Plenary 7: Reproductive Issues

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Mark W. Dassel, MD
Professional Education Information

Target Audience
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Plenary 7: Reproductive Issues

Moderator: David L. Olive
Co-Moderators: Stephen L. Corson, Michael Lewis

Faculty: Munire Erman Akar, Linda D. Bradley, Mark W. Dassel, Benoit Rabischong, Tycho van Meer

Course Description

This session provides investigative results on a variety of topics inherent to successful reproduction. These include the feasibility of uterine transplantation, endometriosis, uterine fibroids, the effects of ectopic pregnancy on reproductive outcomes, and the reversibility of hysteroscopic contraception.

The description you develop is the most effective method we have of promoting your session. The description should be written to promote interest in your topic as it relates to minimally invasive gynecology. Please write a short description (no more than 150 words) that will be used for marketing your session. Please note descriptions are subject to editorial review/change by AAGL.

Course Objectives

At the conclusion of this session, the participant will be able to: 1) Describe the methods of hysteroscopic sterilization; 2) Recognize the needs and preferences of women with uterine fibroids; and 3) assess fertility potential in women after ectopic pregnancy.

Course Outline

2:15 Short Term Follow Up Results of the First Human Uterus Transplantation from Cadaver
M. Erman Akar

2:25 Removal of Essure Device
T. van Meer

2:35 Investigating the Needs and Preferences of US Women with Fibroids
E.A. Stewart

2:45 Fertility Following Tubal Ectopic Pregnancy: Results of a Population-Based Study
B. Rabischong

2:55 Utility of Site-Specific Peritoneal Biopsies in the Benign-Appearing Pelvis on Laparoscopy for the Diagnosis of Endometriosis in Chronic Pelvic Pain
M.W. Dassel

3:05 Discussion

3:15 Adjourn
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The following members of AAGL have been involved in the educational planning of this workshop and have no conflict of interest to disclose (in alphabetical order by last name).
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Viviane F. Connor
Consultant: Conceptus Incorporated
Frank D. Loffer, Executive Vice President/Medical Director, AAGL*
Linda Michels, Executive Director, AAGL*
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Other: Lecturer - Olympus, Lecturer - Karl Storz Endoscopy-America

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Other: Royalties - CooperSurgical
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Grants/Research Support: Elsevier
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Speaker’s Bureau: Bayer Healthcare Corp., Conceptus Incorporated, Ferring Pharm
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Consultant: Karl Storz Endoscopy
Rosanne M. Kho
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Stock Shareholder: TransEnterix
Speaker’s Bureau: Covidien, Abbott Laboratories
Other: Proctor - Intuitve Surgical

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The following have agreed to provide verbal disclosure of their relationships prior to their presentations. They have also agreed to support their presentations and clinical recommendations with the “best available evidence” from medical literature (in alphabetical order by last name).
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Consultant: Bayer Healthcare Corp., Conceptus Incorporated, Ferring Pharmaceuticals
Speaker’s Bureau: Bayer Healthcare Corp., Conceptus Incorporated, Ferring Pharm
Benoit Rabischong*
Mark W. Dassel*
David L. Olive
Consultant: Ferring Pharmaceuticals, Bayer Healthcare Corp., Bayer-Sherring, Abbott Laboratories
Michael L. Lewis*
Stephen L. Corson
Other: Royalties - Olympus

Asterisk (*) denotes no financial relationships to disclose.
I have no financial relationships to disclose.

Objective: To describe the short term follow-up results of the first human uterus transplantation from cadaver

