

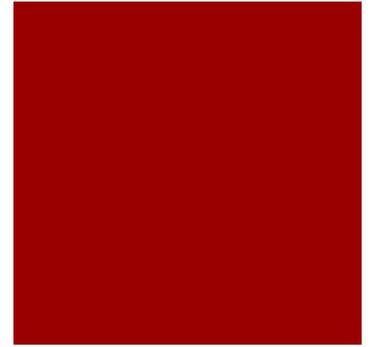
# Laparoscopic myomectomy – the limits of laparoscopic management

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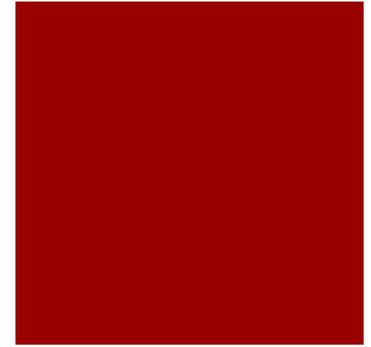


# Disclosures

I have no financial relationships with a commercial entity producing health-care related products and/or services



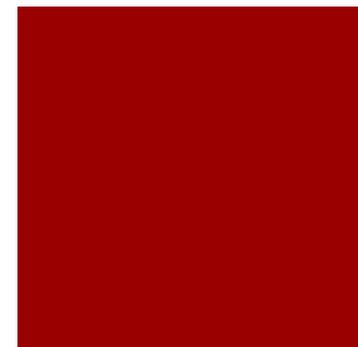
# Myomectomy



- Surgical option of choice for women who want to retain their options for future fertility
- Laparoscopic myomectomy vs abdominal myomectomy
  - Quicker recovery
  - Shorter hospital stay
  - Decreased blood loss
  - Decreased adhesion formation (30 vs 90%)
  - Comparable pregnancy rate

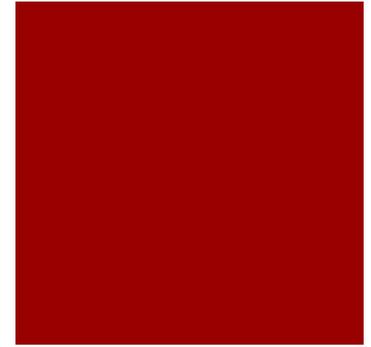
Bulletti et al. J Am Assoc Gynecol Laparosc. 1996;3:533–536  
Seracchioli et al. Hum Reprod. 2000;15:2663–2668  
Palomba et al. Fertil Steril. 2007 Oct;88(4):933-41

# Our data – LM vs. RALM



<b>289 women – 02/07-09/09</b>	<b>LM (n=115)</b>	<b>RALM (n=174)</b>	<b>p</b>
Operative time (min)	118.3	195.1	<.0001
EBL (ml)	85.9	110.0	0.04
Conversions to laparotomy	0	0	NS
Weight of fibroids (g)	201 (1-1473)	159 (8-780)	NS
Median n of fibroids	2 (1-21)	3 (1-16)	NS
Largest fibroid (cm)	7.5 (2.2-16.5)	7.3(3.1-13.8)	NS
Blood transfusions n(%)	1(0.9)	10(5.7)	NS
Hospital stay >1 day n(%)	4(3.5)	29(16.9)	OR 5.73

# Laparoscopic/robotic myomectomy – the standard approach



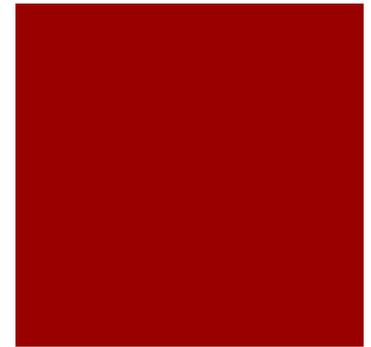
- We looked at all myomectomies at Brigham and Women's Hospital from 2009-2012
- 966 patients were identified
- There were 731 laparoscopic/robotic cases (76%) and 235 (24%) abdominal cases
- Conversion to laparotomy was required in 8 cases (1.09%)
  - mean number in converted cases, 9.75 vs 3.48,  $p = .003$
  - mean weight in converted cases, 667.9 vs 259.25 g,  $p = .015$
- Conversion was significantly associated with a uterine weight over 500 grams

