Evidence-based Approach to Myomas

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Objectives
- Review risk factors for developing fibroids
- Discuss the evidence to support the use of different treatment modalities for women with menorrhagia and fibroids
- Review the current literature on the impact of fibroids on fertility

Case 1

SJ, a 25 yr old G0 African-American woman, presents with questions about fibroids. Her mother and aunt had hysterectomies in their 40’s for fibroids.

She would like to know what causes fibroids and how she can prevent developing them herself.

What causes fibroids?

We know so little…
African-American women disproportionately burdened by fibroids
- Increased prevalence of fibroids
- Fibroids diagnosed at younger ages
- More numerous and larger compared to Caucasians
- Higher risk for hysterectomy due to sx fibroids
- Worse disease at time of hysterectomy
- Higher surgical complication rates


Which of the following have been linked to fibroid development?
- Diets high in meat
- Endogenous estrogen excess
- Exposure to exogenous hormones
- Caffeine intake

Which of the following have been linked to fibroid development?
- Diets high in meat
  - Italian women who consumed beef and ham were at higher risk compared to women ingesting green veggies
- Endogenous estrogen excess
  - AA women have higher baseline circulating levels of estrone, estradiol, free estradiol and androstenedione compared to Caucasian women in the study

Which of the following have been linked to fibroid development?
- Exposure to exogenous hormones
  - 2 studies found increased risk among women who began using oral contraceptives as young teens
- Caffeine use
  - No link to fibroids
Other factors linked to fibroid development:

- Age at menarche
- Parity
  - Obesity decreases protective effect of parity
- Age at first birth
- Time since last birth


What can she do to prevent fibroid development?

- Use progestin-only injectable contraception?
- Delay pregnancy?
- Stop eating beef and pork?

Case 2

A 44 yr old woman presents with a 9 month history of heavy periods.

- Her periods last 10-12 days/month.
- She smokes one pack of cigs per day.
- Her hematocrit is 32.
- A pelvic US shows a slightly enlarged uterus w/ several 3-4 cm intramural fibroids.
- At least one fibroid has a submucosal component.
- A saline sonohysterogram shows a 3 cm fibroid extending 40% into the cavity.
- She wants to avoid major surgery.

What are her treatment options?

Case 3:

Submucous fibroid and menorrhagia

Potential treatment options:

- Birth control pills
- LNG-IUD
- Endometrial ablation
- Hysteroscopic myomectomy
- Uterine artery embolization (UAE)
- MR-guided focused ultrasound (MR-FUS)
What is the evidence to support these treatments?...

Submucous Fibroid Classification

Type 0 fibroid

LNG-IUD in Contraception Trials

- Less bleeding
- Less anemia
- Less dysmenorrhea
- Fewer incident fibroids

Sivin 1994, Hidalgo 2002

LNG-IUD for Fibroids

- 10 prospective and 1 retrospective studies designed to evaluate menstrual blood loss before-and-after insertion of a LNG-IUD among women with fibroids
LNG-IUD for Fibroids

Grigoreva V, Fertil Steril 2003;79:1194
- n=69
- Sono confirmed fibroids
- Uterine size ≤12 wk size
- Normal cavity
- Bleeding results:
  - Mean baseline PBAC score- 97
  - Mean 12 month PBAC score- 16
  - Amenorrhea rate- 40%

Mercorio, Contraception 2003;67:277
- N=32
- Sono confirmed fibroids
- Uterine size ≤12 wk size
- Normal cavity
- 60% completed 12 months
  - Mean baseline PBAC score- 310
  - Decreased bleeding
  - 74% still had PBAC score > 100
- 40% withdrew by 6 months
  - 4 IUD expulsions (12%)
  - 7 persistent menorrhagia, requested surgery (22%)
  - 2 lost to follow-up

LNG-IUD for Fibroids
- Decreases bleeding in women with fibroids
  - ≤ 12 week size uterus
  - No submucous component
- Level of evidence II-3
- Strength of recommendation B
  - Moderate effect
  - Less effective as bleeding becomes heavier

Endometrial Ablation in the Presence of Fibroids

Thermachoice
Novasure
Microsulis
Hydrothermablator
**Endometrial Ablation in the Presence of Submucous Fibroids**

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<th>ThermaChoice™ (thermal balloon)</th>
<th>FDA Approval</th>
<th>Published Evidence</th>
<th>Fibroid Type</th>
<th>Diameter (cm)</th>
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<th>Novasure™ (radiofrequency energy)</th>
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<tr>
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<td>Yes (Level I)</td>
<td>I, II</td>
<td>≤ 3</td>
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**ACOG Practice Bulletin, 81, May 2007**

**Thermal Balloon Ablation and Fibroids**

- **RCT** of 96 Turkish women with fibroids and menorrhagia
  - Age ≥ 40
  - Uterine size ≤ 12 wk with IM/SS myoma < 5 cm or SM type II fibroid < 3 cm
  - PBAC score ≥ 150
  - 45 underwent thermal balloon ablation under local
  - 48 underwent rollerball ablation under general

