomy.
Post op course was uncomplicated and patient was discharged home on POD #6. Foley removed and urology follow up was unremarkable in 2 weeks. Patient successfully started on chemotherapy.

564 Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

1:03 PM – STATION B

Robot-Assisted Laparoscopic Adenomyectomy for Conserving Uterus in Patient Who Have Huge Adenomyoma


Study Objective: To report the surgical method for adenomyomectomy as robot-assisted laparoscopic adenomyomectomy.

Design: Case report.

Setting: Fertility Center of tertiary university hospital.

Intervention: 45 year old woman with severe secondary dysmenorrhea and urinary retention visited Seoul St. Mary’s hospital. She was unmarried, nulliparous, and had no other past medical history. Adenomyosis was diagnosed by pelvic ultrasonography. Pelvic MRI was performed for detecting exact location and sized of the lesion. 6.5x9.4 size focal adenomyosis was noted on posterior uterine wall, and enlarged uterus compressed bladder. Serum level of CA-125 before surgery was 434.00/mL.

The robot-assisted laparoscopic adenomyectomy was performed under general anesthesia. We made a vertical incision on uterine posterior wall, and the adenomyoma was removed by monopolar scissors without electrocauterization. For suturing remained myometrium without dead space, we divide the space in left and right. At first left half myometrium was sutured with barbed suture material, and then the right side was done in same manner. Suture of both side myometrium approximate the remained uterine wall sufficiently. We sutured serosa layer with baseball suture for inhibiting post operation adhesion.

Measurements and Main Results: Dysmenorrhea and pelvic pain nearly disappeared after surgery. Three months after surgery, patient had pelvic ultrasonography for evaluating status of uterus. There was no remaining adenomyosis in pelvic ultrasonography, and the serum level of CA-125 was 2.24/mL.

Conclusion: Adenomyosis is one of common gynecologic disease. Patients usually suffer from dysmenorrhea, menorrhagia, chronic pelvic pain, and infertility. Unclear margin from normal myometrium and easily breaking tissue challenge the surgical removal of adenomyoma. Robot-assisted laparoscopic adenomyectomy can be one of choice for adenomyosis patients who want to fertility preservation.

565 Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

1:03 PM – STATION C

Robotic Approach to the Tethered Uterus after Multiple Cesarean Deliveries

Keltz J, Lopez J, Shin JH. Obstetrics and Gynecology and Women’s Health, Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, New York

In our patient population, multiple prior cesarean deliveries are common. With each repeat surgery, the risk of developing significant adhesions increases. Patients with uterine adhesions following cesarean delivery may present with chronic pelvic pain, dysmenorrhea, dyspareunia, or abnormal uterine bleeding requiring surgical intervention. This video aims to illustrate a stepwise minimally invasive approach to safely dissect dense adhesions of the uterus to the anterior or abdominal wall and bladder at time of hysterectomy. First identify the anatomy, then open the round ligament and dissect out the uterine vessels to minimize blood loss. Develop the vesico-uterine space over the colpotomy cuff of your uterine manipulator. Back fill the bladder to help identify its boundaries and assist in dissection. Finally, carefully take down the uterine adhesions while avoiding removing the abdominal wall fascia. This will allow for safe dissection of the tethered uterus after multiple cesarean deliveries.

566 Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

1:03 PM – STATION D

Robotic Repair of Incidental Vaginal Laceration during da Vinci-Assisted TLIH

Gupta N, Depasquale S. University of Tennessee College of Medicine, Chattanooga, Tennessee

This video presentation describes da Vinci assisted repair of vaginal lacerations, noted after completion of a robotic hysterectomy. The laceration is repaired prior to closure of the vaginal cuff. These lacerations are usually caused by removal of large uterus, instrumentation or manipulation of a narrow, atrophic vagina for specimen retrieval. Such repairs can be cumbersome, if vaginal approach is used. This is due to their high location in the upper one-third of vagina, close to the cuff. By performing a robotic repair, surgeons can decrease their operative time, blood loss from the laceration and spare the struggle of a vaginal repair.

567 Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

1:03 PM – STATION E

Robotic Single-Incision Laparoscopic Burch Colposuspension for Stress Urinary Incontinence

Zhang K1, Liu J1, Kleihermes C1, Guan X1. Obst/Gyn, Baylor College of Medicine, Houston, Texas; 2ObGyn, Guangzhou Medical University, Guangzhou, Guangdong, China

Background: Burch colposuspension is a reliable alternative to sling procedures for treating women presenting with stress urinary incontinence (SUI), which affects approximately 15% of women in the United States. The proposed mechanisms of achieving continence are bladder neck elevation and stabilization, which allows normal pressure transmission during periods of increased intra-abdominal pressure restoring continence in a previously incontinent, hypermobile UVJ. Single-incision laparoscopic(SILS) Burch colposuspension is a minimally invasive fashion with less bleeding, infection, pain, and better cosmetic outcome. However it is challenging for difficult intracorporeal suturing and precise placement of sutures in the pelvis. Robotic-assisted SILS circumvents such difficulty.

Objective: To describe the robotic SILS Burch colposuspension for SUI.

Clinical information: A 67 year-old G4P3 female presenting with SUI and stage III pelvic organ prolapse.

Interventions: Robotic SILS Burch colposuspension after sacrocolpopexy.

Conclusion: Robotic SILS Burch colposuspension is feasible alternative for management of stress urinary incontinence.

568 Virtual Posters – Session 4  
(12:45 PM–1:45 PM)

1:03 PM – STATION F

Role of Robotic Surgery in Patients with Huge Uteri

Wang P-Y. Obstetrics and Gynaecology, Taipei Medical University Hospital, Taipei City, Taiwan

The objective of this video is to present a case of robotic total hysterectomy on a patient with a huge myomatous and adenomatous uterus, and to demonstrate the capability of robotic instruments and certain techniques used...
while encountering robotic total hysterectomy for large uteri. Our experience suggests that with appropriate training and certain techniques, the robotic approach for total hysterectomy offers a feasible approach to treat large uteri. The operation results in reduced blood loss, shorter hospital stays and decreased surgical related complications. It may be considered that when large uteri require total hysterectomy, robotic surgery is a superior alternative.

Patients: Patients receiving Robotic-Assisted Transabdominal cerclage for obstetric indications.

Intervention: Robotic-Assisted Transabdominal cerclage by fellowship trained minimally invasive gynecologists.

Measurements and Main Results: A total of 34 consecutive patients receiving robotic-assisted transabdominal cerclage for obstetric indications were selected. We compared 109 pregnancies pre-robotic cerclage to 26 completed pregnancies post robotic cerclage. To assess whether robotic cerclage had any effect on duration of pregnancy, we categorized gestational age into categorical variables: 0–13 weeks, 13–24 weeks, 24–28 weeks, 29–34 weeks, 34–36 weeks and term (>37 weeks). Using crosstabs between the categorized gestational age and obstetric outcomes pre/post robotic cerclage, we tested whether there was a significant association using a chi-squared test for categorization. Chi-squared = 71.016, p < 0.001. The distribution of the counts suggests that gestation age is significantly increased post cerclage. To test for delivery before and after 34 and 37 weeks pre and post cerclage we used Fisher exact test for categorization. The odds of delivering at gestational age 34 + is 48.45 times greater post robotic cerclage with a 95% CI of (13.14–232.75) and the odds of delivering at gestational age 37 + is 33.03 times greater with a 95% CI of (9.84–129.85).

Surgical outcomes were also favorable with zero conversions to open or perioperative pregnancy loss, zero intraoperative complications and two postoperative complications (port incision cellulitis).

Conclusion: Based the crosstabs generated, it is clear that post robotic cerclage gestation age is longer than pre-robotic cerclage. The hypothesis tests performed on whether delivery at 34+ weeks and 37+ weeks is significantly different between pre and post cerclage pregnancies yielding significant p values. Robotic-assisted Transabdominal cerclages provide excellent obstetric outcomes without the morbidity associated with open Transabdominal cerclage and technical challenges associated with the laparoscopic-assisted Transabdominal cerclage.

Two-Port Robotic Hysterectomy: A Novel Approach

Tyan P, Abi Khalil E, Moawad G. Obstetrics and Gynecology, George Washington University Hospital, Washington, District of Columbia

We present a novel approach for the two-port robotic hysterectomy with a focus on the two-port salpingectomy and two-port cuff closure.

Case: 41-year-old patient with symptomatic adenomyosis.

Port placement: 12 mm umbilical and 8 mm supracervical. The optimal distance between the two ports is 15 cm to minimize collision between the robotic arms.

Steps: We start by transecting the round ligament to access the retroperitoneal space. We identify the ureter. Next, we create a window in the posterior broad ligament, and at this point, we ligate the uterine and utero ovarian arteries.

Salpingectomy: We describe two methods for salpingectomy. The transvaginal approach and the transabdominal approach, assisted by ring forceps and a transcervical needle respectively to provide traction on the fallopian tubes.

Cuff Closure: Two curved transvaginal Alice clamps are used to put tension on the cuff to allow robotic closure. Cosmetic results are shown at the conclusion of the video.

Uterine Artery Dissection Without Uterine Manipulation During Robotic Hysterectomy

Donezzi J, Gretz H. Mount Sinai Hospital, New York, New York

Uterine artery dissection during laparoscopic hysterectomy is usually facilitated by a vaginally placed uterine manipulator. This dissection, however,
can be accomplished without such additional instrumentation. First, the robotic arm must be appropriately positioned to retract the uterus and adequately expose the uterine vessels. Dissection then occurs by sequentially cauterizing and cutting in a horseshoe-shaped fashion around the artery, until it is adequately dissected off the cervix. Using these techniques, dissection of the uterine artery can be done as quickly and safely as procedures done with the uterine manipulator. The ability to perform a hysterection without a uterine manipulator expands a surgeon’s adaptability to situations in which placement of a manipulator is not possible or is inadequate, and should be taught to fellows and attending surgeons who do not utilize this technique.