# Limits for surgical management

- We looked specifically at women who underwent AM, LM or RM for extreme myoma burden (weight > 434.6g or 7 or more fibroids)
- 659 women from 2009 to 2016
- Greatest myoma burden in AM (696g) vs LM and RM (586g)
  - 16.8 AM - 7.2 LM – 6.7 RM
- OR time longest in RM (239 min)
- Hospital stay longest for AM (mean 2.2 days)
- Myoma burden of 13 fibroids was associated with almost 2 fold risk of perioperative complications (OR=1.77, p=.009)
- Cumulative incidence of perioperative complications by weight was greater in RM cases as compared to AM and LM
- Cumulative incidence of perioperative complications for myoma count was lowest in AM compared to LM or RM

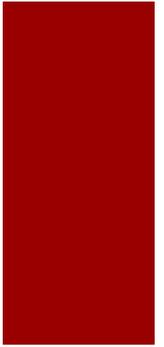
# Brief description of our technique

- Two parallel trocars on surgeon side
- Facilitates suturing – especially in the setting of a horizontal hysterotomy
- Inject **dilute** vasopressin **subserosally** – avoid using more than 10 units every 30 minutes
- We like to use large volumes, 20 units of vasopressin in 400 ml of saline – we inject 200 ml (10 units) at a time
- RCT just completed comparing blood loss in using 200 vs 60 ml of diluted vasopressin solution
  - No statistically significant difference in blood loss



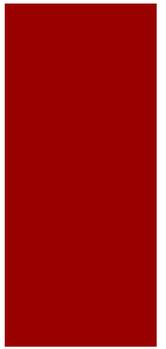
## Step 2 – Hysterotomy

- Carry the incision into the fibroid
  - find the right plane
- We prefer the Harmonic due to minimal lateral thermal spread
- A horizontal incision is preferred for suturing with two ipsilateral trocars
- Pick whatever incision direction that works best in that scenario
- Avoid fallopian tubes and major vessels



## Step 3 – Fibroid extraction

- Rock and Roll
- Needs quite a bit of force
- Avoid entering the cavity if possible
  - will do this deliberately in women who have completed their childbearing
  - easy to pluck out the submucosal fibroids this way



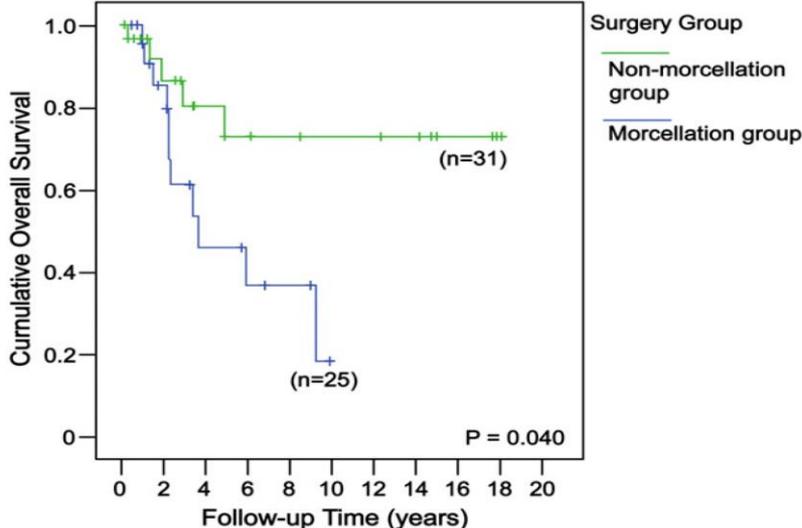
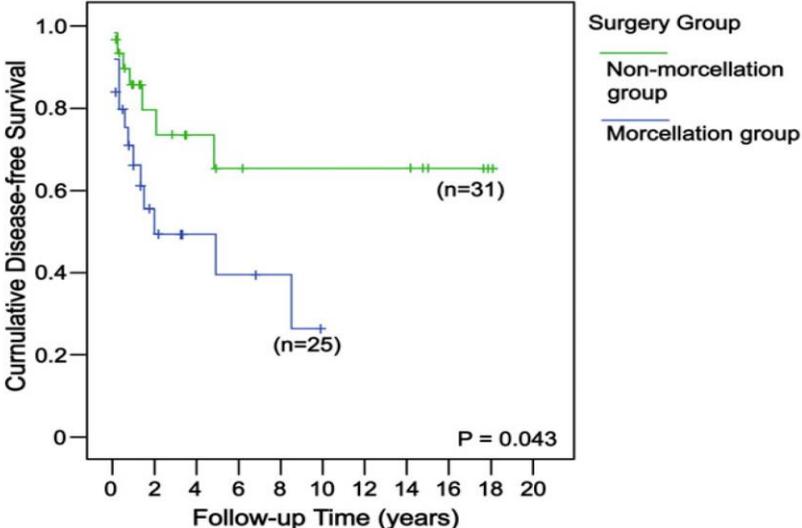
# Tissue extraction