Soysal ME Gynecol Obstet Invest 2001;51:128

**PBAC Initial** | **PBAC 12 m** | **Hgb Initial** | **Hgb 12 m** | **P value**
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<td>&lt;0.0001</td>
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Soysal ME Gynecol Obstet Invest 2001;51:128

**Thermal Balloon Ablation and Fibroids**

- Amenorrhea rates - 11% TBA, 19% RBA
- Hysterectomy rates - 9% in each group
- Thermal balloon ablation group
  - Fewer complications
  - Shorter operative time
  - Performed comfortably under local anesthesia
Endometrial ablation in the presence of submucous fibroids

- Decreases bleeding in women with fibroids
  - ≤ 12 week size uterus
  - Type I and II submucous fibroids
  - Size ≤ 3 cm

- Level of evidence: I- Thermachoice, Microsulis
  II-3 Novasure and Thermablator

- Strength of recommendation: A
  Moderate effect
  Comparable to rollerball ablation

Hysteroscopic Myomectomy

- Predictors for resolution of menorrhagia:
  - Complete surgical resection
    - Type 0 > Type I > Type II
    - Fibroid size
  - Uterine size
  - Number of fibroids

Emanuel MH et al Obstet Gynecol 1999;93:743-8

Hysteroscopic Myomectomy

- Decreases bleeding in women with fibroids
  - Effectiveness decreases over time
  - Most efficacious for type 0 and type 1 submucous fibroids

- Level of evidence: II-2

- Strength of recommendation: B
  Accepted method for management of AUB caused by SM fibroids
Uterine Artery Embolization

Reduction in Menorrhagia after UAE

Reduction in Bulk Symptoms

Fibroid Size Reduction after UAE
Long term outcomes after UAE

182 of 200 pts (91%) completed 5 yr follow-up:
- Sustained symptom control- 73%
- Failure or recurrence- 25%
- Major interventions- 20%
  - 25 hysterectomies
  - 8 myomectomies
  - 3 repeat UAE’s


Uterine Artery Embolization

- Outcomes:
  - Decreases bleeding, dysmenorrhea and urinary symptoms
  - RCT's of UAE + hysterectomy and UAE + myomectomy:
    - Shorter hospital stays, faster return to activities following UAE
- Level of evidence: I
- Strength of recommendation: A
  - “Based on long- and short-term outcomes, UAE is a safe and effective option for appropriately selected women who wish to retain their uteri.” ACOG Practice Bulletin 96, 2008

Case 2: Submucous fibroid and menorrhagia

Potential treatment options:
- Birth control pills
  - Smoker age ≥ 35 yrs
- LNG-IUD
  - No data for submucosal fibroids
- Endometrial ablation ✓
- Hysteroscopic myomectomy
  - Better for type 0 and I fibroids
- UAE ✓
- MRgFUS
  - Stay tuned ....

Case 3

A 38 y.o G0 woman presents after recently being diagnosed with an 8 cm posterior intramural fibroid. The endometrial stripe appears displaced anteriorly. She has no fibroid symptoms. She hasn’t tried to become pregnant, but wants to know how the fibroid will impact her fertility and pregnancy outcomes.

How would you advise her?
Asx IM fibroid and pregnancy

Counseling options:
- Attempt pregnancy without pre-treatment
- Recommend myomectomy
- Perform saline sono or diagnostic hysteroscopy to better evaluate the cavity

The BIG Questions:
- Do uterine fibroids decrease fertility?
- Does removal enhance fertility?

Impact of Fibroids on Fertility
- What does the literature tell us for women who haven’t yet tried to conceive?
  - No Studies
- What data is available?
  - Studies of women with infertility

Fibroids and Infertility
- Updated systematic review
  - 23 studies included in data analysis
    - 1 RCT, 9 prospective, 13 retrospective
    - 15 had age matched controls
    - 7 examined effect of myomectomy
    - Fibroid size ranged from 1-10 cm
    - Fibroid number ranged from 1-8

Fibroids and Infertility

**Conclusions:**
- Subserosal fibroids do not affect fertility and removal does not show benefit.
- Submucosal fibroids lower fertility rates and removal increases conception and live birth rates.
- Results from 2001 and 2009 systematic reviews are in agreement.


**However, in contrast to the 2001 systematic review, the 2009 review shows that:**
- Intramural fibroids appear to decrease fertility and there is no clear evidence that myomectomy is beneficial.

**Caveats**
- Data is still sparse and methodological issues limit confidence in conclusions.


Asx IM fibroid and pregnancy

**Counseling options:**
- Attempt pregnancy without pre-treatment
  - Discuss increased risk for infertility, SAB and adverse pregnancy outcomes
- Recommend myomectomy
  - “Proxy literature” does not support
- Perform saline sono or diagnostic hysteroscopy to better evaluate the cavity
  - If a submucosal component is identified, may justify myomectomy

Conclusions

- African-American women are at higher risk for developing fibroids and have a higher disease burden than Caucasian women.
- Evidence supports use of LNG-IUD, endometrial ablation and UAE in addition to traditional hysterectomy and myomectomy for symptomatic fibroids.
- Use GnRH agonists to facilitate a surgical procedure, not as a stand alone treatment.
- Intramural fibroids may diminish pregnancy rates and myomectomy may not reverse this effect but more research needed.
Thank you