Experimental studies

<table>
<thead>
<tr>
<th>Ref</th>
<th>Species</th>
<th>Vasc supply</th>
<th>Transpl Immuno</th>
<th>No of animals</th>
<th>Viable grafts</th>
<th>Pregnancy/delivery</th>
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<tbody>
<tr>
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<td>Primate</td>
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<td>Uterus &amp; Inves</td>
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<td>2/10</td>
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<tr>
<td>Barzilai 1973</td>
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<td>1/13</td>
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<tr>
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<td>Rabbit</td>
<td>Inves, Oment</td>
<td>Inves</td>
<td>8</td>
<td>Yes</td>
<td>1/8</td>
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<tr>
<td>Yonemoto 1995</td>
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<td>Anateomosis</td>
<td>Omentopex</td>
<td>7</td>
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<tr>
<td>El-Akouri 2002</td>
<td>Mouse</td>
<td>Anateomosis</td>
<td>Uterus &amp; Inves</td>
<td>20</td>
<td>Yes</td>
<td>2/20</td>
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<tr>
<td>Diaz-Garcia 2010</td>
<td>Rat</td>
<td>Cyclosporine</td>
<td>Uterus</td>
<td>1</td>
<td>Yes</td>
<td>1/1</td>
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<tr>
<td>Mihara M 2012</td>
<td>Monkey</td>
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<td>Uterus &amp; Inves</td>
<td>2</td>
<td>Yes</td>
<td>1/2</td>
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<tr>
<td>Brannstrom et al 2012</td>
<td>Uterus from mother to daughter</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Lessons learnt from the first LHuman uterus tx

- In 2000 in Saudia Arabia from a 46 year old live donor
- Removed after 3 months as a result of massive necrosis of uterus due to a vascular problem (Twisting of the uterus and subsequent blood flow cessation)
- poor fixation of the graft led to uterine prolapsus
Uterus transplantation: animal research and human possibilities

Vascular Pedicle Lengths After Hysterectomy Toward Future Human Uterus Transplantation

Research
### Recipient
- Psychological stability
- Having no children
- Congenital uterine agenesis
- Trauma, benign causes or hysterectomy history due to a benign reason
- Being able to sacrifice 2-4 years posttransplantation
- 18–45 years
- Normal urinary system anatomy
- No accompanying disease history that would risk surgery immunosuppressive therapy and pregnancy
- Informed consent giving detailed information about all of the risks

### Mayer–Rokitansky–Kuster–Hauser Syndrome
- Incidence: 1/5000
- Autosomal recessive
- Congenital agenesis of uterus and vagina
- Secondary sexual characters normal
- Bilateral ovaries normal
- Accompanying urinary system anomalies 30–40%
- Hearing problems 10–25%
- Vertebral anomalies 10%

67 MRKH patients since 2003

### Case
- 21 yr
- Vaginal reconstruction in 2009
- MRKH syndrome
- 46XX
- BMI: 21 kg/m²
- Healthy
- Normal localization of kidneys
- Good ovarian reserve
- Psychologically stable
- 8 Frozen embryos

### Donor
- 22 yr
- Blood group and HLA match (3/6 match)
- CMV(-)
- HPV 16, 18, 31, 33 and 45(-)
- No cervical lesion
- No myoma or congenital uterine anomaly on USG
**Retrieval**

**Immunosuppressive therapy Induction**
- Antithymosiglobulin 2mg/kg (first 10 days)
- Prednisolone 1000mg till 7th day then 20g (started intraoperatively)
- Tacrolimus (started on 7th day)

**Maintenance treatment**
- Prednisolone 20mg/day
- Tacrolimus 0.2mg/day
- Mycophenolate mofetil 2g/day (after 10th day)

**Prophylaxis**
- Wide spectrum antibiotics (first 10 days)
- Sulfadoxin pyrimethamine
- Oral nistatin drops
- Oral valasiklovir (CMV prophylaxis)
- Antithrombotic prophylaxis (aspirin and subcutan heparin)

**triple therapy tacrolimus, MMF and steroid**
- 100% graft survival
  - Petruzzo et al, 2010, Transplantation
**Immunosuppression side effects**
- Infection
- Diabetes
- Hiperlipidemia
- Nefrotoxic
- Malignancy

**Monitoring of rejection**
- Vaginal biopsy
  - Every 2 weeks in the first 3 months
  - Once a month in the following 6 months
- Endometrial biopsy every 3 months
  - Stasis,
  - hemoragia,
  - edema and glandular epithelial vacuolization,
  - Presence of necrotic cells
  - Presence of apoptosis and lymphocytes

**Menstruation**
- First menstruation 3 weeks after the surgery
Pregnancy risks

- Iugr
- Hypertension
- Proteinuria
- Preeclampsia
- Low birth weight
- Prematurity
- PROM
- Graft rejection rate 6%

