Didactic:
No More Fibs: The Truth about Fibroids

PROGRAM CHAIR
Hye-Chun Hur, MD, MPH

PROGRAM CO-CHAIR
Stephanie N. Morris, MD

Togas Tulandi, MD
Professional Education Information

Target Audience
This educational activity is developed to meet the needs of residents, fellows and new minimally invasive specialists in the field of gynecology.

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FIBR-711
Didactic: No More Fibs: The Truth about Fibroids

Hye-Chun Hur, Chair
Stephanie N. Morris, Co-Chair

Faculty: Togas Tulandi

This course will provide participants with a systematic approach to managing symptomatic patients with both simple and complex fibroid presentations. An algorithm for deciding routes of surgical treatment (conventional laparoscopy, robot-assisted laparoscopy, laparotomy, or hysteroscopy) will be discussed. Radiologic imaging as well as nonsurgical treatment options will be addressed. Techniques and specific approaches for the treatment of more challenging fibroids, such as broad ligament, cervical, deep intramural, and submucosal fibroids, will be presented. Tips and tricks for laparoscopic suturing, minimizing blood loss, and tissue extraction techniques will be reviewed.

Learning Objectives: At the conclusion of this course, the clinician will be able to: 1) Summarize currently available treatment options for conservative fertility-sparing fibroid management; 2) apply strategies, tips and tricks for resecting various fibroid presentations, including submucosal, deeply intramural, broad ligament, and cervical fibroids; 3) describe strategies to minimize blood loss; and 4) describe laparoscopic suturing and tissue extraction techniques essential for laparoscopic myomectomy.

Course Outline

12:30 Welcome, Introductions and Course Overview
H-C Hur

12:35 Which Fibroids Should You Treat? Understanding Fibroid Anatomy, Range of Diagnoses, and Associated Clinical and Reproductive-Sequelae to Tailor the Plan
H-C Hur

1:00 Simplifying Laparoscopic Myomectomy: Setting the Stage for Effective Suturing and General Tips and Tricks
S.N. Morris

1:25 Robot-Assisted Laparoscopic Myomectomy: Different Strategies Compared to Conventional Laparoscopic Myomectomy
H-C Hur

1:50 When to Opt for Laparotomy: Minimally Invasive Techniques for Open Myomectomy, Strategies for Minimizing Blood Loss and Adhesions
T. Tulandi

2:15 Questions & Answers
All Faculty

2:25 Break

2:40 Strategies for Safe and Effective Tissue Removal, Controversies of Fibroid Morcellation
S.N. Morris

3:05 Hysteroscopic Myomectomy: How to Approach the Type 2 Submucosal Fibroid
S.N. Morris

3:30 How to Tackle the Challenging Fibroid Presentation: Adenomyomas, Deeply Intramural, Broad Ligament, and Cervical Fibroids
H-C Hur

3:55 Other Fibroid Treatment Options: Single-Port Myomectomy, Uterine Artery Embolization, and Myoma Ablation Procedures (MRI-focused US, Radiofrequency Ablation)
T. Tulandi

4:20 Questions & Answers
All Faculty

4:30 Adjourn
PLANNER DISCLOSURE
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*
Kimberly A. Kho*
Frank D. Loffer, Medical Director, AAGL*
Linda Michels, Executive Director, AAGL*
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FACULTY DISCLOSURE
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).
Hye-Chun Hur
Other: Author: UpToDate
Stephanie N. Morris*
Togas Tulandi
Consultant: Actavis

Asterisk (*) denotes no financial relationships to disclose.
**Which Fibroids Should You Treat?**
Understanding fibroid anatomy, range of diagnoses, and associated clinical & reproductive sequelae to tailor the plan.

Hye-Chun Hur, MD, MPH
Assistant Professor, Harvard Medical School
Director, Division of Minimally Invasive Gynecology
Beth Israel Deaconess Medical Center

---

**Objectives**

- Review process for selecting which fibroids to treat surgically.
- Review fibroid anatomy, diagnoses and clinical sequelae.
- Algorithm for planning fibroid treatment.

---

**Fibroid Consult**

35yo G2P0020 (SAB x1, TAB x1) female newly diagnosed with fibroid uterus during elective pregnancy termination.

- **PUS:** Uterus 9.5 x 3.3 x 4.1 cm, exophytic fundal fibroid 5.1 x 4.1 x 3.5 cm, EMS 5 mm. Normal ovaries bilaterally.
- Denies menstrual abnormalities or dysmenorrhea. Increasing dyspareunia, urinary frequency, LLQ pain.
- Exam revealed 12 wk sized uterus with anterior fibroid slightly crowding bladder area (mobility).