- This has changed drastically in the last several months
- In short, we do not use electronic morcellators anymore
- ALL tissue extraction methods are contained, whether through the vagina, umbilicus or a minilaparotomy

# Potentially worse survival with morcellation



■ Park et al. 2011: 56 consecutive patients treated for early stage uterine leiomyosarcoma at a South Korean referral hospital from 1989-2011

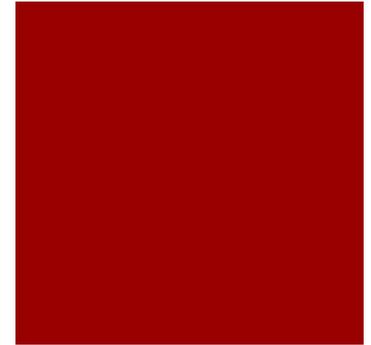


■ 5 year disease free interval 50% vs. 79% morcellated vs intact

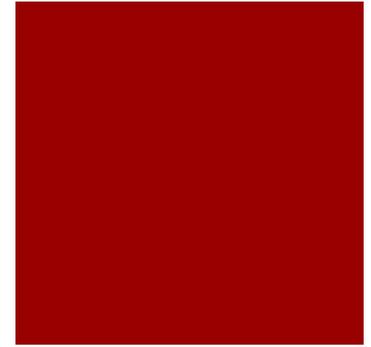
■ 5 year overall survival 46% vs. 73% morcellated vs intact

# Park study – morcellation group

- Procedures performed (n=25)
  - LAVH (18)
  - VH (1)
  - Myomectomy via minilaparotomy (5)
  - Laparoscopic myomectomy (1)
- What this study is showing is that that **ANY KIND** of uncontained morcellation (tissue disruption) of a LMS may worsen prognosis