SURGICAL EDUCATION

573 Virtual Posters – Session 4 (12:45 PM–1:45 PM)
1:09 PM – STATION C

“Doc, I Am Perplexed”: Readability Index Analysis of Online Patient Information on Minimally Invasive Gynecological Procedures
Arora A, Ike-Uzoezue RO, Akinnawonu KF, Fuku A. Department of Obstetrics and Gynecology, Icahn School of Medicine at Mount Sinai (Jamaica Program), Queens, New York

Study Objective: With growing importance of patient autonomy and education, there is an essential need to provide correct health related information to them. The average education level in America is 8th grade. American Medical Association and National Institute of Health recommend that patient information material should be of level of 6th grade or below. Our study aims to evaluate the quality of the available patient information on the three commonly minimally invasive gynecology procedures (laparoscopy, hysteroscopy and endometrial ablation) in terms of their readability index.

Measurements and Main Results: Methods: Online patient information for the above procedures was collected from American Congress of Obstetricians and Gynecologist (ACOG), Royal College of Obstetricians and Gynecologist (RCOG), Advancing Minimally Invasive Gynecology Worldwide (AAGL) and Wikipedia. Text from each article was converted to word document and then analyzed using online readability software.

Results: For laparoscopy mean scores were: FKGL 9.35 (6.7–10.9), GF 12.5 (9.6–14.8), CLI 10.7 (9–12.6), ARI was 8.02 (5.9–9.3), FRE 50.2 (38–65.3), NDCS 6.15 (4.4–8.2) and average reading time (RT) was 400 seconds (95–940). For hysterectomy mean scores were: FKGL 12.56 (9.2–15.8), GFI 16.2 (12.8–19.5), CLI 13.85 (10.5–15.8), ARI 10.9 (7.5–14), FRE 29 (15.2–49.8), NDCS 7.13 (5.9–8.4) and average RT was 180 seconds (55–341). For endometrial ablation mean scores were: FKGL 10.3 (7.2–13.7), GFI 13.2 (10.2–17), CLI 12.25 (9.4–14.1) ARI 9.45 (6–10.9) FRE 44 (30.7–60.4), NDCS 6.4 (4.7–8.1). Average RT was 317 seconds (95–661).

Henceforth, all the scores correspond to difficult grade of readability for all procedures from all sites.

Conclusion: The available reading materials for patients on the three common minimally invasive procedures does not meet the national recommendations according to the readability calculated by six different validated readability indexes. They are overall difficult to comprehend by average population and there is an urgent need for revisions of these resources.

Ebert J. Department of Obstetrics & Gynecology, The George Washington University, Washington, District of Columbia

Study Objective: To continue to compare time needed to void postoperatively and length of PACU stay in patients whose bladder is backfilled with 150 cc compared to patients whose bladder is completely emptied followed by Foley catheter removal in laparoscopic or robotic hysterectomy or myomectomy.

Design: Double-blinded randomized controlled trial.

Setting: The George Washington University Hospital.

Patients: Patients undergoing robotic or laparoscopic hysterectomy or myomectomy. Ethnicity, age, surgical history, anesthetics used and weight were compared.

Intervention: Back-filling the bladder with 150 cc of normal saline, considered to be partial back-filling.

Measurements and Main Results: This study began in 2016 with a total of 41 patients recruited with 21 in the partially back-filled group and 20 in the completely emptied group. Primary outcome is the time to void after Foley catheter removal. Secondary outcome is the length of PACU stay

Initial results showed an average of 78 minutes less required for time to void in the partially back-filled group compared to the completely emptied group. However, this time difference included the null hypothesis of no difference in time to void between the two groups. Sample calculations based on total time required to void after Foley catheter removal assuming an alpha level of 0.05 and beta of 0.8 indicate that 36 patients are needed in each group to determine a difference of 20 minutes in voiding time. Thus, the number of study participants in the past year was increased to 40 in each group for a total of 80. This has shown a decreased voiding time and length of PACU stay in the intervention group compared to the control group.

Conclusion: This study has shown that partially back-filling the bladder after robotic or laparoscopic hysterectomy and myomectomy decreases overall time needed to void post-operatively and decreases length of PACU stay, potentially also decreasing PACU costs.

575 Virtual Posters – Session 4 (12:45 PM–1:45 PM)
1:09 PM – STATION E

ACOG Simulation Working Group Assessment of Simulation Needs in Ob/Gyn Training Programs
Jorgensen EM,* DeStephano C,^ Haviland M,^ Banks E,^ Hur H-C.^ Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Boston, Massachusetts; *Obstetrics and Gynecology, Mayo Clinic, Jacksonville, Florida; ^Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Boston, Massachusetts; ^Obstetrics and Gynecology, Albert Einstein College of Medicine, Bronx, New York

* Jorgensen EM and DeStephano C are co-first authors.

Study Objective: To assess the variations in availability and needs of simulation teaching at different Ob/Gyn training programs.

Design: Cross-sectional survey.

Setting: The survey was sent to representatives from 240 of 256 ACGME-accredited Ob/Gyn residencies.

Patients: Residency program directors, obstetric simulation faculty, gynecologic simulation faculty, and chief residents.

Intervention: An anonymous survey was distributed online to assess the availability of simulation teaching and training tools among Ob/Gyn residency programs in the US. The survey included a needs assessment component, allowing programs to identify simulation training needs for specific procedures or modes of surgery.

Measurements and Main Results: Of 328 faculty sent surveys, 207 (63.1%) responded, while 12 out of 200 chief residents (6%) responded. Among faculty respondents, 92 (44.4%) were residency program directors, 68 (32.9%) gyn simulation teaching faculty, and 73 (35.3%) Ob simulation teaching faculty. Of all simulation resources, access to gyn simulation teaching (93.0%),
Table 1. Simulation Training for Specific Modes of Surgery

<table>
<thead>
<tr>
<th>Mode of Surgery</th>
<th>Our program needs simulation training in</th>
<th>Our program provides simulation training in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Faculty (N = 134)</td>
<td>Trainee (N = 12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laparotomy</td>
<td>59.0</td>
<td>38.1</td>
</tr>
<tr>
<td>Vaginal surgery</td>
<td>50.0</td>
<td>35.8</td>
</tr>
<tr>
<td>Conventional laparoscopic surgery</td>
<td>27.6</td>
<td>74.6</td>
</tr>
<tr>
<td>Hysteroscopy</td>
<td>26.1</td>
<td>57.5</td>
</tr>
<tr>
<td>Robotic surgery</td>
<td>20.2</td>
<td>59.0</td>
</tr>
<tr>
<td>None of the above</td>
<td>25.0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Data presented as percentages.

Table 2. Faculty Opinion on When Average Trainee is Ready to Perform Surgery Independently

<table>
<thead>
<tr>
<th>Mode of Surgery</th>
<th>Percentage (Cumulative Percentage)</th>
<th>Requires additional training after residency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PGY 1</td>
<td>PGY 2</td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>1.7 (1.7)</td>
</tr>
<tr>
<td>Robotic surgery (n = 119)</td>
<td>0.8</td>
<td>4.2 (5.0)</td>
</tr>
<tr>
<td>Vaginal surgery (n = 120)</td>
<td>10.7</td>
<td>28.9 (39.6)</td>
</tr>
<tr>
<td>Conventional laparoscopic surgery</td>
<td>7.4</td>
<td>27.3 (34.7)</td>
</tr>
<tr>
<td>Hysteroscopy (n = 121)</td>
<td>26.5</td>
<td>47.1 (73.6)</td>
</tr>
</tbody>
</table>

Data presented as percentages.

Simulation training tools (88.4%), dedicated time (83.6%), simulation lab (80.5%), and simulation teaching faculty (61.7%) were most available, whereas FLS certification (24.0%) and MIGS division (42.6%) were least available. Both faculty and trainees reported laparotomy and vaginal surgery as the two modes of incision needing more simulation training, while laparoscopy and hysteroscopy simulation training were most commonly available. Table 1 lists reported simulation training needs and availability for specific modes of surgery.

The majority of faculty reported residents were ready to perform laparotomies, laparoscopies, and hysteroscopies independently by their third year, but not vaginal surgery or robotic surgery. Table 2 presents the cumulative percentage for when faculty respondents feel the average trainee is ready to perform procedures independently.

**Conclusion:** The majority of Ob/Gyn training programs report residents have access to simulation training resources such as simulation curricula, teaching faculty, training tools and simulation labs. Both faculty and trainees identify a need for simulation training in laparotomy and vaginal surgery.

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1:09 PM – STATION G

Assessing Ob/Gyn Resident Needs for a Minimally Invasive Gynecologic Simulation Curriculum: A Focus Group Study

Makhijani R, Clark M, Wohlrab K. 1Department of Ob/Gyn, Warren Alpert School of Medicine of Brown University, Women & Infants Hospital, Providence, Rhode Island; 2Department of Quantitative Health Sciences, University of Massachusetts Medical School, Worcester, Massachusetts

**Study Objective:** To obtain resident feedback to guide the development of a MIGS curriculum that is tailored according to resident needs and can be practically incorporated into Ob/Gyn residency training.

**Design:** Focus Group Study.

**Setting:** Academic-based residency program.

**Patients:** Eight Ob/Gyn residents (2 from each postgraduate year) who were randomly chosen from a cohort of 32 residents from a single academic residency program.

**Intervention:** The focus group had two parts. The first part employed a card sort format in which residents were asked to organize a set of cards pre-labeled with different gynecologic surgery skills by educational priority. In the second part, residents were asked questions to explore the attitudes and opinions of the participants regarding a MIGS curriculum. Descriptive statistics were used to describe the demographic characteristics of our population. Themes were generated from notes taken during the focus group. The final transcript was examined based on an analytic induction method for focus group research.