How do you advise the patient? Should you operate?

---

**Selecting Which Fibroids to Treat**

- **Symptomatic**
  - Bleeding abnormalities
  - Compression symptoms

- **Asymptomatic**
  - Reproductive problems
  - Anatomic problems

---

**Which Fibroids Should be Treated Surgically?**

- Reproductive goals
- Symptoms
Symptomatic, No Reproductive Goals
- All therapies available.
- If surgical treatment, Hysterectomy preferable to myomectomy
  - for definitive treatment
  - if childbearing complete
- Hysterectomy without BSO
  - To permit natural menopause
  - unless BSO indicated

Symptomatic, Reproductive Goals
Patients actively trying to conceive have only 1 option:
- Myomectomy
  - Timing
    o Immediate myomectomy
    o Interval myomectomy
  - Surgical Approach
    o Number
    o Fibroid location
    o Size
Asymptomatic, Reproductive Goals

Known risk of myomectomy scar with future pregnancies
Unknown risk of intramural fibroids on pregnancy outcomes

Risk of Uterine Rupture

• 10% risk of uterine rupture with trial of labor after myomectomy.

Question

How do you decide when to operate on asymptomatic fibroid patients?

Selecting Which Fibroids to Treat

Symptomatic
• Bleeding abnormalities
  ○ Infertility
• Compression symptoms
  ○ Hydronephrosis
  ○ Thrombosis

Asymptomatic
• Reproductive problems
  ○ Infertility
  ○ Pregnancy complications
• Anatomic problems
  ○ Hydronephrosis
  ○ Thrombosis

Question

How do you decide when to operate on asymptomatic fibroid patients before a bad obstetric outcome?

Asymptomatic, Reproductive Goals

• Age
• Fibroid location
• Fibroid burden (size, #)
• Findings, “silent” (hydronephrosis, thrombosis)
Patients age ≥40 are offered a lower threshold for timely fibroid surgery.

**Myomas and Pregnancy Outcomes**
- Increased risk of malpresentation (OR 2.9)
- Increased risk of cesarean delivery (OR 1.5)
- Increased risk of spontaneous miscarriage (OR 1.6)
- Bleeding in pregnancy
- Placental abruption
- Premature rupture of membranes

**Fibroid Location**
- Cavitary Fibroids
- Submucosal Fibroid
- Intramural fibroids
- Subserosal fibroids
- Exophytic Fibroids
- Pedunculated Fibroids

**Fibroid Burden**
- 5 cm
- Interestingly, weight of existing literature suggests
  - Fibroid size does not affect miscarriage rates
  - Fibroid # (multiple fibroids) and fibroid location does
  - Mechanism for miscarriage unknown

**Importance of Fibroid Anatomy**
- Knowledge of fibroid anatomy optimizes the myomectomy dissection.
- The fibroid *pseudocapsule* is a structure which surrounds the uterine fibroid, separates it from the uterine tissue and contains a vascular network rich in neurotransmitters like a neurovascular bundle.
- Identification of the pseudocapsule plane
  - minimizes blood loss
  - preserves the integrity of the myometrium
  - better for fertility

**Asymptomatic, Reproductive Goals**
**Summary:**
- Age (≥ 40)
- Fibroid location (determine approach, submucosal)
- Fibroid burden (size, #)
- "Silent" findings (hydronephrosis, thrombosis)
- History of bad pregnancy outcome (SAB, PTL, abruption)
Fibroid Anatomy

Fibroid Anatomy: Video

Which Fibroids Should be Treated Surgically?

Reproductive goals
Symptoms
Age

Fibroid Treatment Algorithm

- Symptoms
- Reproductive goals (preserve uterus)
  - Immediate myomectomy
  - Interim medical treatment with interval myomectomy
- Age (esp > 40)
- Location (determine approach, submucosal)
- Fibroid burden (#, size > 5 cm)
- “Silent” findings (eg. hydronephrosis)

Recommendations

- Fibroid surgery just to rule out the possibility of malignancy is not advised as routine practice.
- Frozen section is not reliable for excluding uterine sarcoma (multiple areas must be sampled).

Fibroid treatment plan should be based on:
- Symptoms
- Reproductive goals
- Findings (eg. hydronephrosis)
- Patient preferences, Age

References:
Up to Date, Eliz Sterwart
Leibsohn et al. AJOG 1990
Schwartz et al. AJOG 1993
References

SIMPLIFYING LAPAROSCOPIC MYOMECTOMY: GENERAL TIPS AND TRICKS AND SETTING THE STAGE FOR EFFECTIVE SUTURING

Stephanie Morris, MD
Clinical Instructor, Harvard Medical School
Associate Medical Director, MIGS Center
Newton Wellesley Hospital, Newton, MA

Objectives

 Demonstrate steps to simplify laparoscopic myomectomy
  • Pre-operative planning
  • Ways to reduce intra-operative blood loss
  • Suturing and surgical techniques
  • Tips for removing different types of fibroids

Planning: Patient selection

 Number of fibroids
 Size of fibroids
  • How big is too big?

