Laparoscopic Myomectomy

Disclosure

Applied Medical — Consultant
Intuitive Surgical — Proctor
Objectives

Understand patient selection for myomectomy
Describe preoperative assessment to ensure success
Show instrumentation and port application
Discuss methods to reduce risk
Present case demonstrations of the common types of fibroids and techniques needed
Demonstrate uterine closure and tissue extraction.

Indications

- Infertile patients after excluding all other causes of infertility with distorted uterine cavity.
- Patients with recurrent miscarriages or pregnancy complications without other potential causes.
- Symptomatic patient desiring to maintain fertility.
- Patient request, symptomatic, desire to conserve uterus
- SIZE???

In pregnancy

Pain - Treat with Indocin
Growth 30% - Unchanged 85%
Obstruction - Requires C/S
Myomectomy at C/S?
Clinical Pearls

Myomas impact on endometrium best evaluated by SIS/MRI
Submucosal myomas should be removed
Subserosal myomas expectant management
Small intramural should left alone
Myomas 4.5 cm can be offered surgery

Avoid isolated prophylactic removal except with prior myoma related pregnancy loss

Impact of Myomas on Pregnancy

<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Term</td>
<td>1.5</td>
<td>1.3-1.7</td>
</tr>
<tr>
<td>Abruption</td>
<td>3.2</td>
<td>2.6-4.0</td>
</tr>
<tr>
<td>PPH</td>
<td>1.8</td>
<td>1.4-2.2</td>
</tr>
<tr>
<td>MalPresentation</td>
<td>1.5</td>
<td>1.3-1.9</td>
</tr>
<tr>
<td>Cesarean</td>
<td>3.7</td>
<td>3.5-3.9</td>
</tr>
</tbody>
</table>
Myoma Classification

<table>
<thead>
<tr>
<th>Submucosal</th>
<th>0</th>
<th>Pedunculated Intracavitary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intramural</td>
<td>1</td>
<td>&lt;50% Intramural</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>≥50% Intramural</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Contacts endometrium; 100% Intramural</td>
</tr>
<tr>
<td>Subserosal</td>
<td>4</td>
<td>Intramural</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Subserosal ≤50% Intramural</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Subserosal &lt; 50% Intramural</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Subserosal Pedunculated</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Other (specify e.g. cervical, parasitic)</td>
</tr>
</tbody>
</table>

Two numbers are listed separated by a slash. By convention, the first refers to the relationship with the endometrium while the second refers to the relationship to the cervix. One example is below:

2-5 Submucosal and subserosal, each with less than half the diameter in the endometrial and peritoneal cavities respectively.

Adenomyosis

Blood Loss

The average volume of blood loss during abdominal myomectomy is 200 to 800 mL. Laparoscopic myomectomy is 80 to 250 ml.

Vascular anatomy

Myomas are surrounded completely by a dense vascular layer supplying the myoma, which is separated from the myometrium by a narrow avascular space.
Uterine Incisions

INCISIONS

- Cautery of serosal surface along planned incision first aids further in hemostasis
- Make incision large enough.
- Plan incisions so that if need to extend will not verge on tube.
  - Horizontal - Easier to close
  - Vertical
    - Less risk of bleeding,
    - Less risk of extension into tube
GNRH

Sort of Good
- Corrects anemia
- Less Blood Loss 60 ml
- Reduces Size
- PostOp HCT Improvement

Disadvantages
- Changes tissue planes and makes enucleation more difficult
- Softening of tissue affects traction and removal
- Increased rate of subsequent myomas
- Patients are symptomatic from hypoestrogenization
- Minimal effect on blood loss

Consensus against GNRH

Up to date

VasoPressin

Off label indication
- Reduces blood loss
- Half life 10-20 min duration 2-8 hours

Side Effects @ dose of .2 to .6 units/ml

Studies show dose range from 0.05 - 0.3 units / ml

- 0.2 units/ml = 20 units/100
- 0.1 units/ml = 20 units/200
- 0.05 units/ml = 20 units/400
Prostaglandins