Real success

- Delivery of a healthy near term baby
Thanks

References

Evidence literature
only case reports

- Subserosal misplacement of Essure device manifested by late-onset acute pelvic pain. Mahmoud MS, Fridman D, Merhi ZO. Fertil Steril. 2009 Dec

Why operate?

small bowel obstruction four weeks after Essure

I have no financial relationships to disclose.
Results

- 20 x laparoscopic
- 12x hysteroscopy
- Mean operation time 42 min (15-70 min)
- No late or short term complications
- Day care setting
- Interval between placement and removal between 10 days and 3 years

Reasons for removal

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perforation</td>
<td>8</td>
</tr>
<tr>
<td>Expulsion/dislocation</td>
<td>7</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>7</td>
</tr>
<tr>
<td>Nickel allergy</td>
<td>1</td>
</tr>
<tr>
<td>Adnectomy</td>
<td>1</td>
</tr>
</tbody>
</table>

Conclusion

- Save and feasible to remove Essure devices either laparoscopically or hysteroscopically
- No complications
- Possible beyond 12 weeks after placement
- Removal indicated in total perforation and partial expulsion

Essure in omentum

Tips and Tricks

- Locate device before table in Trendelenburg
- Locate device by ultrasound, X-ray, HSG before laparoscopy
- make sure you the whole device is removed
- Complete perforation: radiologic guidance (C-arm)
- Sterilization: Filshie clips or tubectomy
  !!!pull essure in small steps !!!
Literature


Impact of Uterine Fibroids: National Survey of Symptoms, Quality of Life, and Treatment Needs

Elizabeth A. Stewart, MD
Wanda K. Nicholson, MD MPH MBA
Linda Bradley, MD
Bijan J. Borah, PhD

Objectives
To conduct a nationwide survey of racially-diverse women with symptomatic fibroids assessing:
• Diagnosis and symptoms
• Information seeking
• Attitudes about fertility
• Impact on work
• Treatment preferences

Methodology
• Online Survey through Harris Interactive panel from 12/1/2011-1/16/2012
• 968 U.S. women, age 29-59* with symptomatic uterine fibroids without having had a hysterectomy
• Oversample of African-American women
• Data weighted by age, education, region, and income to reflect a nationally representative sample

Demographics

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Number of Respondents</th>
<th>Marital Status</th>
<th>Number of Children</th>
<th>Employment</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>59</td>
<td>Married union</td>
<td>None</td>
<td>Employed full-time</td>
<td>$75K or more</td>
</tr>
<tr>
<td>African-American</td>
<td>28</td>
<td>Divorced</td>
<td>1-2</td>
<td>Not employed/stay at home partner</td>
<td>$50K-$75K</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>Separated</td>
<td>3 or more</td>
<td>Retired/Student</td>
<td>&lt;$35K</td>
</tr>
</tbody>
</table>

* Due to the initially low incidence, the age range was shifted from 21-50 to 29-59 when no women under the age of 29 screened into the study.

Diagnosis:
On average, women experience fibroid symptoms for about 3.6 years before seeking treatment.

Disclosure
• Grant/Research: InSightec
• Consultant: Abbott Laboratories, Gynesonics
• Other: Royalties: UpToDate
Younger women are more likely than older women to rate fibroid symptoms as severe.

Fibroids negatively impact the work performance and potential for younger women.

Two out of three women in child-bearing years say it is important to have a treatment option that allows a women to keep her uterus.

76% say it is important to have a treatment option not involving invasive surgery and enabling potential for future children.
Despite the discussions, needs remain for information. Younger women have the greatest need.

Need information about consequences of not having fibroids treated
Women overwhelmingly prefer noninvasive and minimally invasive therapies

Invasiveness is biggest treatment concern. Younger women are more concerned.

Focused ultrasound is the clear treatment option of choice for women with fibroids.