**Measurements and Main Results:** Laparoscopic suturing and managing intraoperative laparoscopic complications were the highest priority skills across postgraduate years. The lowest priority skills were peg transfer and non-laparoscopic suturing. Participants highlighted a need for a structured curriculum. They emphasized that skills learned during simulation would more likely be retained if they were simulated closer to when they would

576 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

1:09 PM – STATION F

Anatomical Remarks to Laparoscopic Hysterectomy Independently of Uterus Size

Souza CA, Genro VC, Dallous TP, Bessow CK, Camila Filho JS. Serviço de Ginecologia e Obstetrica, Hospital de Clinicas de Porto Alegre, Porto Alegre, Rio Grande do Sul, Brazil

This video explain anatomical remarks useful to guide surgical training of laparoscopy hysterectomy. We use common anatomical points that are reproducible in all patients independently of uterus size. We use only reusable material and the major point of this video is the possibility of this kind of technique be done on development places.
be performed on a clinical rotation. Lastly, they believed that simulation was most valuable when combined with one-on-one instruction.

Conclusion: Residents from different levels of training expressed similar needs for a MIGS curriculum. For a MIGS curriculum to succeed, simulation time needs to be built into existing clinical rotations. To improve knowledge retention, skills specific to a rotation should be simulated close to when they will be performed. There needs to be a mechanism for resident accountability and real time feedback.

578 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

Broadening the Scope of Surgical Simulation
Dubin AK, Smith R. Nicholson Center, Florida Hospital, Celebration, Florida

Study Objective: To identify new areas for surgical simulation to greatly improve clinician and support staff readiness for the OR.

Design: Laparoscopic and robotic surgeries have led to the creation of multiple simulators to train skills needed by surgeons. All of these devices have followed the same path in addressing, almost exclusively, the psychomotor skills required by new surgeons. The devices have not leveraged the power of the computers, imagery, and other VR devices to represent and teach the main skills which are predominant today. These already possess the power and recovery.

Intervention: We identified eight areas of surgery that the simulation world has the potential to address: surgical skills, surgical procedures, Intervention: Planning process, imagery analysis and selection, world has the potential to address: surgical skills, surgical procedures, Intervention: Planning process, imagery analysis and selection, room and patient placement, equipment and table layout, and complications and recovery.

Conclusion: This analysis explored the capabilities of modern computers, imagery, and other VR devices to represent and train a much larger set of situations that are important to a surgical procedure. It is time to expect more from the developers of these simulation systems.

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1:15 PM – STATION A

Can We Trust Simulator Performance Assessment? It Depends. Comparing Robotic Simulator Metrics Vs. GEARS on Simple Virtual Reality Exercises
Dubin AK,1 Julian D,2 Tanaka ADS,2 Smith R,2 Mattingly PJ,2 Nicholson Center, Florida Hospital, Celebration, Florida; 2Obstetrics and Gynecology, Columbia University, New York, New York

Study Objective: Current surgical education relies heavily upon simulation and several assessment tools are available to the trainee including robotic simulator assessment metrics and the Global Evaluative Assessment of Robotic Skills (GEARS) metrics, both of which have been independently validated. GEARS is a rating scale through which human evaluators score trainees’ recorded performances. We used two common robotic simulators, the dV-Trainee (DVT) and the da Vinci Skills Simulator (dVSS), to compare the performance metrics of robotic surgical simulators to GEARS scores for a basic robotic task.

Design: Prospective single-blinded randomized study.

Setting: Surgical education and training center.

Patients: Surgeons and surgeons in training.

Intervention: Subjects performed two trials of Ring and Rail 1 (RR1) on each of two simulators (DV-SS and DVT) after undergoing randomization and warm-up exercises. The second RR1 trial simulator performance was recorded and the de-identified videos were sent to human reviewers who scored them using GEARS. Eight pairs of simulator assessment metrics and GEARS metrics were identified based on expert knowledge.

Paired Metrics from Different Scoring Systems

<table>
<thead>
<tr>
<th>Simulator Metric</th>
<th>GEARS Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Depth Perception</td>
</tr>
<tr>
<td>2</td>
<td>Efficiency</td>
</tr>
<tr>
<td>3</td>
<td>Efficiency</td>
</tr>
<tr>
<td>4</td>
<td>Bimanual Dexterity</td>
</tr>
<tr>
<td>5</td>
<td>Bimanual Dexterity</td>
</tr>
<tr>
<td>6</td>
<td>Robotic Control</td>
</tr>
<tr>
<td>7</td>
<td>Total Score</td>
</tr>
<tr>
<td>8</td>
<td>Total Score</td>
</tr>
</tbody>
</table>

A Spearman’s rho calculated for their level of correlation.

Measurements and Main Results: 74 subjects were enrolled with 10 subjects excluded for incomplete data. There was a strong correlation between GEARS score and simulator metric score in Time to Complete vs Efficiency, Time to Complete vs Total Score, Economy of Motion vs Depth Perception, Total Score vs Overall Score (rho coefficients ≥0.70). Those with weak correlation (rho ≥0.30) were Bimanual Dexterity vs. Economy of Motion, Efficiency as Master Workspace Range, Bimanual Dexterity vs. Master Workspace Range, and Robotic control vs. Instrument Collisions.

<table>
<thead>
<tr>
<th>GEARS Metric</th>
<th>Simulator Exercise</th>
<th>Rho*</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>DVSS- Time to Complete</td>
<td>−0.81</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>DVT- Time to Complete</td>
<td>−0.91</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Total Score</td>
<td>DVSS- Time to Complete</td>
<td>−0.83</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>DVT- Time to Complete</td>
<td>−0.83</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Depth Perception</td>
<td>DVSS- Economy of Motion</td>
<td>−0.78</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>DVT- Economy of Motion</td>
<td>−0.81</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Total Score</td>
<td>DVSS- Overall Score</td>
<td>−0.69</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>DVT-Overall Score</td>
<td>−0.69</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Bimanual Dexterity</td>
<td>DVSS-Economy of Motion</td>
<td>−0.31</td>
<td>.0149</td>
</tr>
<tr>
<td></td>
<td>DVT- Economy of Motion</td>
<td>−0.31</td>
<td>.0114</td>
</tr>
<tr>
<td>Efficiency</td>
<td>DVSS- Master Workspace Range</td>
<td>−0.24</td>
<td>.0637</td>
</tr>
<tr>
<td></td>
<td>DVT- Master Workspace Range</td>
<td>−0.11</td>
<td>.3846</td>
</tr>
<tr>
<td>Bimanual Dexterity</td>
<td>DVSS-Master Workspace Range</td>
<td>−0.21</td>
<td>.1085</td>
</tr>
<tr>
<td></td>
<td>DVT- Master Workspace Range</td>
<td>−0.20</td>
<td>.1104</td>
</tr>
<tr>
<td>Robotic Control</td>
<td>DVSS- Instrument Collisions</td>
<td>−0.28</td>
<td>.0280</td>
</tr>
<tr>
<td></td>
<td>DVT- Instrument Collisions</td>
<td>−0.32</td>
<td>.0108</td>
</tr>
</tbody>
</table>
The correlation for each of these pairs is expressed as a negative number because improved performance on a simulator generates a lower score, while improved performance on GEARS is a higher score.

Conclusion: On basic VR tasks, some simulator metrics are well matched with GEARS scores assigned by human reviewers however not all. The specific VR task and metrics should be carefully selected in a simulation curriculum. Trainees must continue to combine assessment tools to further their education.

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1:15 PM – STATION B

Comparison of Technical Skills of Obstetrics and Gynecology Residents to National Standards Using a Fundamentals of Laparoscopic Surgery Module

Curubida AR, Fink DM, Arruda J, Appleton SM, Limmer J. Obstetrics and Gynecology, University of Colorado, Aurora, Colorado

Study Objective: To determine if implementation of a modified Fundamentals of Laparoscopic Surgery (FLS) education module for Obstetrics and Gynecology (OB/GYN) residents results in technical abilities comparable to national standards.

Design: Cohort study with historical controls.

Setting: Academic hospital.

Patients: Third-year Obstetrics and Gynecology (OB/GYN) residents completing a minimally invasive gynecologic surgery (MIGS) rotation during the 2016–2017 academic year.

Intervention: An FLS curriculum consisting of 4 modules was implemented, including peg transfer, shape cutting, extra-corporeal knot tying, and intra-corporeal knot tying. Residents practiced the tasks on their own time during the rotation according to a standardized protocol.

Measurements and Main Results: A total of 7 Ob/Gyn residents completed the modules during the study period. The median number of practice sessions was 6 (range 2–8). The median number of repetitions per resident for peg transfer was 9 (range 4–18), for shape cutting was 6 (range 4–11), for extra-corporeal knot tying was 6 (range 3–7), and for intra-corporeal knot tying was 5 (range 4–11). The median completion time for our residents compared to national FLS standards for peg transfer was 94 versus 300 seconds, for shape cutting was 142 versus 300 seconds, for extra-corporeal knot tying was 157 versus 420 seconds, and for intra-corporeal knot tying was 235 versus 600 seconds (p = .01).

Conclusion: Implementation of an FLS curriculum for Ob/Gyn residents yielded significantly faster task times than national standards. We will use these values to set institutional standards for our residency and create a more formal process for achieving proficiency in future rotations.

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(12:45 PM–1:45 PM)

1:15 PM – STATION C

Creation of Laparoscopic Sacrocolpopexy Box Trainer


The objective of this video is to demonstrate an easy, affordable method of creating a box trainer for simulation of laparoscopic sacrocolpopexy.
nerves in the pelvis, and ureter course. Specimens were repurposed after use within the medical school anatomy curriculum and thus available for resident education at no additional cost. Subjects completed pre- and post-intervention knowledge assessments as well as pre- and post-intervention questionnaires regarding their participation in the course.

