Nonsurgical and nonmedical treatment of Uterine Fibroid

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Introduction

- Uterine artery embolization (UAE)
- Focused ultrasound surgery
- Progestin-releasing intrauterine devices (IUDs)
Uterine artery embolization (UAE)

- Second-tier treatment for patients who do not have access to oral GnRH antagonists
- Third-tier treatment where those agents are available
Uterine blood supply

- Ovarian artery
- Ovarian branches
- Round ligament branch
- Uterine artery
- Vaginal branch
- Vaginal artery
- Internal pudendal artery
- Perineal artery
- Tubal branches
Female pelvic blood supply

A
- Inf. mesenteric a.
- L. colic a.
- R. common iliac a.
- Ext. iliac a. and v.
- Obturator a.
- Umbilical a.
- Mid. vesical a.
- Sup. vesical a.
- Uterine a.
- Sup. rectal a.
- Int. iliac a.
- Int. pudendal a.
- Vaginal a.
- Inf. rectal a.
- Inf. gluteal a.
- Mid. sacral a.
- Lat. sacral a.
- Inf. vesical and middle rectal a.

B
- L. common iliac a.
- L. ureter
- L. ext. iliac a.
- Umbilical a.
- Obturator a.
- Uterine a.
- Sup. vesical a.
- Inf. gluteal a.
- Coccygeus m.
- Iliococcygeus m.
- Perineal a.
- Vaginal a.
- Inf. rectal a.
- Ext. anal sphincter
- Obturator internus m.
FIGO leiomyoma subclassification system. System 2 classification system including the FIGO leiomyoma subclassification system. The system that includes the tertiary classification of leiomyomas categorizes the submucous group according to the original Wamsteker et al system and adds categorizations for intramural, subserosal, and transmural lesions. Intracavitary lesions are attached to the endometrium by a narrow stalk (≤10% or the mean of three diameters of the leiomyoma) and are classified as Type 0, whereas Types 1 and 2 require a portion of the lesion to be intramural: with Type 1 being less than 50% of the mean diameter and Type 2 at least 50%. Type 3 lesions are totally intramural but also about the endometrium. Type 3 are formally distinguished from Type 2 with hysteroscopy using the lowest possible intrauterine pressure necessary to allow visualization. Type 4 lesions are intramural leiomyomas that are entirely within the myometrium, with no extension to the endometrial surface or to the serosa. Subserous (Types 5, 6, and 7) leiomyomas represent the mirror image of the submucous leiomyomas: with Type 5 being at least 50% intramural, Type 6 being less than 50% intramural, and Type 7 being attached to the serosa by a stalk that is also ≤10% or the mean of three diameters of the leiomyoma. Classification of lesions that are transmural are categorized by their relationship to both the endometrial and the serosal surfaces. The endometrial relationship is noted first, with the serosal relationship second (e.g., Type 2-5). An additional category, Type 8, is reserved for leiomyomas that do not relate to the myometrium at all, and would include cervical lesions (demonstrated), those that exist in the round or broad ligaments without direct attachment to the uterus, and other so-called "parasitic" lesions.
Diagram showing superselective catheter position in the right uterine artery via left femoral arterial approach.
Diagram showing embolic particles being released from the catheter and into the uterine arterial branches supplying the fibroid.
Left uterine angiogram before uterine fibroid embolization demonstrates dilated branches of the left uterine artery supplying multiple hypervascular uterine fibroids (arrows) on the left.
Left uterine angiogram after uterine artery embolization demonstrates successful occlusions of the left uterine artery and its branches (arrow).
Right uterine angiogram before uterine fibroid embolization demonstrates dilated branches of the right uterine artery supplying multiple hypervascular uterine fibroids (arrows) on the right.
Right uterine angiogram after uterine fibroid embolization demonstrates successful occlusion of the right uterine artery and its branches (arrow). The patient's symptoms subsided after the procedure.
Advantages of UAE

- 90 percent improved or resolved HMB symptoms
- Not limited by number of fibroids or adhesions
- Menopause in late 40s and early 50s
Advantages of UAE

- Decreased risk of transfusion
- Shortened hospital stay
- Less pain
- Quicker return to work
Limitations of UAE

- Hysterectomy risk: 25 percent
- Premenopause only
- Anatomy
- Fibroid expulsion
- Menopause risk
- Pregnancy
Focused ultrasound surgery (FUS)

- By ultrasound: (HIFU) in China
- By magnetic resonance imaging (MRI): MRgFUS in the rest of the world
Candidates of FUS

- Three or fewer fibroids
- Less than 10 centimeters in maximal dimension
- Homogenous and dark on T2-weighted images
- Well-vascularized without calcification
FUS outcome

- MRgFUS: 37 to 40 percent reduction in myoma volume
- Maintained 24 to 36 months
- Adequate data to support clinical use of MRgFUS (NICE)
- Limited data to support use of HIFU (NICE)
Comparison of FUS with UAE

- 81 patients
- UAE arm used more opioid pain medications
- Over 24 months:
  - Quality of life improved
  - General fibroid symptoms declined
  - Pain scores declined
Comparison of FUS with UAE

- Greater deline in pain score in the UAE arm
- Higher rate of reintervention in MRgFUS arm
- 30.0 versus 12.5 percent within 3 years
- Reintervention in younger ages and higher pretreatment AMH
- AMH levels at 24 months were lower in the UAE group
Postprocedure pregnancy

- The MRgFUS series described 54 pregnancies in 51 patients (64 percent NVD)

- The HIFU series described 80 pregnancies in 78 patients (89 percent NVD)
Progestin-releasing intrauterine devices (IUDs)

- Three different formulations:
  - A 52 mg LNG IUD 20 mcg/day, six years
  - A 19.5 mg LNG IUD 17.5 mcg/day, five years
  - A 13.5 mg LNG IUD 14 mcg/day, three years
Move slider all the way to the forward position to load the IUD into the inserter.

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LNG52/5 (Mirena) IUD insertion into uterus and deployment of device

Move the slider back to the mark to release and open the arms.

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Advantages of LNG IUD

Reduction in:

- Heavy menstrual bleeding
- Anemia
- Dysmenorrhea
- Endometriosis-related pain
- Endometrial hyperplasia and cancer
Advantages of LNG IUD

Reduction in:
- Pelvic inflammatory disease
- Cervical cancer
- Ovarian cancer
- The LNG 52 resulting in 71 to 95 percent reduction in menstrual blood loss