Survey questions from the UFS-QOL were used with permission from the Society of Interventional Radiology (SIR) Foundation (Fairfax, Virginia)

The authors thank Jill W. Roberts, M.S. and Susan Kleese for assistance in preparation of the slides.
References


Fertility Following Tubal Ectopic Pregnancy: Results of a Population-Based Study

41st AAGL Global Congress, Las Vegas, Nevada

Benoit Rabischong, MD, PhD, Marianne de Benetot, MD, Bruno Audiol-Cuvelier, MD, PhD, Fabien Belard, D. Larrain, MD, Hervé Fernandez, MD, Jean Bouyer, MD, PhD, Michel Canis, MD, PhD, Jean-Luc Pouly, MD

Disclosure

• I have no financial relationships to disclose.

Epidemiologic Register for Ectopic Pregnancy in Auvergne

• Created in 1992 (J.L Pouly, H. Fernandez, N. Job Spira)
• General population basis (non biased information, the » real life »)
• 3 departments of Auvergne’s region (Allier, Cantal, Puy de Dôme)
• 20 medical centers, public and private
• All women, 15-45 years old, treated for EP
• 1992-2008: 3193 patients (200 cases / year)

To study EP incidence on a long period, old and new risk factors, different treatment’s results, cost-effectiveness and consequences on fertility and quality of life.

Fertility Following Tubal Ectopic Pregnancy

• Rate of spontaneous IUP according to the type of treatment? highly controversial issue
• Risk factors of repeated ectopic pregnancy?
• Prospective follow-up of each patient until 45 y old in the Auvergne’s register to study the reproductive outcome after a tubal EP

Fertility Following Ectopic Pregnancy

Results of Auvergne’s Register Patients

Disclosed by Benoit Rabischong et al. Fertil Steril 2012

Exhaustiveness ratio ~ 90 % (capture-recapture technique)
Factors influencing Fertility Following EP
Rate of IUP, Univariable analysis, 1064 patients
- Treatment, p=0.007 in favour of a conservative treatment (medical or surgical)
- History of infertility, p=0.0001
- History of live birth, p=0.007
- Tubal disease, p<0.001
- EP with IUD, p=0.001
- Age at baseline, p=0.0001

After adjustment for confounders, there was only a statistically not significant trend in favor of the conservative strategy.

Fertility Following Ectopic Pregnancy
Multivariable analysis of factors influencing fertility: Cox model
- After adjustment for confounders, there was only a statistically not significant trend in favor of the conservative strategy.

Fertility Following Ectopic Pregnancy
Multivariable analysis for the two subgroup of women depending of history of infertility, tubal patency or age at the time of EP
- For patients with at least one of these three risk factors (subgroup 1), the IUP rate was significantly higher after conservative treatment compared with salpingectomy (HR 0.67; 95% CI 0.50-0.91)
- In this subgroup, no difference in fertility was found according to the type of conservative treatment, medical or surgical.

24-months cumulative rate:
- Salpingectomy: 67.4%
- Salpingostomy: 76.4%
- Medtrixare: 75.6%

Recurrence Following Ectopic Pregnancy
Cumulative rates of repeat EP depending of the treatment
- 2-year cumulative rate of repeat EP
  - 19% for salpingostomy
  - 18.5% for salpingectomy
  - 25% for methotrexate
  - No difference according to the type of treatment, p=0.86
Recurrence Following Ectopic Pregnancy

Multivariable analysis of factors influencing the risk of recurrence (Cox model)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adjusted hazard ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of infertility</td>
<td>0.8</td>
<td>[0.8-0.9]</td>
</tr>
<tr>
<td>History of abortion</td>
<td>1.3</td>
<td>[1.1-1.6]</td>
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</tbody>
</table>

- Previous voluntary termination of pregnancy was a risk factor of recurrence (HR 1.8; 95% CI 1.1-3.0)
- Interest in secondary prevention

Effectiveness of Methotrexate

1992-2008, Auvergne’s register, 3193 patients

- 419 patients
  - Asymptomatic, β-HCG < 5000 IU
  - Mean pre-therapeutic HCG level = 1675 IU
  - Single dose regimen: one intramuscular injection of 50 mg/m²
  - Failure = need of a second line surgical treatment
  - Mean failure rate: 24.6% (50% in 1992, 13% in 2008, p<0.0001)
  - Mean HCG level:
    - Success: 1274.8 IU (95% CI 962-1587), Failure: 2920.2 IU (95% CI 1242.4-4598), p=0.06
  - Univariate and multivariate analysis
    - Significant factors of failure in multivariate analysis:
      - History of combined oral contraception, 18.4% vs 30.4%, p = 0.0001
      - HCG level:
        - < 1300 IU, failure rate = 16.5%
        - > 1300 IU, failure rate = 39.9%, p < 0.0001
      - OR 3.6, 95% CI 2.1-5.9
    - Rabischong et al. Fertil Steril 2011