Planning: Pre-Operative Imaging

 Ultrasound
  • Limited when numerous fibroids

Disclosures

I have no financial relationships to disclose.
Planning: Pre-Operative Imaging
- MRI
  - Great for mapping fibroid location and number

Planning: In the OR
- Port placement
  - Higher lateral ports
  - Higher midline ports
  - LUQ port
  - 5mm and 10mm

Planning: In the OR
- Energy Source
  - Bipolar
  - Monopolar
  - Ultrasonic Energy
  - Laser

Planning: In the OR
- Myoma manipulators
- Specimen removal

Reducing Blood Loss: Pre-operative use of GnRH Agonists
- Improves pre- and post-op hgb/hct
- Decreases uterine volume and fibroid size
  - 35-65%
- Decreases procedure related blood loss
- Does not change need for blood transfusion
- +/- Decrease in OR time
  - Studies vary
  - Several individual RCT studies show less OR time
  - Meta-analysis, no difference in OR time (Cochrane)
- ? Affect surgical planes

Reducing Blood Loss: Vasopressin
- ↓ Blood loss:
  - Cochrane: 300 cc less EBL
- ↓ Need for transfusion
- Dilute vasopressin
  - (0.05-0.3 units/ml)
- Most studies for open myomectomies

Cochrane Review 2011; Lethaby A. 2002; Zullo F 1998; Gutmann, 2005
Kongnyuy E. Cochrane Review, 2007 (2011); Zhao F 2011; Fletcher H. 1996
Reducing Blood Loss: Tourniquet/Clips

Reducing Blood Loss: Barbed suture
- Decreased OR time (approx 10 min)
- ? Decreased blood loss – studies vary

Reducing Blood Loss: Other
- Direction of myometrial incision
- The “Pedicle”
- Electrocautery vs. suture for hemostasis

Suturing techniques and aides
- Same technique as open
- Multiple layer closure
- Suturing aides
  - Unidirectional barbed suture – Quill, VLock
  - Suture clips – Lapra-Ty

Reducing Blood Loss: Closure of defect
- VIDEO OF MULTI LAYER CLOSURE
- VIDEO V LOCK
- VIDEO SEROSA
Pedunculated fibroids

Using a loop ligasure

Intramural and subserosal fibroids

Multi-layered closure

Suture clips

Submucosal fibroids
Broad ligament fibroid

References

Objectives

• Review factors for patient selection for robotically-assisted laparoscopic myomectomy (RA-LSC MMY).
• Identify the basic steps of laparoscopic myomectomy.
  - Discuss differences between robotic vs conventional LSC MMY approach
  - Review practical tips specific for robotic method
• Video Demos

Patient Selection: RA-LSC MMY

Who is a good candidate for a robotically-assisted laparoscopic myomectomy?

Any patient who is a candidate for a conventional laparoscopic myomectomy is also a candidate for a robotically-assisted myomectomy.

Patient Selection: LSC MMY

Patient Selection

• Poor candidates for beginners:
  - Multiple fibroids (> 3)
  - Large uterine/fibroid size (e.g. well-above umbilicus)
    → Ideal: place camera port 8-10 cm above pathology
  - Adenomyosis (loss of distinct parameters).
• Consider preoperative imaging to
  - Determine myoma size, number, location, and characteristics (degeneration, central necrosis).
  - Exclude adenomyosis.
Objectives

- Review factors for patient selection for robotically-assisted laparoscopic myomectomy (RA-LSC MMY).
- Identify the basic steps of laparoscopic myomectomy.
  - Discuss differences between robotic vs conventional LSC MMY approach
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- Video Demos

Robotic Approach

Advantages
- Surgeon comfort (obese patients)
- Myometrial incision (any direction)
- Magnification (identifying pseudocapsule planes)
- More comfortable when suturing

Disadvantages
- Larger trocar incision size (8 mm vs 5 mm)
- Additional trocar (4 vs 3 accessory trocars)
- Lack of tactile feedback (visual haptics)
- Space limitations (upper abdomen vs lower pelvis)