Measurements and Main Results: Twenty one residents and medical students participated in this study. As expected, average scores on the pre-intervention knowledge assessment increased with level of training: PGY1-25%, PGY2-35%, PGY3-44%, PGY4-56%. 10 subjects attended both sessions. The average increase in scores post-intervention was 26%. PGY1s benefited the most with an average increase in scores of 44%. 100% of participants rated the cadaver lab as somewhat or very useful. Subjects reported benefiting the most with an average increase in scores of 44%. 100% of participants rated the cadaver lab as somewhat or very useful. Subjects reported benefiting the most with an average increase in scores of 44%. 100% of participants rated the cadaver lab as somewhat or very useful. Subjects reported benefiting the most with an average increase in scores of 44%. 100% of participants rated the cadaver lab as somewhat or very useful. Subjects reported benefiting the most with an average increase in scores of 44%

Conclusion: Participation in a clay model workshop and cadaver lab is an effective way to increase knowledge of pelvic anatomy and operative confidence among Ob/Gyn residents. The novel approach of collaborating with the Anatomy Department and extending the use of cadaveric specimens represents a cost conscious approach to developing an anatomy curriculum that may be applicable to other residency programs and specialties.

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(12:45 PM–1:45 PM)

1:15 PM – STATION F

Enhancing Motivation to Practice Laparoscopic Skills: A Self-Determination Theory Approach to Laparoscopic Training
Carrillo JF, Campos R, Peyre S. Obstetrics and Gynecology, University of Rochester School of Medicine and Dentistry, Rochester, New York; Obstetrics and Gynecology, Rochester General Hospital, Rochester, New York

Study Objective: Developing motivation to practice laparoscopic skills is a challenge educational programs face. Self-Determination-Theory (SDT) postulates human beings have 3 psychological needs to maintain motivation: autonomy–competence–relatedness. These are associated with better learning, understanding, academic performance and achievements versus Extrinsic-motivation. We look to incorporate SDT into the conventional-laparoscopic-skills acquisition component of a Minimally-Invasive-Gynecologic-Surgery curriculum for residents at University(UP) and Community(CP) Programs, engaging in routine practice and enhancing Intrinsic-motivation.

Design: Prospective-observational-study (6-4 weeks).

Setting: UP-CP Ob/Gyn-Residency.

Patients: 31UP-15CP residents.

Intervention: UP–teams formed to practice nine conventional-laparoscopic-tasks/6 weeks training period for “Laparoscopic-Olympics-Day”. Practiced-Time-(mins) logged. SDT-components: Autonomy: voluntary participation, skills to practice asked-tasks developed with this, residents organized teams (if not they were assigned), teams selected resident for “Laparoscopic-Olympics-Day”, tasks video recorded-posted online (personalized-team practice). Competence: online tasks with explanations, experts available. Relatedness: teams, practicing in teams, experts available. 12-months later, same methodology applied to CP (4-weeks). Validated surveys measuring Intrinsic-Motivation: (PRE/POST-IMI–9 domains), Perceived-Competence (PCQ), Learning-Climate (LCQ).

Measurements and Main Results: 48.39%-UP, 60%-CP practiced, mean-minutes = 55.16/(UP)-58.33/(CP). Of these, 80%-UP/88.89%-CP answered PRE-IMI, 73.33%/77.78% POST-IMI, 66.67%/55.56% LCQ, 66.67%/55.56% PCQ. With UP no change: pre-post IMI variables, PGY/gender-minutes practiced; teams formed independently and time practiced. For CP there was increase from Pre-to-Post: Interest-Enjoyment-(p ≤ 0.0001), Perceived Choice-(p ≤ 0.0001), Relatedness-(p = 0.0087). Correlated with minutes practiced, who practiced more minutes had statistically significant change in Pre-Post Interest-Enjoyment-(p = 0.001) and Relatedness-(p = 0.0445). UP residents assigned to teams dropped Interest-Enjoyment PRE-to-POST-(p = 0.028), in CP increased among teams-assigned-(p = 0.0001). In CP teams formed autonomously practiced > assigned-(p = 0.051). For both UP-CP, PCQ increased halfway-(p = 0.0081–p ≤ 0.0001), then dropped, but for CP was still higher than PRE.

Conclusion: After applying SDT to UP we suspected length (6-weeks) impacted outcomes, we then applied 4-weeks to CP and affected positively SDT-domains: Choice-(Autonomy) and Relatedness, impacting Intrinsic-Motivation. We found increase in Interest-enjoyment. This is the first time SDT is applied in a surgical-skills-acquisition-curriculum. We hope to encourage other surgical specialties to apply SDT and explore results in larger groups of trainees.
Establishing Validity for the Limbs and Things
Laparoscopic Hysterectomy Trainer
DeStephano CC, Chen AH, Heckman MG, Chimato NT, Guha P, Espinal M, Dinh TA. Mayo Clinic, Jacksonville, Florida

Study Objective: Establish validity for the Limbs and Things laparoscopic trainer.
Design: Prospective study using Kane’s framework for establishing validity (Canadian Task Force Classification:II-2).
Setting: Laparoscopic hysterectomy (TLH) assessments completed in the operating room (OR) and simulation at three academic medical centers.

Patients: Ob/Gyn residents (n = 26 post-graduate year 3–4), a gynecologic oncology fellow (post-graduate year 5), and a gynecology oncology attending.

Intervention: Participants were rated with the myTIPreport feedback application by non-blinded faculty in the OR following TLH. In-person, simulation-based assessments were provided by two faculty members blinded to experience level using myTIPreport and Global Operative Assessment of Laparoscopic Skills (GOALS). Simulated TLH videos from the Storz TelePack laparoscope were rated by two minimally invasive gynecology fellows. Participants completed a post-simulation questionnaire.

Measurements and Main Results: OR scores for TLH steps were significantly higher than simulation assessments (p < .001) with “competent” being marked more frequently in the OR. Number of robot-conventional TLH performed as primary surgeon was not significantly correlated with OR myTIPreport rating (Spearman r = .30, p = .14) but was significantly correlated with myTIPreport and GOALS in-person simulation ratings (Spearman r = .39–.58, p = .001–.04). Agreement between in-person simulation raters #1 and #2 myTIPreport assessments was 71.4% (weighted kappa .68, 95% CI: .45–.90) and intraclass correlation for the GOALS overall assessment was 0.71 (95% CI: .46–.85) indicating substantial agreement. Blinded video reviews showed similar agreement (73.1%) between raters, but less correlation with experience (Spearman r = .32–.42, p = .11–.03) than in-person reviews. Using area under the ROC curve, mean score for the individual components of GOALS that best differentiated myTIPreport non-competent and competent levels of performance was 4.3. Feedback acceptability and model realism were rated highly.

Conclusion: Initial evidence supports validity for the Limbs and Things Trainer with blinded, in-person and video TLH assessments. Results are suggestive of the halo effect in the OR with additional study needed to determine whether faculty training improves myTIPreport OR scores.

586 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

Evaluation and Impact of Minimally Invasive Surgical Simulation on Cuff Closure in Laparoscopic Hysterectomies in a Gynecologic Residency Training Program
Büttcher KK, Kliethermes CJ, Nijjar JB, Chohan L, Gau X, Tung CS.
Department of Obstetrics & Gynaecology, University of Calgary, Calgary, Alberta, Canada

Study Objective: To examine the effect of implantation of simulator-based practice on surgical proficiency of Ob/Gyn residents in vaginal cuff closure during total laparoscopic hysterectomies. To explore resident evaluation of their comfort level with minimally invasive skills before and after implementation of simulator-based practice.
Design: Prospective cohort study.

Setting: Academic Ob/Gyn residency program.
Patients: 11 upper level Ob/Gyn residents.

Intervention: At the beginning of their benign gynecology rotation, 3rd and 4th-year residents complete a questionnaire assessing their comfort with laparoscopic skills. The residents perform a timed laparoscopic cuff closure in a real case and on the simulator. The simulator was based on previously validated models. The residents are randomized into a practice and no practice group. The questionnaire and timed cuff closures are repeated at rotation’s end.

Measurements and Main Results: Of the 11 residents, 6 randomized into the practice group and 5 randomized into the no practice group. Of those who completed timed cuff closures on the simulator both at the beginning and end of the month (n = 7), 66.7% of the practice group residents had improved compared to 50% of the no practice group. Of those who completed timed cuff closures in real cases at both the beginning and the end of the month (n = 7), 75% of residents in the practice group had improved times compared to 33.3% of the no practice group. Median confidence for unassisted cuff closures increased in the intervention group but did not for the non-intervention group. Median confidence for assisted cuff closures increased in both the intervention and the non-intervention group.

Conclusion: There may be a trend towards improvement in both real cases and simulation cuff closures in those residents who were in the practice group as well as an improvement in confidence levels. The data is preliminary and the study is ongoing.
Future Method of Delivery Recommendation:

<table>
<thead>
<tr>
<th>Total Patients</th>
<th>Laparoscopic Myomectomy (%)</th>
<th>Abdominal Myomectomy (%)</th>
<th>Robotic-Assisted Myomectomy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endometrial Cavity Entrance</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Cesarean Section</td>
<td>3</td>
<td>2.8%</td>
<td>79.6%</td>
</tr>
<tr>
<td>No Recommendation Documented</td>
<td>7</td>
<td>20.6%</td>
<td>77.9%</td>
</tr>
<tr>
<td>May Attempt Labor</td>
<td>4</td>
<td>11.8%</td>
<td>5.8%</td>
</tr>
</tbody>
</table>

Conclusion: The surgical method performed for uterine myomectomy impacts the recommendation for future trial of labor in subsequent pregnancies. Traditionally entry into the endometrial cavity has been basis for future cesarean section recommendation, however as more cesarean sections were recommended than the incidence of endometrial cavity entrance, other factors such as the surgical method are driving future delivery method recommendations. Robotic-assisted myomectomy conferred the highest chance for a future trial of labor recommendation following a uterine myomectomy procedure.

589 Virtual Posters – Session 4 (12:45 PM–1:45 PM)

1:21 PM – STATION B

Gyn Simulation Models are Both Realistic and Effective. Participants Feedback From the ACOG ASSESS Course

Endicott S, Korn MJ, Dunlow S, Hur HC, Lockrow E, Walter Reed National Military Medical Center, Bethesda, Maryland; Beth Israel Deaconess Medical Center, Boston, Massachusetts

Study Objective: Obtain a demographic survey and needs assessment of individuals attending Ob/Gyn simulation courses. Obtain individual assessments of the simulation model utilized.