Effectiveness of Laparoscopic Salpingostomy

1992-2008, Auvergne’s Register, 3193 patients

- 1306 patients, Indication:
  - Whenever possible / Fertility, Pouly score (Fertil Steril 1989)
  - Mean HCG level:
    - Success: 2900.5, Failure: 3745.7 (p=0.20)
    - Failure = second line of medical or surgical treatment
    - Mean failure rate = 6.6% (5.9% in 1992 vs 6.4% in 2008, p=0.89)
  - Factor of failure in multivariate analysis:
    - HCG level:
      - < 1960 UI, failure rate = 5.1%
      - > 1960 UI, failure rate = 8.6%, p = 0.03
      - But poor predictive value and clinical relevance of this cut-off
    - Rabischong, Larrain et al. Obstet Gynecol 2010

Conclusions

Fertility following EP

- The main strength of these results is that they reflect the daily gynecological practice
- The conservative strategy seems to be preferred whenever possible to preserve patient’s fertility without increasing the risk of recurrence
- The choice between conservative treatments does not rely on subsequent fertility, but more likely on their own indications and therapeutic effectiveness or the quality of life
- Risk factors of recurrence could be considered for secondary prevention

Thank You Very Much
For Your Attention!
Utility of Site-Specific Peritoneal Biopsies in the Benign-Appearing Pelvis on Laparoscopy for the Diagnosis of Endometriosis in Chronic Pelvic Pain

Dassel M and N Desai, D Atashroo, M Hibner
St. Joseph’s Hospital and Medical Center
Creighton University College of Medicine
Phoenix, AZ

Objectives
- Recognize the need for tissue sampling in patients with chronic pelvic pain and a benign-appearing pelvis
- Counsel patients on the prevalence of endometriosis in a benign-appearing pelvis

Background
- Chronic pelvic pain is a common gynecologic syndrome with significant psychosocial and economic impact.
- The differential is very broad and can be difficult to evaluate.
- One common cause is endometriosis
- Diagnostic Laparoscopy can be useful in diagnosis, but can sometimes appear benign.

Clinical Question
- Should peritoneal biopsies be performed in the benign-appearing pelvis when encountered during diagnostic laparoscopy for pelvic pain?
- Null Hypothesis: Peritoneal biopsies in the benign-appearing pelvis during diagnostic laparoscopy for pelvic pain will not demonstrate microscopic evidence of endometriosis

Materials and Methods
- Retrospective analysis
- Biopsies taken at 4 pre-specified pelvic sites in the benign-appearing pelvis during laparoscopic evaluation of pelvic pain
- Tissue sent for standard pathological review
- Statistics were purely descriptive

Disclosure
I have no financial relationships to disclose.
Standard Biopsy Sites

- Biopsies were taken in the (A) anterior cul-de-sac, (P) posterior cul-de-sac, and the (L) left and (R) right ovarian fossae.
- Biopsies were ovoid and 1-2 cm in greatest diameter.

Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Range</th>
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<tbody>
<tr>
<td>Age (years)</td>
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<td>7.9</td>
<td>18-56</td>
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<tr>
<td>Height (inches)</td>
<td>64&quot;</td>
<td>3.0&quot;</td>
<td>56&quot;-77&quot;</td>
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<tr>
<td>Weight (lbs)</td>
<td>156</td>
<td>6.6</td>
<td>105-329</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>27.2</td>
<td>0.7</td>
<td>17.7-54.9</td>
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Self Reported Race | Frequency | Percent |
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<tbody>
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<td>Hispanic</td>
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<tr>
<td>Unknown</td>
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<td>1.74</td>
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</table>

Results Interpretation

- Of 110 patients with a benign-appearing pelvis on laparoscopy, 29 (26%) had at least one biopsy-site positive for endometriosis
- Approximately 1 in 4 patients were given a diagnosis of endometriosis that would have otherwise gone unrecognized