Differences

<table>
<thead>
<tr>
<th>Robotic Approach</th>
<th>Conventional Laparoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 8 mm trocar size</td>
<td>• 5 mm trocar size</td>
</tr>
<tr>
<td>• 4 accessory trocars</td>
<td>• 3 accessory trocars</td>
</tr>
<tr>
<td>• Higher trocar placement (M configuration)</td>
<td>• Lower trocar placement (diamond configuration)</td>
</tr>
<tr>
<td>• Visual haptics</td>
<td>• Tactile feedback</td>
</tr>
<tr>
<td>• Small movements with lots of clutching</td>
<td>• Large movements with sweeping gestures</td>
</tr>
<tr>
<td>• Surgeon sitting</td>
<td>• Surgeon standing</td>
</tr>
</tbody>
</table>

Port Placement

- M- Configuration
  - 10-12 mm port
  - 8 mm port
  - Accessory Port (5-10 mm)
- Rainbow Configuration
  - 10-12 mm port → direct needle delivery
  - 5 mm port → back load the needle

Port Placement: L-sided Docking

- Camera
- Arm #1: Scissors or Harmonic
- Arm #2: Bipolar
- Accessory Port (suction irrigator)
- Arm #3: Teneculum
- Left-sided Docking
Port Placement: R-sided Docking

Right-sided Docking

Right-sided Docking

Basic Steps of LSC Myomectomy

Myomectomy Procedure (4 basic steps):
1. Myometrial incision
2. Fibroid enucleation
3. Myometrial closure
4. Fibroid morcellation
5. (Adhesion barrier)

Adhere to same surgical principles as open myomectomy. Apply different techniques to achieve these principles robotically.

Step 1: Myometrial Incision

What direction is best for myometrial incision?
- Transverse
- Vertical
- Oblique incision

Anatomy
Step 2: Enucleation

- **Pseudocapsule**
  - Identify and dissect within pseudocapsule plane
  - Diminishes blood loss
  - Preserves normal myometrium
  - Avoids entry into endometrial cavity
- **Push, don't pull**
  - Push myometrium away from fibroid, rather than pull fibroid out towards you.

Video: Incision, Enucleation

Video: Harmonic

Step 3: Myometrial Closure

- Adhere to same surgical principles as abdominal myomectomy closure
- Check for adjacent myomas prior to closure
- Multi-layer closure is essential
- If endometrial cavity is entered, avoid endometrium in suture line (target endomyometrial junction)
  - IU dye (methylene blue, indigo carmine)
  - Uterine manipulator
- Consider adhesion barrier over suture line (esp if you use barb suture)

Suture Selection

<table>
<thead>
<tr>
<th>Suture Type</th>
<th>Description</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unidirectional Barb</td>
<td>No knots, maintains tissue tension by itself</td>
<td>No knots, maintains tissue tension by itself</td>
</tr>
<tr>
<td>Bi-directional Barb</td>
<td></td>
<td>Easy to achieve multi-layer closure</td>
</tr>
</tbody>
</table>

Video: Myometrial Closure
Step 4: Morcellation

- Options:
  - Mechanical morcellators
  - Laparoscopic scalpel
  - Manual morcellation via mini-laparotomy
- Must account for all removed fibroids (string myomas together w/ long suture using Keith needle if necessary)
- Perform thorough survey to prevent iatrogenic disseminated leiomyomatosis

Morcellation Tips

- Grab an edge to start
- Avoid swiss cheese
  - Place coreguard at 12 o’clock
  - Pulse the blade and adjust direction of tip
- Tissue tension
  - Don’t pull too hard (pops off or morsel breaks off)
  - Regrasp tissue outside of body when it gets really long
- Avoid helicopter effect
  - Pulse the blade, then pull tissue, or
  - Truncate specimen

Port Placement: Morcellation

M- configuration

Hybrid Procedure

- Combined approach with conventional laparoscopic and robotic myomectomy techniques
  - Myometrial incision and myoma enucleation performed laparoscopically
  - Robot docked for myometrial closure only
  - Attempt only when robotic learning curve well-established (ie. efficient docking)

Hybrid Procedure

Benefits of combined approach
- May preserve tactile sensation
- May allow faster enucleation of myoma
- Fewer accessory ports
Conclusions

• Adhere to the same surgical principles for all myomectomies regardless of mode of incision
• Use pre-operative imaging to aid surgical planning
• Allow anatomy to guide
  o port placement (let fundal height guide trocar locations)
  o location and direction of myometrial incision (for ergonomic closure, to minimize risk to adjacent structures)
• Always dissect within pseudocapsule plane
• Push myometrium away from fibroid, rather than pull fibroid out
• Barbed suture is an excellent tool for both beginners and advanced laparoscopic surgeons alike

Questions?
When to Opt for Laparotomy: What Limits a Laparoscopic Approach, and Strategies for a Minimally Invasive Approach to Open Myomectomy

Togas Tulandi MD, MHCM
Professor and Academic Vice Chairman of Obstetrics and Gynecology, Milton Leong Chair in Reproductive Medicine
McGill University

When to opt for laparotomy?
- size, and number of leiomyomas
- surgical expertise

Case:
- Hereditary leiomyomatosis and renal cell cancer (HLRCC), Multiple cutaneous and uterine leiomyomatosis syndrome (MCUL1) or Reed's syndrome
- Genetic testing revealed a c. 139C>T, p.Glu47Stop mutation in the fumarate hydratase (FH) gene, consistent with the diagnosis of HLRCC syndrome.