Design: Cross-sectional study.

Setting: ACOG ASSESS Annual Scientific Meeting in Washington DC, 2016. 29 participants. Ob/Gyn providers attending the course led by the ACOG.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Descriptive statistical analysis was completed. There were 14 (48.3%) male participants and 15 (51.7%) female participants. The median age was 46. The ages ranged from 28 to 70 years old. The majority (41.4%) of participants were attendings with >15 years of experience. Five participants were residents (PGY2/3). Fifteen participants were in private practice and 13 of those did both obstetrics and gynecology. 20.7% of the participants did a total of 151–200 surgical cases a year and 20.7% did 76–100 surgical cases a year. 65.5% of participants did 1–25 cases per year of vaginal surgeries. The majority of participants did 1–25 cases (37.9%) and 26–50 cases (34.5%) per year of laparoscopy. 44.8% of the participants are doing 1–25 laparotomy cases a year. The survey assessed knowledge, confidence and likely to perform a laparoscopic hysterectomy, vaginal hysterectomy and retropubic sling as a result of the workshop.

Conclusion: The participants agreed and strongly agreed that Limbs and Things model was effective (81.8%), realistic (66.7%), and able to simulate the task (76.2%). The participants agreed and strongly agreed that the Miya model was effective (85%), realistic (72.2%), and able to simulate the task (77.8%). In general, the majority of participants agreed or strongly agreed that their knowledge, confidence and likelihood of performing laparoscopic and vaginal hysterectomy increased following the course. The majority of participants also agreed or strongly agreed that their knowledge and confidence increased. However, not as many participants were willing to perform a retropubic sling.
Modelling the Learning Curves of Incoming Surgical Trainees

Louridas M.1, Grantcharov TP.2, Seeman N.1, Iancu A-M.3, Steele D.3
Ahmed N.1, Shore EM.1; General Surgery, St. Michael’s Hospital, University of Toronto, Toronto, Ontario, Canada; 2Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada; 3Obstetrics and Gynecology, St. Michael’s Hospital, University of Toronto, Toronto, Ontario, Canada

Study Objective: Studies suggest that not all trainees reach technical competency even after completing surgical training. Thus the objectives of this study were to define distinct learning curves (LC) for three basic laparoscopic tasks, to determine the minimum number of repetitions required to accurately predict an individual’s LC, and to assess the use of LC assessment to identify non-performers during selection into surgical training.

Design: Prospective Cohort Study

Setting: Urban Academic Tertiary Care Hospital.

Patients: Applicants to general surgery (GS) and gynecology (Ob/Gyn) residency training.

Intervention: Predictive LC models were created for laparoscopic pattern cutting (PC), peg transfer (PT) and intra-corporeal knots (IC) over 40 repetitions by 65 novice trainees. Trainees were categorized into performers and non-performers. ROC analysis determined the minimum number of repetitions required to predict an individual’s LC. Subsequently, applicants to GS and Ob/Gyn training participated in a skills assessment. The LC models were used to determine the number of non-performer applicants.

Measurements and Main Results: The PC, PT and IC tasks required a minimum of 8, 10 and 5 repetitions respectively, to accurately predict overall performance. Predictive values for each task were excellent, with sensitivity and specificity of: 1.00, 1.00 (PC) [Fig. 1]; 1.00, 1.00 (PT); and 0.94, 1.00 (IC).

Conclusion: Individual LCs for three different laparoscopic tasks can be predicted with excellent sensitivity and specificity based on observations of 10 repetitions or less. This information can be used for early identification of trainees who may have difficulty with laparoscopic technical skills and may be implemented during selection or early residency training.

All 81 surgical applicants (GS and OB/GYN, Table 1) completed the minimum number of required repetitions. Of those, 11% were identified as non-performers [Fig. 2].

Table 1. Characteristics of Canadian residency training (CaRMS) applicants 2015

<table>
<thead>
<tr>
<th>Age (mean)</th>
<th>Obstetrics &amp; Gynecology (n = 43)</th>
<th>General Surgery (n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.33</td>
<td>26.38</td>
<td>26.38</td>
</tr>
<tr>
<td>Female:Male</td>
<td>34:9</td>
<td>19:19</td>
</tr>
<tr>
<td>Handedness</td>
<td>37:3:1*</td>
<td>34:2:2</td>
</tr>
<tr>
<td>R/L: Ambidextrous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prev. PC experience</td>
<td>10:28*</td>
<td>17:21</td>
</tr>
<tr>
<td>Prev. VR experience</td>
<td>10:28*</td>
<td>13:25</td>
</tr>
<tr>
<td>Prev. FLS training</td>
<td>1:38*</td>
<td>0:38</td>
</tr>
<tr>
<td>Prev. LS OR experience</td>
<td>38:1*</td>
<td>38:0</td>
</tr>
</tbody>
</table>

*Missing Data.
calculated for each participant. Sample t-test and regression analysis were performed.
There was a non-statistically significant difference (p = .418) between the improvement of the incentive group (48%) and non-incentive group (44%), however there was a 44% overall improvement among all participants. There was no difference in time practiced during the study period between the incentive (41 minutes) and non-incentive (56 minutes) groups (p = .309).

**Conclusion:** This study did not show a difference in performance based on incentive. However, both groups showed a significant improvement in performance. The absence of a greater improvement in the incentive group may be due to small sample size, need for a more robust incentive, equal motivation in both groups, or other confounding factors. Novel techniques to motivate resident education could improve time devoted to learning outside of the traditional clinical setting. Further studies are needed to explore methods to alter behavior and improve learning.

592 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

**1:21 PM – STATION F**

**Ovarian Venous Sampling Aids in Diagnosis of an Ovarian Tumor in a Pre-Menopausal Woman**
Proser R, Grant A, Ninaroff M. Obstetrics and Gynecology, North Shore University Hospital Northwell Health, Manhasset, New York

**Study Objective:** To discuss option of ovarian vein sampling to aid in diagnosis of ovarian tumors.

**Design:** Case report.

**Setting:** Academic Affiliated Hospital.

**Patients:** This is a case report of a 52 year old patient that initially presented to her gynecologist and endocrinologist with hirsutism. Laboratory tests including total testosterone, prolactin, LH, FSH, DHEA-S were in normal range except for significantly elevated testosterone 186 ng/dl. Intervention: Patient was initially treated with GnRH agonist therapy to suppress testosterone level. Following two months of ovarian suppression there was no decline in testosterone level. Repeat testosterone was 168 ng/dl. Pelvic sonogram was completed, which revealed small simple cysts on the left ovary with a solid nodule in the right ovary. Patient referred to gynecology for surgical treatment. Patient was counseled regarding option of unilateral right salpingo-oophorectomy versus bilateral resection. She chose a bilateral approach and underwent an uncomplicated bilateral salpingo-oophorectomy.

**Measurements and Main Results:** Pathology showed negative pelvic washings, normal right ovary and bilateral fallopian tubes. Right ovary was measured as 4.2 x 3.0 x 2.0 cm with multiple cystic areas with a benign hilus cell tumor.

**Conclusion:** Androgen producing tumors should be suspected in women with hirsutism or other virilizing symptoms. Evaluation and diagnosis is often difficult with frequent nonspecific findings including negative sonograms. With marked elevation in androgen levels further imaging studies should be considered. Additionally, this report describes the option of percutaneous selective ovarian vein blood sampling which may further aid in management. Definitive diagnosis can only be made with surgical excision of suspected ovary.

593 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

**1:21 PM – STATION G**

**Portable Virtual Reality Laparoscopic Trainer to Incentivize Surgical Education**
Abitan BS,1 Stauber M,2 Ninaroff ML.1 Obstetrics and Gynecology, Hofstra Northwell School of Medicine, Manhasset, New York; 2Stanford University, Stanford, California

**Study Objective:** Current laparoscopic simulators/task-trainers are limited by prohibitive prices, difficult portability, and lack of training incentive. We set out to develop and trial a new Virtual-reality (VR) laparoscopic training device and curriculum that solves the major challenges of conventional laparoscopic training devices.

**Design:** Collaboration between surgeon, resident and mechanical engineer.

**Setting:** Two large academic centers.

**Patients:** Our platform will be used for resident training, pre-surgical “warm-up” and training of surgeons in third-world countries.

**Intervention:** Our virtual reality (VR)-based laparoscopic trainer will be pocket sized and affordable. It links via Bluetooth to the trainee’s own mobile device, through which the trainee is connected into the Surgical Training Universe (STU) – a VR training social network that not only tracks and monitors the trainees progress, but also allows participation in training competitions, awarding of prizes and other incentivizing activities. The STU contains basic laparoscopic tasks, as well as select games to increase incentive of training and play.

**Measurements and Main Results:** We have successfully designed and formulated a VR-based laparoscopic trainer that will be pocket sized and affordable. Basic tasks based on the Fundamentals of laparoscopic surgery (FLS) curriculum have been developed.

**Conclusion:** Our platform will potentially increase training in laparoscopic surgery by using incentivizing tools. Initial construct and face validation studies are needed to prove usefulness of the device.

594 Virtual Posters – Session 4
(12:45 PM–1:45 PM)

**Preoperative Factors and Surgical Routes for Outpatient Migration of Benign Hysterectomy in United States, 2008–2014**
Moawad G,1 Liu E,2 Song C,2 Tackett S,1 Fu A.1 Minimally Invasive Gynecologic Surgery, George Washington University, Washington, District of Columbia; 2Health Economics and Outcomes Research, Intuitive Surgical, Sunnyvale, California; 3Epidemiology, Georgetown University Medical Center, Washington, District of Columbia

**Study Objective:** The study aimed to assess the impacts of patient, physician, and hospital factors and the choice of surgical routes on the likelihood of benign hysterectomy (BH) in outpatient setting (vs. inpatient setting).