Results

- Proportion of positive biopsy sites
  36/401=8.98%
- Proportion of patients with at least one positive biopsy site
  29/110=26.36%

<table>
<thead>
<tr>
<th>Pelvic Biopsy Site</th>
<th>Histologically Positive for Endometriosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Ovarian Fossa</td>
<td>12</td>
</tr>
<tr>
<td>Right Ovarian Fossa</td>
<td>1</td>
</tr>
<tr>
<td>Anterior Cul-de-Sac</td>
<td>3</td>
</tr>
<tr>
<td>Posterior Cul-de-Sac</td>
<td>7</td>
</tr>
</tbody>
</table>

- 23 with 1 positive, 5 with 2 positive, 1 with 3 positive
- In the 23 with 1 biopsy-positive sight

Future Direction

- Future peritoneal biopsy studies should be performed prospectively comparing patients with and without chronic pelvic pain.
- Clinical outcome data regarding clinical utility of endometriosis diagnosis by peritoneal should be sought
- Determine how many and at which location biopsies should be performed to establish the diagnosis
Clinical Correlation

- Peritoneal biopsies during diagnostic laparoscopy for pelvic pain are low morbidity.
- Can establish a diagnosis of endometriosis in 26% of individuals with chronic pelvic pain and normal diagnostic laparoscopy.
- Thereby we continue to perform peritoneal biopsies in patients with chronic pelvic pain with benign-appearing laparoscopy with 2 caveats:
  1. We need to establish pain outcomes in endometriosis-positive patients treated with conventional therapy for endometriosis.
  2. A prospective controlled trial would yield better data as to the baseline level of endometriosis in a non-pelvic pain population.

References


Thank you for your attention.
CULTURAL AND LINGUISTIC COMPETENCY

Governor Arnold Schwarzenegger signed into law AB 1195 (eff. 7/1/06) requiring local CME providers, such as the AAGL, to assist in enhancing the cultural and linguistic competency of California's physicians (researchers and doctors without patient contact are exempt). This mandate follows the federal Civil Rights Act of 1964, Executive Order 13166 (2000) and the Dymally-Alatorre Bilingual Services Act (1973), all of which recognize, as confirmed by the US Census Bureau, that substantial numbers of patients possess limited English proficiency (LEP).

California Business & Professions Code §2190.1(c)(3) requires a review and explanation of the laws identified above so as to fulfill AAGL’s obligations pursuant to California law. Additional guidance is provided by the Institute for Medical Quality at http://www.imq.org

Title VI of the Civil Rights Act of 1964 prohibits recipients of federal financial assistance from discriminating against or otherwise excluding individuals on the basis of race, color, or national origin in any of their activities. In 1974, the US Supreme Court recognized LEP individuals as potential victims of national origin discrimination. In all situations, federal agencies are required to assess the number or proportion of LEP individuals in the eligible service population, the frequency with which they come into contact with the program, the importance of the services, and the resources available to the recipient, including the mix of oral and written language services. Additional details may be found in the Department of Justice Policy Guidance Document: Enforcement of Title VI of the Civil Rights Act of 1964 http://www.usdoj.gov/crt/cor/pubs.htm.

Executive Order 13166,”Improving Access to Services for Persons with Limited English Proficiency”, signed by the President on August 11, 2000 http://www.usdoj.gov/crt/cor/13166.htm was the genesis of the Guidance Document mentioned above. The Executive Order requires all federal agencies, including those which provide federal financial assistance, to examine the services they provide, identify any need for services to LEP individuals, and develop and implement a system to provide those services so LEP persons can have meaningful access.

Dymally-Alatorre Bilingual Services Act (California Government Code §7290 et seq.) requires every California state agency which either provides information to, or has contact with, the public to provide bilingual interpreters as well as translated materials explaining those services whenever the local agency serves LEP members of a group whose numbers exceed 5% of the general population.

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If you add staff to assist with LEP patients, confirm their translation skills, not just their language skills. A 2007 Northern California study from Sutter Health confirmed that being bilingual does not guarantee competence as a medical interpreter. http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2078538.