Consultant: Actavis

Educational objectives
At the conclusion of this session, the participant should be able to:
1. Describe when to opt for laparotomy and the reasons.
2. Describe strategies for minimally invasive approach to open myomectomy.
3. Describe the concept of laparoscopically assisted myomectomy.

Case:
- A 30 year old woman with symptomatic uterine myomas and skin lesions.
- Aunt: leiomyosarcoma and a renal cyst, and her mother underwent a hysterectomy due to uterine fibroids.
- CT scan and MRI demonstrated uterine myomata, a right renal simple cyst of 3x3.2 cm and left adrenal adenoma.
LAM (laparoscopically assisted myomectomy)

- First introduced in 1994
- Less difficult than laparoscopic myomectomy and faster
- Indications: large or multiple myomata not suitable to laparoscopic myomectomy or morcellation
Oxidized Regenerated Cellulose (Surgicel) Imitating Pelvic Abscess
Adhesion reducing substance

- Oxidized regenerated cellulose
- Expanded polytetrafluoroethylene
- Hyaluronic acid and carboxymethylcellulose
- Polyglyactin
- Icodextrin

LAM (laparoscopically assisted myomectomy)

Advantages

- Good visualization of the entire abdominal cavity
- The laparoscopic part allows identification and treatment of concomitant pathology.
- Allows conventional suturing
- No need to morcellate
- Thorough irrigation of the abdominal cavity and secured positioning of adhesion barrier.
- Short hospital stay

Case:

A 30 year old woman with HLRCC (hereditary leiomyomatosis and renal cell cancer).

GnRHa 4 months before myomectomy

Preop. And Postop. Hgb and Hct with GnRHa higher than without.

400 microgram misoprostol vaginally 1 hour prior to surgery

Decreases blood loss
• 20 iu Vasopressin per 100 mL saline
Decreases blood loss and operating time

50 mL bupivacaine 0.25% and 0.5 ml epinephrine

Tourniquet does not decrease blood loss

Oxytocin does not decrease blood loss.

• Loop ligation plus vasopressin
Decreases blood loss and the operating time

Quality of evidence in reducing blood loss

- Moderate:
  - misoprostol
  - vasopressin

- Low:
  - tranexamic acid
  - Gelatin-thrombin matrix
  - tourniquet
  - loop ligation

- No evidence:
  - Oxytocin
  - Uterine artery ligation
Concerns with GnRHa before myomectomy

• Side effects of GnRHa: Addback with estradiol 0.5 mg daily x 3 mths.
• Poor cleavage plane?
• Myoma degeneration
• Delay in diagnosis of sarcoma
• Missed smaller myoma at surgery?

8. Frishman G. Vasopressin: if some is good, is more better? Obstet Gynecol 2009; 113:476.
Strategies for Safe and Effective Tissue Removal

Stephanie N. Morris, MD
Associate Medical Director, MIGS
Newton Wellesley Hospital
Clinical Instructor, Harvard Medical School

Disclosure:
I have no financial relationships to disclose.

Objectives

• Plan tissue removal using multiple different techniques

• Picture: Large fibroid
• Picture: L/S incisions

FDA Safety Communication

• April 2014
• Laparoscopic Uterine Power Morcellation in Hysterectomy and Myomectomy: FDA Safety Communication
• When used for hysterectomy or myomectomy in women with uterine fibroids, laparoscopic power morcellation poses a risk of spreading unsuspected cancerous tissue, notably uterine sarcomas, beyond the uterus. Health care providers and patients should carefully consider available alternative treatment options for symptomatic uterine fibroids. Based on currently available information, the FDA discourages the use of laparoscopic power morcellation during hysterectomy or myomectomy for uterine fibroids.