**Design:** Retrospective cohort study.

**Setting:** Premier Hospital Perspective Databases.

**Patients:** Women 218 years old who underwent BH in the US from 2008–2014.

**Intervention:** Patient, surgeon, and hospital level factors and surgical routes(open/abdominal (AH), vaginal (VH), laparoscopic (LH), and robotic-assisted (RH)) were included in predicting the likelihood of outpatient vs. inpatient BH via a logistic regression model.

**Measurements and Main Results:** A total of 527,964 patients who underwent BH were identified from January 2008 to December 2014, including 37.9% outpatients and 62.1% inpatients. In predicting outpatient BH, patient factors contributed 43.3%, surgeon factors 22.7% and hospital factors 4.4%; surgical routes and surgeon experience of MIS in outpatient setting were the top 2 individual factors. Among patient-level factors, subtotal hysterectomy (OR 1.25, 95%CI 1.23–1.28) was associated with increased likelihood of outpatient BH. Surgeon with experience of outpatient MIS (OR 2.90, 95% CI 2.85–2.96), obstetrics & gynecology surgeon (OR 1.71, 95% CI 1.62–1.80) and hospitals in the South region (OR 2.17, 95% CI 2.13–2.22) were associated with increased likelihood of outpatient BH. With regards to surgical routes, comparing to the reference group of LH, RH (OR 1.05, 95%CI 1.03–1.07) were associated with higher likelihood of outpatient BH, whereas AH (OR 0.017, 95%CI 0.016–0.018) and VH (OR 0.45, 95%CI 0.44–0.46) were associated with lower likelihood of outpatient BH. (All p values <.05).
Fig. 1. The trend of benign hysterectomy for inpatient vs. outpatient visits, 2008-2014.

Fig. 2. The trend of surgical routes for benign hysterectomy among inpatient and outpatient visits, 2008-2014.

Conclusion: Patient and surgeon factors had greater impact in predicting outpatient benign hysterectomy. Surgical routes and surgeon’s previous experience of MIS in outpatient setting were more impactful individual factors. With the control for the preoperative factors at patient, surgeon, and hospital level, choice of RH in surgical route was associated with increased likelihood of outpatient BH.

596 Virtual Posters – Session 4 (12:45 PM–1:45 PM)
1:27 PM – STATION B
Suction Curettage as First Line Therapy for Cesarean Scar Pregnancy
Czeiger S, Delsner G. Obstetrics & Gynecology, Mayanei-Hayeshua Medical-Center, Bnei-Brak, Tel Aviv, Israel

Study Objective: To report our experience with suction curettage as a first line therapy for cesarean scar pregnancy (CSP).

Design: A retrospective case-series.

Setting: Obstetrics & Gynecology department, Mayanei-Hayeshua Medical-Center.

Patients: Women admitted to our hospital between 2012–2017 who were diagnosed with CSP by transvaginal ultrasound (TVUS) demonstrating empty uterus and cervical canal; discontinuity and distortion of the anterior uterine wall; defect between the sac and the bladder wall; rich vascularity surrounding the sac in Doppler examination.

Intervention: Patients were treated with suction curettage under continuous ultrasound guidance, under general anesthesia, in operating room setup.

Measurements and Main Results: Six women (mean age 33.2 ± 6.6 years) were found. Data on gestational-age, crown-rump-length, βHCG levels, hemoglobin levels, excessive bleeding, the need for further interventions or blood transfusion, uterine rupture, and other complications were collected. The median gestational age at diagnosis was 6 + 6/7 (range 5 + 5/7–9 + 3/7). The median crown-rump-length at diagnosis correlated 6 + 0/7 weeks of gestation (range 5 + 5/7–9 + 3/7). Fetal heart-activity was detected in two cases. Mean βHCG at diagnosis was 5198 IU (142-1580 IU). The lowest hemoglobin level at diagnosis was 10 mg/dl. In one case, suction curettage followed failed methotrexate trial. Only one case exerted excessive bleeding during the procedure which required further intervention with balloon tamponade for reaching haemostasis and mandated blood transfusion. No uterine rupture occurred and no other surgical interventions were mandatory in this case. All other women exerted no excess bleeding and no need of blood transfusion or any other complications.

Conclusion: Suction curettage under ultrasound guidance might be a safe first line therapy for early diagnosed CSP in hemodynamically stable women.

597 Virtual Posters – Session 4 (12:45 PM–1:45 PM)
1:27 PM – STATION C
Surgical Consent Form: Patient Comprehension of Associated Surgical Risk Based on Data Presenting
Andrade F, James K, Alison C, Michael S-N, Ioudi N, Mccarter K, Carugajo J. Obstetrics and Gynecology, MIS Unit, University of Miami, Miami, Florida

Study Objective: Surgical informed consent is a process of communication that involves the surgeon as the health care provider and the patient. It provides authority for an activity based upon understanding of what the activity entails and the risks, benefits and alternatives of treatment for any specific condition. It protects one of the most basic values in medicine and society: Autonomy. Currently, medical risk is often communicated to patients in the form of percentages, although there is no existing evidence that this is the most effective method to deliver this information.

Study Objective: To evaluate the level of patient’s comprehension of surgical risk if presented as percentage (X% risk of complications), fraction (1/X risk of complications) or both.

Design: Single center prospective survey study.

Setting: Outpatient gynecology clinic in an academic medical center.

Patients: 190 patients presenting to the Gynecology Clinic.

Intervention: A 10-questions survey with questions of hypothetical surgical risk presented as percentage, fraction or both. Descriptive statistics were used to analyze the data.

Measurements and Main Results: 190 patients agreed to participate, 132 (69.5%) were Hispanic. Twenty-three (12.4%) had not completed high school. No significant difference in total number of correctly answered questions was found based on age group or race. There is a significant difference in the total number of questions answered correctly based on level of education (p = .0058). There was also a significant difference in education level and ability to answer percentage based survey questions (p = .004). No significant difference (p = .26) was found between education level and ability to answer questions that described risk in terms of fractions.

Conclusion: When presenting surgical risk related information to patients, fractions compared to percentages, are more widely understood. We recommend expressing the surgical risk in fraction (Risk 1/XX) during preoperative patient’s surgical risk counseling.

598 Virtual Posters – Session 4 (12:45 PM–1:45 PM)
1:27 PM – STATION D
Surgical Management Choices among the First 500 Patients in a Canadian Prospective Uterine Fibroid Registry: CAPTURE
Kives S, Laberge PY, Leyland N, Polski J, Singh SS, Vilos G, Belland L, ‘University of Toronto, Toronto, Ontario, Canada; ‘Université Laval, Québec, Canada; ‘McMaster University and Hamilton Health

Sci;ences Hamilton, Ontario, Canada; 7 Windsor Regional Hospital, Windsor, Ontario, Canada; 6 Ottawa Hospital Research Institute, Ottawa, Ontario, Canada; 8 Western University and London Health Sciences Centre, London, Ontario, Canada; 9 University of Calgary Alberta Health Services, Calgary, Alberta, Canada

**Study Objective:** Data regarding treatment options offered and chosen by Canadian women with symptomatic uterine fibroids (UF) are limited. We provide real-world data on an initial cohort of symptomatic patients with UF opting for surgical management through CAPTURE (Canadian women with Uterine Fibroids REgistry): a prospective, non-interventional, observational, multicenter, long-term patient registry.

**Design:** We conducted analysis on the first 500 patient cohort enrolled in CAPTURE. Baseline data including medical/treatment history, medications, imaging, anemia and therapies offered/choosen were collected at the initial visit.

**Setting:** Academic and community centers across Canada.

**Patients:** Premenopausal women ≥18 years with symptoms from UF.

**Intervention:** N/A.

**Measurements and Main Results:** Of 500 women, 165 were ≤ age 40 compared to 335 > age 40 with mean ages of 35 and 47, respectively. A greater proportion of Black and Hispanic women were among the younger group (p <.0001) with no significant differences in BMI, symptoms, or prevalence of anemia between age groups. Medication only was the most common baseline intervention overall being offered more often to older women (47%) as compared to their younger counterparts (32%; p <.003). Surgery alone or in combination with medication was not offered significantly more in either group. Hysterectomies and uterine artery embolization (UAE) were offered significantly more to older women compared to myomectomies which were offered more frequently to younger women (p <.001). Although surgeries offered varied significantly between age groups, surgeries chosen were similar regardless of age.

**Conclusion:** Early analysis from the CAPTURE registry indicates that most women are offered medication as an initial intervention for UF. Age did not significantly influence whether surgery is offered, but rather what type of surgery is offered (hysterectomy vs myomectomy) and ultimately chosen. Ongoing recruitment to 2000 patients may provide further insight.

**599 Virtual Posters – Session 4**

**(12:45 PM–1:45 PM)**

**1:27 PM – STATION E**

**The Impact of a Minimally Invasive Gynecologic Surgery Rotation on Resident Hysterectomy Case Numbers**

Appleton SM, Flink D, Limner JS, Arruda J. Obstetrics and Gynecology, University of Colorado, Aurora, Colorado

**Study Objective:** To assess the impact of a new Minimally Invasive Gynecologic Surgery (MIGS) rotation on the number of hysterectomies performed by PGY3 and PGY4 residents at an academic institution.

**Design:** Cross-sectional study.

**Setting:** Single university hospital.

**Patients:** Obstetrics and Gynecology residents completing training between 2016 and 2018.

**Intervention:** A MIGS rotation was implemented in the academic year 2016–2017. The six week rotation included a PGY3 resident working in outpatient and inpatient settings with three generalist faculty with a MIGS focus. ACGME case logs were used to collect resident case numbers for laparoscopic, abdominal, and vaginal hysterectomies.