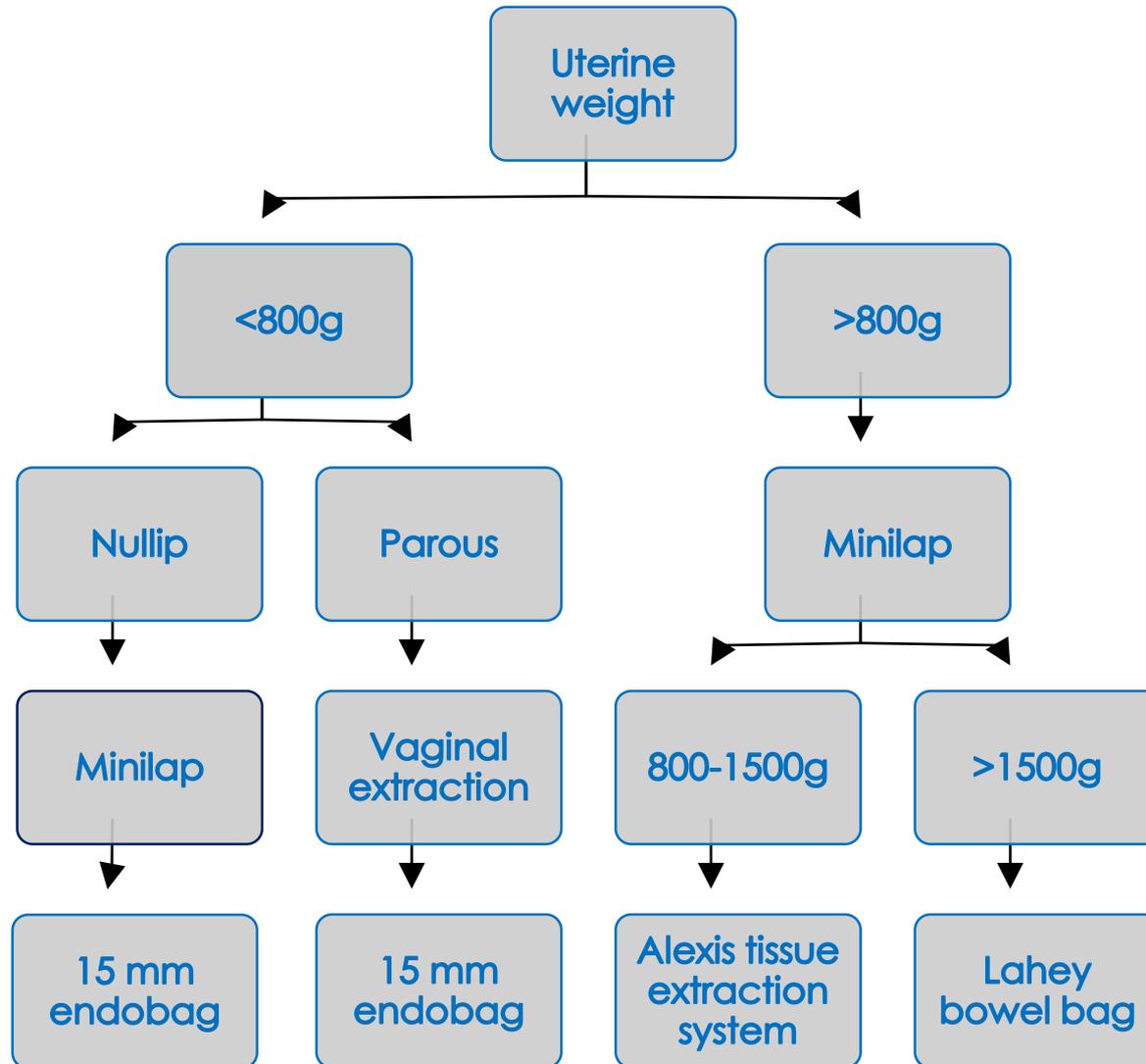


# Specimen removal – all contained



- Uterus too large to fit out intact
  - Narrow introitus/poor access – morcellate via a minilaparotomy
  - Good vaginal access – place specimen in a bag and morcellate vaginally using a 10 blade knife and triple hooks
    - We do this for specimens up to 800g

# Alternatives to Open Power Morcellation – ALL CONTAINED



Uterine weight = 3 dimensions on imaging in cm x 0.52 = weight in grams

# Limits

- Surgeon experience
- Size
- Number
- Location
- What is the ultimate goal of surgery? Fertility preservation? Volume reduction
- Blood loss – will the patient accept a blood transfusion?

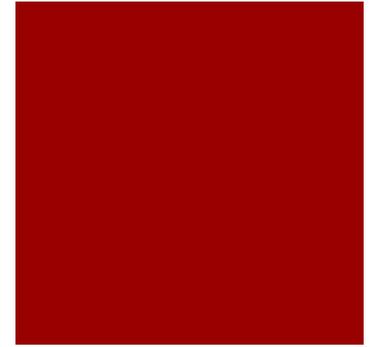


# Surgeon experience

- Most important factor
- Move strategically and control the situation at all times
- Gradually build up
- Need high volumes (>30/year) to become really good
- Rapid suturing is important

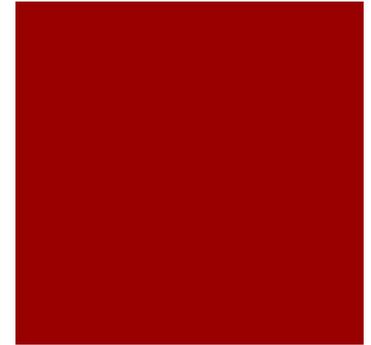


# Size



- The largest specimen weight for a myomectomy in our group is 3080 g
- Does not tell the whole story
- MUCH easier to remove one large fibroid rather than multiple small ones (raisin bread)
- Time for extraction can be excessive – a minilaparotomy may be advisable with manual morcellation with a 10 blade
- Also consider hand assisted surgery