National/International Organizations

weight in....
SGO Position Statement: Morcellation

- December 2013
- Power morcellation or other techniques that cut up the uterus in the abdomen have the potential to disseminate an otherwise contained malignancy throughout the abdominal cavity. For this reason, the Society of Gynecologic Oncology (SGO) asserts that it is generally contraindicated in the presence of documented or highly suspected malignancy, and may be inadvisable in premalignant conditions or risk-reducing surgery.
- Patients being considered for minimally invasive surgery performed by laparoscopic or robotic techniques, or those who might require intracorporeal morcellation should be appropriately evaluated for the possibility of coexisting uterine or cervical malignancy. Other options to intracorporeal morcellation include removing the uterus through a mini-laparotomy or morcellating the uterus inside a laparoscopic bag.
- Uterine leiomyomas are a common indication for power morcellation. Fewer than one out of 1000 women who undergo hysterectomy for leiomyomas will have an underlying malignancy. The SGO recognizes that currently there is no reliable method to differentiate benign from malignant leiomyomas (leiomyosarcomas or endometrial stromal sarcomas) before they are removed. Furthermore, these diseases offer an extremely poor prognosis even when specimens are removed intact.
- Patients and doctors should communicate about the risks, benefits and alternatives of all procedures so that a patient is able to make an informed and voluntary decision about accepting or declining medical care.

ACOG

- Power Morcellation and Occult Malignancy in Gyn Surgery: A special report. May 2014
- MIS, including power morcellation continues to be an option for some patients.
- Critical to minimize risks for patients with occult malignancy

ACOG: Power Morcellation and Occult Malignancy in Gyn Surgery: A special report

- Pre-op Dx and Eval
  - Cervical Cytology
  - Depending on clinical presentation, may include pelvic imaging and endometrial assessment
  - NO pre-op dx tests can reliably detect sarcoma
- Risk factors to consider
  - Increasing age
  - Menopausal status
  - Uterine size and rapid growth (may increase concern, but not been shown to be predictive of leiomyosarcoma)
  - Certain treatments (tamoxifen, pelvic radiation)
  - Certain hereditary conditions

AAGL: Morcellation During Uterine Tissue Extraction. May 2014

- Pre-op Eval
- H&P, noting patient menopause status
- Rapid uterine growth NOT a reliable predictor
- Cervical cancer screening
- AUB – sampled according to ACOG guidelines (PB)
- Imaging as indicated clinically
  - US and MRI discussed
- Risk Factors
  - Age: mean diagnosis age 60
  - Black race: 2x higher incidence of LMS
  - Tamoxifen (5+ years)
  - Pelvic Irradiation
  - Hx retoblastoma or HLRCC

String of pearls: keeping track of your fibroids

- VIDEO

Focus on technique....
Power Morcellation
• VIDEO

In-Bag Morcellation
• Endocatch VIDEO

In-bag morcellation
• Ecosac VIDEO

In-bag, minilap
• VIDEO

Posterior colpotomy
• VIDEO

References
• Laparoscopic Uterine Power Morcellation in Hysterectomy and Myomectomy: FDA Safety Communication. April 17, 2014
• Morcellation During Uterine Tissue Extraction. AAGL. May 2014.
• Power Morcellation and Occult Malignancy in Gynecologic Surgery: A Special Report. ACOG. May 2014.
Hysteroscopic Myomectomy: How to Approach the Type 2 Submucosal Fibroid

Stephanie N. Morris, MD
Associate Medical Director, MIGS
Newton Wellesley Hospital
Clinical Instructor, Harvard Medical School

Objectives

- Identify characteristics of a submucosal fibroid during pre-operative evaluation that can aide in surgical planning
- Plan surgical approach and describe surgical technique for resection of a large submucosal fibroid

Types of submucosal fibroids

- **Type 0**
  - 100% w/in cavity
- **Type I**
  - >= 50% w/in cavity
  - < 50% myometrial extension
- **Type II**
  - < 50% w/in cavity
  - >= 50% myometrial extension

ESGE Classification

AAGL Practice Report, JMRI 2012

FIGO Classification of Fibroids

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Pre-op Planning

- Type 0, I, II
  - Predicts ability to completely resect fibroid
    - Type 0 96.97%
    - Type I 86.90%
    - Type II 61.83%
  - Predicts fluid deficit
  - Size matters

Decrease chance of complete resection

Increasing fluid deficit

Emanuel, 1997
AAGL Practice Guidelines for mgmt of hysteroscopic distending media, 2013

Pre-op Planning

- Type 0, I, II
  - Predicts ability to completely resect fibroid
  - Predicts fluid deficit
    - Type 0 450ml
    - Type I 957ml
    - Type II 1682ml

Decrease chance of complete resection

Increasing fluid deficit

Emanuel, 1997
AAGL Practice Guidelines for mgmt of hysteroscopic distending media, 2013