Misoprostol

400 mcg

One hour before operation intravaginally

USE IT

Uterine Artery Ligation

Myomectomy + UA Ligation vs Myomectomy alone
Prospective - Transfusion rate (0 vs 17%)
Recurrence rate (6 vs 21%)
Equal pregnancy rates
Bae, F&S 2011

Myomectomy + UA Ligation vs Myomectomy alone
Prospective Study Recurrence Rate (2 vs 13%)
Alborzi F & S 2008

No impact of fertility

Ligation can be permanent or temporary
Barbed Suture

Less blood loss
Reduced Operative Time
Even tension on suture line
Avoids knot tying

USE IT

FLOSEAL in Myomectomy

- In RCT, Floseal decreased intraoperative bleeding during myomectomy
- Blood transfusion was necessary in 5 control patients versus no Floseal patients

Operation

- Have a plan
- Need traction on myomas
- Suction
- Find the avascular plane
- Keep track of the fibroids
- Pitressin
- V-Lock suture- multiple layers
- Adhesion barrier

ADVANTAGES OF PRE-OP MRI

- Multiple fibroids – study films yourself
  - Number and location of fibroids
  - Endometrial cavity involvement
  - Distinguish adnexal masses
  - Detection of adenomyosis
  - Fallopian tube proximity
  - Concern for risk of malignancy

- Your radiologists are only as good as you ask them to be
The Plan

- Know the location of the fibroids
- Know where the endometrium is
- Ultrasound vs MRI
- Adenomyomata vs myoma
- Blood availability

SURGICAL CONSIDERATIONS FOR MYOMECTOMY

- Ethical assessment of your skills
- Recommendations for new surgeons:
  - Primary myomectomy (not repeat)
  - Uterus less than 16 weeks
  - Less than 5 fibroids
  - Pick your first cases wisely
  - Avoid broad ligament or cervical fibroids unless advanced skill –
    - large vessels there,
    - ureter can be on either side – look for it first.
TIPS ON TECHNIQUE

○ Uterine manipulators aid by moving uterus and identification of cavity
○ Endometrial cavity
  • If entered, repair separately
  • Always state in Op Report. (+ or – entry into cavity)
○ Addition of ports to assist
  • Easy surgery is safer
○ Use of myoma screw / tenaculum to assist manipulation
○ Don’t lose the fibroids
  • Consider “stringing” them together on suture for future morcellation.
  • Surgeon, tech and circulator should count them.

EQUIPMENT

○ Monopolar scissors
○ Monopolar hook or spatula
○ Bipolar
○ Myoma screw
○ 5 or 10h mm tenaculum grasper
○ Uterine manipulator
○ Needle drivers, V-Lock
○ Irrigator
Port Placement

When to deliver
Rupture risk is low - 0.5% - 0.7%
Delivery at 38 weeks

<table>
<thead>
<tr>
<th>Indication</th>
<th>Timing of planned delivery</th>
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<tbody>
<tr>
<td>Prior classical, T, or J incision (with involvement of upper uterine segment)</td>
<td>36 wks 0 days - 37 wks 6 days</td>
</tr>
<tr>
<td>Prior myomectomy</td>
<td>37 wks 0 days - 38 wks 6 days</td>
</tr>
<tr>
<td>≥2 prior lower segment cesareans</td>
<td>39 wks 0 days - 39 wks 6 days*</td>
</tr>
<tr>
<td>Prior uterine rupture</td>
<td>36 wks 0 days - 37 wks 6 days</td>
</tr>
</tbody>
</table>

Abbreviation: CD, cesarean delivery
Note: There is no requirement for amnioncetesis to assess fetal lung maturity prior to delivery.
*Early term delivery is appropriate when prior CDs were complicated or in the presence of maternal or obstetric complications.

Cont OBGYN Dec 2013
Serosal surface – baseball stitch:

Inside to outside on both sides: good hemostasis

Can use barbed suture all the way.