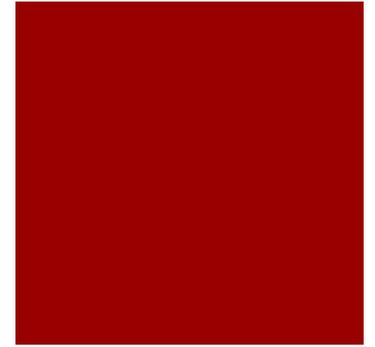
# Number



- Have removed over 60 fibroids in one patient, but our median number is 2 per case.
- Important to have a discussion with the patient about limitations. It is not always possible to remove all fibroids. Small ones may be left behind
- Preoperative evaluation is very important for mapping

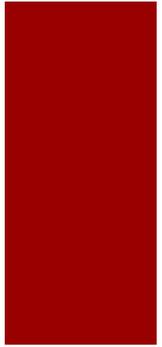
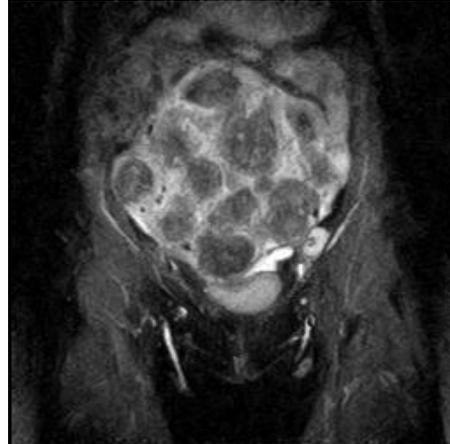
# Location

- Intramural vs submucosal vs intracavitary vs subserosal
- Cervical – watch out for uterines – clip at origin if necessary
- Broad ligament – usually pretty easy – open peritoneum and peel out – again stay away from major vessels

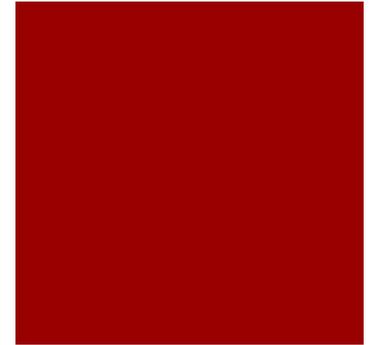


# Preoperative evaluation

- MRI is obtained on most patients
- Delineates location, characteristics and size of fibroids
- Detects adenomyosis
- Helps with preoperative counseling and planning



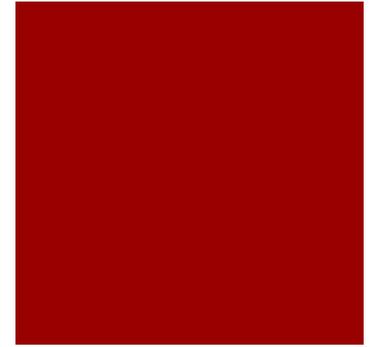
# Tips for limiting blood loss



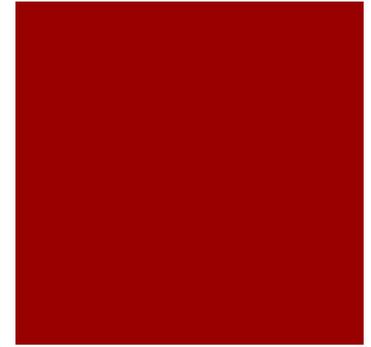
- Use high volume vasopressin – 20 units in 400 ml of saline – inject 200 ml
- Use lupron preoperatively to build blood counts – may make dissection of fibroids more difficult IF the fibroids are already necrotic
- Be quick
- Avoid making an incision close to ascending uterines
- Use clips on the uterine arteries
- Consider preop embolization
- Consider using cell saver

# Case in point

- 39 y/o G0 – Jehovah's witness
- Heavy bleeding despite Lupron for 6 months
- H/H 9/29 despite repeated iv iron infusions
- Wants pregnancy in near future
- Multiple fibroids on imaging, overall uterine size 19.5x17.2x8.6cm – 10 cm intracavitary fibroid – total uterine weight approx 1500 grams
- EMB benign



# In Summary



- Laparoscopic myomectomy has become the standard of care for removal of uterine fibroids at our institution
- With adequate surgical volume, laparoscopic myomectomy can be performed effectively and safely, even in a large institution with multiple surgeons
- Mastering laparoscopic suturing is the most important factor in being able to perform laparoscopic myomectomy

Thank you