Pre-op Planning

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Patient Consent

- Risk of incomplete resection of fibroid
- Possible need for a second procedure


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Office Eval OH

Mult fibroids OH
Intra-op planning: Equipment

- Resectoscope
  - Monopolar
    - using electrolyte free media
  - Bipolar
    - using isotonic electrolyte-rich solution (Normal saline)
  - Diameter (typically 21/22 Fr and 26/27 Fr)
- Hysteroscopic Morcellator
  - using isotonic electrolyte-rich solution (Normal saline)
- RF Vaporization electrodes
  - using isotonic electrolyte-rich solution (Normal saline)

Intra-op planning: Fluid Deficit

- Electrolyte free media
  - Use with monopolar resectoscope
  - Sorbitol/Glycine
  - Fluid deficit max 1000 ml

Intra-op Planning: Fluid Deficit

- Monopolar
  - using electrolyte free media (sorbitol/Glycine)
  - Fluid deficit max 1000 ml
- Bipolar/Mechanical Morcellator
  - using physiologic fluid (Normal saline or LR)
  - Isotonic electrolyte-rich solution
  - Fluid deficit max 2500 ml

Intra-op planning: Minimizing intravasation

- Intrauterine pressure
  - Higher the pressure, the more the fluid absorption
  - Especially when exceeds mean arterial pressure
  - Typical mean arterial pressure 70-110 mmHg
  - Uterine distention - 45-60 mmHg
  - Venous pressure - 8-10 mmHg
  - Pressure > 75 mmHg increases fluid loss into peritoneal cavity via fallopian tubes
  - Use lowest pressure that provides good visualization

Intra-op planning: Minimizing intravasation

- Avoid venous sinuses
  - Encounter in deep myometrial resection
  - Resect intracavitary portion first
  - Cauterize if needed
- RF Vaporizing electrodes
  - Less fluid absorption than cutting loop


Surgical Technique

1. Do complete survey of endometrial cavity first
2. Resect intracavitary portion first
3. Don’t resect yourself into a hole
4. Only remove chips when you need to
5. Move whole resectoscope, not just the loop to maintain visualization
6. Don’t leave pieces hanging
7. When getting deeper into myometrium
   a. Expect fluid deficit to rise more quickly
   b. Identify the pseudo-capsule
   c. Desiccate bleeders as needed
   d. Reduce pressure to help more fibroid protrude into cavity

Type I Resection

Remove resected pieces under direct visualization

Type II Resection

Reducing pressure
Managing Post-operative Bleeding

- Intra-uterine balloon
- Intrauterine pitressin soaked gauze
- Embolization
- Hysterectomy
- Rollerball ablation mostly ineffective

Consider laparoscopic myomectomy

References


A Type II submucosal fibroid

- A. Is almost entirely in the endometrial cavity
- B. Cannot be safely removed in its entirety hysteroscopically
- C. Is less than 50% in the endometrial cavity
- D. Is associated with less fluid deficit than a Type 0 submucosal fibroid at the time of hysteroscopic resection
How to Tackle the Challenging Fibroid:
Adenomyomas, Deeply intramural, Broad ligament and Cervical Fibroids.

Hye-Chun Hur, MD, MPH
Assistant Professor, Harvard Medical School
Director, Division of Minimally Invasive Gynecology
Beth Israel Deaconess Medical Center

Objectives

• Discuss different fibroid presentations that pose unique surgical challenges
  o Broad ligament fibroids
  o Cervical fibroids
  o Ectopic Fibroids (bowel, abd wall, pelvic sidewall)
  o Deep intramural fibroids
  o Adenomyomas

• Review tips and tricks for optimizing minimally invasive surgical techniques for challenging fibroids.

Disclosures

Other: Author: UpToDate

Case #1
Broad Ligament Fibroid

Case #2

Cervical Fibroid
Case #3: Ectopic Fibroids

- Disseminated Peritonitis
- Uterine Fibroids
- Adenomyosis
- Endometriosis
- Infertility

Disseminated Peritonitis

Ectopic Fibroids

- Abdominal Wall
- Left rectosigmoid bowel
- Right rectosigmoid bowel
- Left Pelvic Sidewall, Ureteral
- Right IP ligament
Disseminated Peritoneal Ectopic Fibroids

- Abdominal Wall x 2 (1.7 cm, 1.6 cm)
- Left rectosigmoid bowel (3.2 cm)
- Right rectosigmoid bowel (2.6 cm)
- Left Pelvic sidewall, Ureteral (1.2 cm)
- Right IP ligament (5.2 cm)

Case #4: Deep Intramural Fibroids

Type 2 Submucosal Myoma

Case #5: Adenomyomas

- Video
Questions
Alternatives to myomectomy

Togas Tulandi MD, MHCMD
Professor & Academic Chairman of Obstetrics and Gynecology
Milton Leong Chair in Reproductive Medicine
McGill University

Disclosure

Consultant: Actavis

Educational objectives

At the conclusion of this session, the participant should be able to:

• Describe different alternatives to myomectomy
• Describe medical treatment of uterine myoma
• Describe new techniques of surgical treatment of myoma
• Summarize advantages and disadvantages of different treatments of uterine myoma

Case presentation

• 35 yrs, G0, uterine myoma of 16 gestational weeks
• Ultrasound: multiple intramural myomata
• PH: intestinal obstruction due to volvulus at 1 year old
• “What are my options?”