**Measurements and Main Results:** Nine residents are in each class. The case numbers recorded in the year prior to the implementation of the MIGS rotation (academic year 15–16) for both PGY3 and PGY4 residents were used as historical controls. Using a Mann-Whitney U test, we compared the median number of PGY3 laparoscopic and robotic hysterectomy cases/month from the historical cohort to the PGY3 laparoscopic and robotic hysterectomy cases/month who had participated in the rotation (0.50 vs 1.44, p = .001). We also compared the PGY3 median cases/month for abdominal hysterectomies (1.75 vs 1.56, p = .758) and vaginal hysterectomies (0.58 vs 0.50, p = .815). The median number of cases/month for the PGY4 historical controls compared to the PGY4 class for the first year of the MIGS rotation for any hysterectomy type were similar: laparoscopic and robotic (1.75 vs 2.11, p = .887), abdominal (3.50 vs 3.89, p = .160), or vaginal (2.25 vs 2.11, p = .666).

**Conclusion:** A MIGS rotation significantly increased the laparoscopic and robotic hysterectomies performed by third year residents. The increase did not result from a shift in other types of hysterectomies or from more senior residents. With fewer hysterectomies being performed nationally, implementation of a MIGS rotation has increased training opportunities for senior residents.

**600 Virtual Posters – Session 4**

**(12:45 PM–1:45 PM)**

**1:27 PM – STATION F**

**The Robotic Warm-Up: Impact on Surgical Performance by C-SATS Assessment**

Piszczek C, S Robertson S, Jaticzok L, Dermaiz M, Osmundsen B. 1 Legacy Health System, Portland, Oregon; 2 Providence Portland Medical Center, Portland, Oregon; 3 Oregon Health and Sciences University, Portland, Oregon

**Study Objective:** This study evaluates the effect of preoperative simulation on surgeon performance during live patient robotic surgery.

**Design:** 20 credentialed robotic surgeons from three teaching hospitals in gynecologic specialties, general surgery, and urology were recruited to participate in the study. Surgical video with and without robotic simulator warmup were recorded. The videos were graded with the GEARS score using C-SATS crowd sourcing by trained lay observers. A linear mixed effects model was used to derive a mean crowd score for each video. The mean scores with and without warmup were compared using paired two-sided t tests.

**Setting:** Two community hospitals.

**Patients:** NA. Subjects were surgeons.

**Intervention:** Robotic warm-up.

**Measurements and Main Results:** 15 surgeons completed the study. A non-significant mean increase in the GEARS score of 0.15 was noted after warm-up simulation compared to no warm-up (95% confidence interval; −0.38, 0.67). A non-significant increase in each GEARS score element was observed. The mean difference in score among high volume surgeons was 0.08 ± 1.01, intermediate volume surgeons −0.03 ± 0.80, and low volume surgeons 0.79 ± 1.16.

**Conclusion:** This pilot study did not show a significant effect of preoperative simulation on surgeon performance when assessed by trained lay observers using the GEARS score. A low amplitude effect was suggested. Each GEARS component showed a non-significant low-amplitude increase in score after warm-up. Higher amplitude effects were seen in some subgroups and certain individuals but, given the low subject number, it is unclear if this is related to a particular surgeon characteristic or to chance. A larger study is needed to evaluate the use of simulation as a tool for education and possibly credentialing.
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1:27 PM – STATION G

Transillumination of Uterine Arteries During Laparoscopic Hysterectomy
Sandoval-Herrera C, Division of Minimally Invasive Gynecology, Mount Sinai Hospital and Medical Center, Chicago, Illinois

Uterine Artery Transillumination is a safe, easy and reproducible way to ensure that the vascular supply to the uterus is secured. It allows to identify aberrant vessels, ascending and descending branches, as well as posterior vessels that can cause post-operative vaginal bleeding, hematomas and vaginal cuff dehiscence. We describe this alternative modality with the aid of an illuminated uterine manipulator. This modality can be used in conjunction to dissection and skeletonization, contralateral compression, clipping, as well as sealing and transaction/lateralization. It also allows to clearly differentiate the uterine vessels from the ureters.

602 Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

1:27 PM – STATION H

Uterine Manipulation: Surgical Success or Distress
Whynott RM, Mikhail E, Obstetrics and Gynecology, University of South Florida, Tampa, Florida

Objective: Demonstrate why uterine manipulation is important in minimally invasive gynecologic surgery and introduce a novel way to have adequate manipulation during minimally invasive trachelectomy.

Patient: 33 year-old G2P2002 with a history of chronic pelvic pain, endometriosis, dyspareunia, and previous laparoscopic supracervical hysterectomy. She desired removal of the cervix. By removing the intraperitoneal portion of a commonly used uterine manipulator (Rumi, Cooper Surgical, CT, USA), we were able to easily visualize the cervico-vaginal junction as well as produce traction and counter-traction during the procedure to make it a success. The patient did well and was discharged to home on POD 1 without complications.

Conclusion: Proper uterine manipulation during laparoscopic gynecologic procedures is beneficial for visualization, lateralizing the ureters, delineating the cervico-vaginal junction, and providing traction and counter-traction. We present a modification to a commercially available uterine manipulator to improve the ease and safety of minimally invasive trachelectomy.

603 Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

1:33 PM – STATION A

A Novel Approach to Postoperative Pain Management in Vaginal Surgery: Bupivacaine Use in Vaginal Packing
Michael A.,1 Kung R,2 Bodley J,2 Gagnon LH,2 Lee P,3 Obstetrics & Gynecology, University of Toronto, Toronto, Ontario, Canada;
2Urogynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Study Objective: To determine if the use of bupivacaine soaked vaginal packing improves postoperative pain scores compared to the local hospital standard, Premarin coated packing, in patients undergoing vaginal reconstructive surgery.

Design: Prospective cohort study with a 6 week follow up.

Setting: Academic tertiary care centre.

Patients: Patients undergoing vaginal reconstructive surgery for pelvic organ prolapse and/or stress urinary incontinence by four trained urogynecologists at an academic centre. A total of 63 patients have been enrolled in the study to date.

Intervention: Women undergoing vaginal surgery received vaginal packing that was coated with estrogen vaginal cream (Premarin cream, the local hospital standard) or soaked with 0.25% Bupivacaine and Epinephrine, according to physician preference.

Measurements and Main Results: The primary outcome is pain level measured by a visual analog scale (VAS), a standardized, validated pain assessment tool two hours, six hours post surgery, and on postoperative day one (POD1). 35 women received Bupivacaine soaked packing (B), while 28 received packing coated with Premarin vaginal cream (P). The mean age of the patients is 63 (range 34–89), the mean BMI is 27.6 (19–43), the median ASA is 2 (1–4), and the median parity is 2 (1–10). VAS scores for vaginal pain/discomfort at two hours postoperative (B 2.1 vs. P 2.52, p = .42, Student’s t test), six hours postoperative (B 2.7 vs. P 2.7, p = .90) and on POD 1 (B 1.4 vs. P 1.6, p = .66) is not statistically significantly different between treatment groups.

Conclusion: With our initial recruits, no significant difference in VAS pain scores has been identified between packing regimens. Overall we found pain scores post surgery to be low. Our interim analysis does not show any statistically significant difference however we will continue to collect more patients until we have completed recruitment for the study.

604 Virtual Posters – Session 4
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1:33 PM – STATION B

Alternative Vaginal Vault Fixation Procedure and Its Description as a New Vaginal Approach: A Case Report
Urdu BS, Zeybek B, Kilic SG, Department of Obstetrics and Gynecology, University of Texas Medical Branch at Galveston, Galveston, Texas

Study Objective: Vaginal apical defect repair commonly used approach in pelvic organ prolapse (POP). Among various techniques such as sacrospinosus ligament fixation (SSLF), colpopexy, uterosacral ligament and rarely iliococcygeus muscle fixation is used. Here, we propose a novel approach for an apical prolapse case currently who is not eligible any of these surgical techniques.

Design: Case report.

Setting: University-based hospital.

Patients: A 40-year-old G2P2010 presented for evaluation of stage 3 POP, apical defect.

Intervention: Vaginal apical defect suspension.

Measurements and Main Results: The patient had 3 colon surgeries and has a colostomy, left hemipelvectomy surgery after the traffic accident and 3 vaginal surgeries (mesh for POP and colpocolisis). SSLF is planned for her prolapse correction. The vaginal tissue couldn’t be dissected intraoperatively because of extreme fibrosis and close relation with nearby tissues. Intraoperative decision made to abort SSLF. Only right transobturator area could be dissected. The left side wasn’t present because of hemipelvectomy. After the right transobturator canal created, cuff stitched with non-absorbable 1-0 Polypropylene Suture (PROLENE®, Ethicon) and suture carried to fascia under the skin in the groin, which was same with TOT exit point, through obturator canal by TOT needle. The vaginal cuff was placed cranially as possible as and then suture stitched to the fascia which is under the skin. At the end of the procedure, the vaginal cuff was in –2 cm.
The patient was followed and in her 3 months routine clinic visit she had no major complaint and the vaginal cuff was in –2 cm.

She described minimal pain in right groin area.

**Conclusion:** This case study demonstrates that vaginal tissues can’t be dissected easily in some extreme cases to reach fixation point to suspend vaginal vault. In the case of vaginal vault prolapse and severe vaginal dissection difficulty, using a transobturator passage and fixing the vault to subcuticular fascia can be used as an alternative.
Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

1:33 PM – STATION G

Vaginal Hysterectomy: Four Point Sacrospinous Ligate Suspension Utilizing ACell Extracellular Matrix and Anchors

Dunca C. Female Pelvic Medicine and Reconstructive Surgery, Chesapeake Urology, Baltimore, Maryland

This video will demonstrate a transvaginal 4-Point sacrospinous ligament (SSL) suspension utilizing AnchorSure® polyetheretherketone (PEEK) anchors and ACell Extracellular Pelvic Floor Matrix®. Both devices are FDA approved for use in pelvic organ prolapse repair.

Extracellular matrix (ECM) has demonstrated the ability to promote the up-regulation of the M2 macrophage response promoting cellular proliferation, angiogenesis and the constructive remodeling of vaginal support tissue.

