Alternatives to hysterectomy in management of leiomyomass

“Based on long and short-term outcomes, uterine artery embolization is a safe and effective option for appropriately selected women who would like to retain their uteri”

Level A Evidence:

Good and consistent scientific evidence.
ACOG on UFE in patients interested in Fertility

- Considered a relative contraindication

  SHOULD IT BE??????
Fertility & UFE: What do we know? Not Enough!

- There are no Level I evidence randomized controlled studies comparing UFE to myomectomy.
- Assessment of fertility following UAE is very complex and poorly understood with confounding factors.
  - Patients are of advanced age with leiomyoma—both of which can affect fertility.
  - Wide variability in age and interest in future fertility among patients treated with UAE.
  - Previous therapies.

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[Image of a distressed child]
UFE: Issues to Address

1. Things that could effect Future Fertility
   - Ovarian failure/ function
   - Radiation exposure
   - Conversion to hysterectomy-less than 1% for complications (far lower than myomectomy)

2. Creating higher risk pregnancies?
   - Placental insufficiency?
   - Abnormal placental location?
   - IUGR?
   - premature labor?
How do the Studies Assess Risk for Ovarian Failure post UFE

- Hormonal: FSH, Estradiol and AMH
- Ultrasound Doppler and ovarian size
- Rates of amenorrhea
Ovarian Failure after UFE

- Approximately 7% among women in the FIBROID Registry, with nearly all older than age 45 years (1)

- Meta review of 15 randomized & prospective studies concluded no evidence of long term risk if under 40 based on US, hormonal analysis and amenorrhea (2)

- Women less 40 were followed 60 months post UFE no statistically significant difference in FSH, E2, follicle count, or ovarian volume compared with the control group

Ovarian Failure Rates
UFE vs Surgery

Rates are identical to surgical therapies (1,2,3)

Radiation Exposure

- Mean ovarian dose from UFE is 9.38 cGy. **Far less** than the 375-400 cGy threshold for Ovarian dysfunction.
  

- Estimated radiation exposure is about equivalent of 1 to 3 Barium Enemas depending on length of procedure.

Literature on Pregnancy rates and Risks post UFE

The BAD… The Neutral…

And The GOOD
Pregnancy after UAE-Toronto experience

- Pron et al. Obstet Gynecol 2005; 105
  - 24 pregnancies in 21 women
  - 18/24 had successful delivery
  - Rates for spontaneous abortion, abnormal placental location and babies small for gestational age higher than reported in general population.

- Study was flawed: The women assessed were older (most >40) and many had prior miscarriages and myomectomies
UAE versus Laparoscopic Myomectomy

- Retrospective review of 53 pregnancies after UAE; 139 pregnancies after laparoscopic myomectomy
- Increased risk for placental malpresentation and preterm delivery after UFE
- **Study was flawed:** The women assessed were older (most >40) and many had prior miscarriages and myomectomies
Pregnancy after UAE versus Myomectomy-Mara et al

Randomized controlled trial comparing fertility outcomes of UAE versus myomectomy.

Pregnancy rates:
- UFE13/26 patients (50%)
- Myomectomy 31/40 who underwent myomectomy became pregnant (78%; Pvalue .04).

Abortion rate
- 9/17 following UAE
- 6/32 following myomectomy (Pvalue .05)

Pregnancy after UAE vs Myomectomy—Mara et al—Limitations

- Small sample size,
- Short duration of follow-up
- Substantial variations in the number of patients who tried to conceive in each group
- High rate of repeat interventions in the UAE group (much higher than most prospective UFE studies; 32% myomectomy were kept in the UFE group)
  - Higher rate of conversion than UFE literature suggests operator bias to repeat operation
  - These patients were kept in UFE group which confuses results. Multiple procedures may influence pregnancy-abortion rates

Pregnancy after UAE-UK Experience

- Retrospective UAE patients/ 108 desired pregnancy.
- 33/108 achieved pregnancy 30.5%
  - Lower than lap myomectomy numbers but many of these patients were not candidates for myomectomy so more difficult population.
- Many of the pregnancies had prior problems with fertility. Some patients had prior myomectomy
- Of the women who achieved full term pregnancies 14 were previously only offered hysterectomy
Pregnancy after UAE-UK experience-contd


• No increased incidence of IUGR; placenta previa. Only 1 of each

• Higher rates than general population of:
  – Miscarriage-30.4%; mean age 38.75
  – Premature delivery-18.2%; mean age 36.8
  – Cesarean section-72.7%
  – Postpartum hemorrhage-not seen in other studies

» However this is not the “general population”
Prospectively followed 74 patients who wanted to become pregnant and treated with UFE

Followed a total of 4.5 years

44 pregnancies (59.5%).
- 33 live births (84.6%)
- 4 spontaneous abortions (9.1%).
- Time from UFE to pregnancy 10.8 months.

Higher proportion of younger patients (89.7% younger than 40 y) likely contributed to the better outcomes

Meta analysis Review on Fertility post UFE

- Cumulative pregnancy rate 58.6% average age 35
  - Comparable to the age-adjusted pregnancy rates in the general population.
  - Considering that there is some degree of subfertility associated with fibroid tumors this is a very positive result

- Cumulative miscarriage rate 28%
  - Comparable to the rates quoted in patients with untreated fibroid tumors.

- Cumulative preterm delivery rate of 7.3% was similar to that in the general population.

Results on UFE on fertility are preliminary and uncertain but not an absolute contraindication.

Initial reproductive results may favor myomectomy over embolization in first 2 years after treatment.

Additional studies comparing the impacts of myomectomy and embolization on ovarian function and to better assess reproductive outcomes are needed. Conclusive studies with large numbers lacking

Uterus is maintained. This is not a hysterectomy

Hundreds of reported healthy pregnancies, without reports of any adverse outcome due to UAE
Role of UAE in patients with high desires for fertility

- Myomectomy (especially laparoscopic) remains the gold standard.

- UAE good option if:
  - Myomectomy inappropriate (i.e. >30 fibroids, likely to end with scarring or hysterectomy)
  - Patient refuses myomectomy.
  - Surgical failures

- At NSH all patients fill out questionnaire on fertility

- All patients should understand the risks and lack of long term data

- Wait a minimum 6 months after embolization prior to conception
On a scale of 0 to 10, what is your interest in having a baby in the future? (Although there have been successful pregnancies after UAE, there is no guarantee that a patient can become pregnant after the procedure and myomectomy may be preferred for those for women with a strong interest in pregnancy. These choices are discussed in more detail at the time of the consultation)

0 = No Interest  
10 = High Interest
Thank You!