• Type and severity of symptoms
• Size of the myoma(s)
• Location of the myoma(s)
• Patient age
• Reproductive plans and obstetrical history
Non-surgical management

- Expectant mgmt.
- Medical mgmt.
- Uterine Artery Embolization
- MRgFUS

Medical management

- OCP: no good evidence
- L-norgestrel intrauterine system: may decrease the myoma size
- GnRHAs:
  - most effective
  - addback
- GnRH antagonist: daily dose
- SPRM (selective progesterone receptor modulators)

Amino acid composition of native GnRH and GnRHa

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SPRMs

- Onapristone
- Asoprisnil
- Telapristone acetate
- Ulipristal acetate
- Mifepristone

New Class: SPRM

- Ulipristal acetate—1st in a new class—Selective Progesterone Receptor Modulator (SPRM)
- Partial progesterone antagonist effect

Onapristone

Asoprisnil

Telapristone acetate

Ulipristal acetate

Mifepristone

Agonists

Antagonists
PEARL II

Time to Control of Bleeding (PBAC < 75)

Rates of amenorrhea:
- 73.4% of UPA 5 mg patients (50% in 10 days)
- 81.7% of UPA 10 mg patients

PEARL II

UPA Has a Superior Safety Profile vs. GnRHa as It Does Not Induce Menopausal Symptoms

- UPA shows a superior safety profile to GnRHa
- UPA does not induce menopausal symptoms

PEARL II

Effects of UPA on bone
- Urinary marker C-Terminal telopeptide of type I collagen (CTX)

PEARL II

Endometrial effects of SPRMs

Novel and benign endometrial changes represent a new morphological category which has been referred to as PRM-Associated Endometrial Changes (PAEC).

Hallmark features of PAEC are:
- Low mitotic activity in both glands and stroma
- Abortive subnuclear vacuoles
- Apoptosis
- Absence of stromal breakdown and glandular crowding
- Cystically dilated glands that are lined by flattened epithelium without nuclear pseudostratification

RCT GnRHa vs. aromatase inhibitor

- RCT of women with fibroids of > 5 cm
  - Letrozole (n: 33) vs. triptorelin (n: 27)x 12 weeks
  - Total volume of myomas decreased by 41.6% in letrozole group and 13.3% in GnRHa group.

Testosterone                       Estradiol
Androstendione Estrone
Aromatase

Pituitary gland
Ovary

FSH receptors
↑
IGF I
↑
Sensitivity to FSH
↑↑↑

Tulandi, NEJM 2007

Images courtesy of Professor A. Williams
Edinburgh University Medical School


Key features of PAEC


Both hysterectomy and UAE affect ovarian reserve. Partial recovery of AMH suggests restoration of follicle cohort from the primordial follicle pool. AMH remained low in the UAE group suggests irreparable damage of the primordial follicle pool. It indicates loss of ovarian reserve that may affect future fertility.

Pregnancy after uterine artery embolization for leiomyomata: A series of 56 completed pregnancies

- 56 total pregnancies
- 33 pregnancies among 108 women trying to conceive
- miscarriage rate 30.4%
- preterm delivery rate 18.2%
- postpartum hemorrhage 18.2%

Intra-abdominal Adhesions after Uterine Artery Embolization

Case-control study

UAE group (n=30), control group (72)

Intraabdominal adhesions: UAE group (20%) vs. control group (1.4%) P: 0.002, odds ratio 17.2.

Results

- Stewart et al, 2007: 359 women

Sustained relief: up 24 mths
Max. shrinkage: 25%
Safety Measures

- No beam passes through or near bowel loops
- No beam passes through the bladder or major scar tissue
- No distal beam passes within 4 cm of the sciatic nerve or branches in front of the sacrum
- Constant communication with the patient

Radiofrequency volumetric thermal ablation (RFVTA)

Decreased in myoma volume at 3 and 12 mths: 39.8% and 45.1%

Robot assisted vs. laparoscopic myomectomy

Gargiulo et al, 2012

P<0.001  P<0.04
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.

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.