ECM placement utilizing PEEK anchors requires less dissection than suturing since anchoring is done via tactile palpation of the SSL rather than visualization. The combination of AnchorSure® tactile fixation and ACell Extracellular Pelvic Floor Matrix® (porcine urinary bladder matrix) may represent an important pivot point in augmented repairs for pelvic organ prolapse. Long-term follow-up of these repairs is necessary to ensure efficacy, safety and adequate sexual function.

Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

1:33 PM – STATION H

Vaginopexy and Laparoscopic Sacrospinous Pexy: A Comparison of Efficacy and Quality of Life in Women with Genital Prolapse After Surgical Treatment Using a Synthetic Prosthesis

Subbotin DN, Kiselev SN, Obuhov LR. Gyn, Volga Regional Medical Center, Nizhny Novgorod, Nizhny Novgorod Region, Russian Federation

Study Objective: Comparison of two minimally invasive treatments to determine the benefits of efficacy and quality of life in women with genital prolapse.

Design: Prospective cohort study.

Setting: Academic affiliated regional hospital.

Patients: Two groups of patients undergoing vaginopexy and laparoscopic sacrospinous pexy performed for genital prolapse 3–4 stage POP-Q by general gynecologists between 2011 and 2014.

Intervention: Treatment of pelvic organs prolapse with transvaginal mesh kits or laparoscopic sacrospinous pexy by polypropylene mesh.

Measurements and Main Results: A total of 311 patients underwent surgical treatment for genital prolapse 3 or 4 stage for POP-Q. In the first group, 157 patients received sacrospinous pexy with laparoscopic access; in the second group, 153 patients received vaginopexy with vaginal access using a special device for installing the polypropylene mesh. The number of relapses the first group was 11.1%, in the vaginopexy group (group 2) 7.6% (RR 1.25, CI 0.8 to 1.96; p < .001) and body mass index (OR 1.17; 95% CI 1.07–1.27; p < .001) were associated with increased risk of vaginal oophorectomy failure. Race (p = .64), parity (p = .39), uterine weight (p = .91), need for uterine morcellation (p = .21), presence of endometriosis (p = .66), prior cesarean section (p = .63), prior laparoscopy (p = .37), and prior open abdominal/pelvic surgery (p = .28) did not impact the likelihood of successfully performing oophorectomy.

Conclusion: Greater age and body mass index are associated with increased likelihood of failure to perform a planned oophorectomy at the time of vaginal hysterectomy in patients with uterovaginal prolapse. An awareness of these risk factors can aid in the counseling and surgical planning of patients undergoing hysterectomy for pelvic organ prolapse.

Virtual Posters – Session 4
(12:45 PM – 1:45 PM)

1:39 PM – STATION A

Feasibility of Oophorectomy at Time of Vaginal Hysterectomy in Patients with Uterovaginal Prolapse

Luu LL, Davé AM, Kostorek HE, Wasson MN. Obstetrics and Gynecology, University of Nevada Las Vegas, Las Vegas, Nevada; Gynecology, Mayo Clinic, Phoenix, Arizona; Division of Health Sciences Research, Mayo Clinic, Scottsdale, Arizona

Study Objective: Determine the rate of successful oophorectomy at the time of vaginal hysterectomy in patients with uterovaginal prolapse.

Design: Retrospective cohort study.

Setting: Academic medical center.

Patients: All women who underwent vaginal hysterectomy for treatment of uterovaginal prolapse between January 1, 2009 and August 31, 2014 were considered for inclusion in the study.

Intervention: Total vaginal hysterectomy and concomitant uterovaginal prolapse repair with or without oophorectomy.

Measurements and Main Results: A total of 289 women underwent total vaginal hysterectomy with uterovaginal prolapse repair. Vaginal oophorectomy was attempted in 179 patients (61.9%) and was successful in 150 patients (83.8%; 95% CI 77.6–88.9%). High ovarian location was the most commonly cited reason for inability to perform planned unilateral or bilateral salpingo-oophorectomy (N = 24, 82.7%). Multiple logistic regression analysis demonstrated that increasing age (OR = 1.12, 95% CI 1.05–1.20; p < .001) and body mass index (OR 1.17; 95% CI 1.07–1.27; p < .001) were associated with increased risk of vaginal oophorectomy failure.

Conclusion: Greater age and body mass index are associated with increased likelihood of failure to perform a planned oophorectomy at the time of vaginal hysterectomy in patients with uterovaginal prolapse. An awareness of these risk factors can aid in the counseling and surgical planning of patients undergoing hysterectomy for pelvic organ prolapse.

HALON (Hysterectomy by Trans-Abdominal Laparoscopy or Transvaginal NOTES): A Randomized Controlled Trial

Baekelandt JF, Bosteels JJA, Weyers S, Mol B. Gynecological Oncology and Endoscopy, Imelda Hospital, Bonheiden, Antwerpen, Belgium; CEBAM The Centre for Evidence-Based Medicine, Cochrane Belgium, Leuven, Vlaams-Brabant, Belgium; Universitaire Vouwenkliniek, University Hospital Gent, Gent, Oost-Vlaanderen, Belgium; The Robinson Institute, School of Paediatrics and Reproductive Health, University of Adelaide, Adelaide, South Australia, Australia

Study Objective: To compare transvaginal Natural Orifice Transluminal Endoscopic Surgery (vNOTES) Hysterectomy and Total Laparoscopic
Hysterectomy (TLH) for the successful removal of the uterus for benign gynecological pathology.

**Design:** Randomized controlled, single center, single-blinded, parallel-group, non-inferiority, efficacy study. ClinicalTrials.gov: NCT02631837.

**Setting:** Gynecology department of non-university teaching hospital in Belgium.

**Patients:** We studied women with a benign indication for hysterectomy aged 18–70. Women with a history of rectal surgery, rectovaginal endometriosis, malignancy, PID, active lower genital tract infection, virgo or pregnancy were not eligible.

**Intervention:** After written informed consent, women were randomly allocated to vNOTES Hysterectomy or TLH by using a computer generated randomization list. All procedures were performed by a surgeon equally skilled in performing both techniques, who was not blinded to the treatment allocation. Participants, nursing staff and outcome assessors were blinded by mock incisions. Pre- and postoperative treatment was provided by staff blinded for the allocated intervention using a standardized protocol, identical for both techniques.

**Measurements and Main Results:** Primary outcome was successful removal of uterus with the intended approach without conversion to another approach. Secondary outcomes were proportion of women discharged on the same day, based on their own preference, postoperative pain scores between day 1–7 and total use of analgesics, postoperative infection, per- or postoperative complications according to Clavien-Dindo classification; hospital readmissions, surgery duration, dyspareunia, sexual wellbeing and costs up to 6 weeks.

All 70 patients were successfully operated with the intended approach (35 vNOTES; 35 TLH) without conversion to another approach. The discharge rate on the day of the surgery was 28/35 (80%) in the vNOTES group versus 17/35 (48.5%) in the TLH group (RR:1.6, 95% CI:1.1–2.4). Data collection on secondary outcomes is ongoing, and will be available in November 2017.

**Conclusion:** In women scheduled for hysterectomy, vNOTES is a promising procedure that can reduce morbidity, duration in hospital stay and costs.

**613 Virtual Posters – Session 4**
**(12:45 PM – 1:45 PM)**

**1:39 PM – STATION C**

**Natural Orifice-Assisted Laparoscopic Meckel Diverticulectomy Incidentally Found During Para-Aortic Mass Resection**

Menderes G,1 Dugan K,1 Klein MJ,2 Azodi M.1 Obstetrics, Gynecology, and Reproductive Sciences, Yale University School of Medicine, New Haven, Connecticut; 2 Obstetrics and Gynecology, Wake Forest University School of Medicine, Winston-Salem, North Carolina

The patient was a 39-year-old who was diagnosed with stage IV choriocarcinoma. She had an excellent clinical response to chemotherapy with resolution of all metastatic disease except for the para-aortic mass. She was taken to the OR for laparoscopic resection of the para-aortic mass. Initial survey revealed an incidental Meckel diverticulum as well as the 5 cm left para-aortic mass. Once the para-aortic mass was resected, attention was turned to the Meckel diverticulum. In order not to extend the abdominal incisions, a posterior colpotomy was performed. Endo-GIA was introduced through the posterior colpotomy. Meckel diverticulum was resected and removed in a contained manner through posterior colpotomy. The patient was discharged home on postoperative day 0.

To our knowledge, this is the first report describing a natural orifice assisted laparoscopic approach for resection of Meckel diverticulum.
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This two-day course is designated for gynecologists seeking to advance their knowledge of pelvic anatomy and chronic pelvic pain. The morning will consist of didactic instruction.

The afternoon hands-on course will be divided into 3 labs, which will run concurrently and participants will switch at a designated time. The first lab will provide each participant the opportunity to treat patients with pelvic pain, particularly surgical treatment for severe endometriosis, including: dissection of pelvic anatomy, using unembalmed cadavers, with an emphasis on the retroperitoneal space, including pararectal/para-vesical spaces, the ureters, and branches of the iliac arteries and associated pelvic nerves.

The second lab will highlight principles of common procedures used in the treatment of pelvic pain, such as nerve blocks and trigger point injections, specifically: diagnosis and treatment for abdominal wall and pelvic floor, specifically ilioinguinal, genitofemoral, pudendal and obturator nerves, by employing ultrasound-guided nerve blocks. Surgical access to these areas will be highlighted. Additionally, we will explore complications, particularly those related to mesh and other traditional gynecologic procedures.

The third lab, under the direction of a world-renowned pelvic floor physical therapist, will include hands-on training using the “Pelvic-mentor,” a pelvic model that can be used to evaluate patients with pelvic floor dysfunction, and improve understanding of the pelvic musculature in relation to the diagnosis and treatment of pelvic pain.

Join us December 8-9 in Phoenix for this comprehensive workshop.

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