UTERINE FIBROID (LEIOMYOMA)

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DEFINITION

- Uterine fibroids are the most common pelvic neoplasm in females , They are noncancerous monoclonal tumors arising from the smooth muscle cells and fibroblasts of the myometrium.
- also referred to as leiomyomas or myomas

EPIDEMIOLOGY

- Uterine leiomyomas are the most common pelvic tumor in females .
- More than 70% of women have fibroids by the age of 50
- Most (80%) are asymptomatic usually discovered incidentally
- They rarely become malignant
- (leiomyosarcoma) less than 1/1000

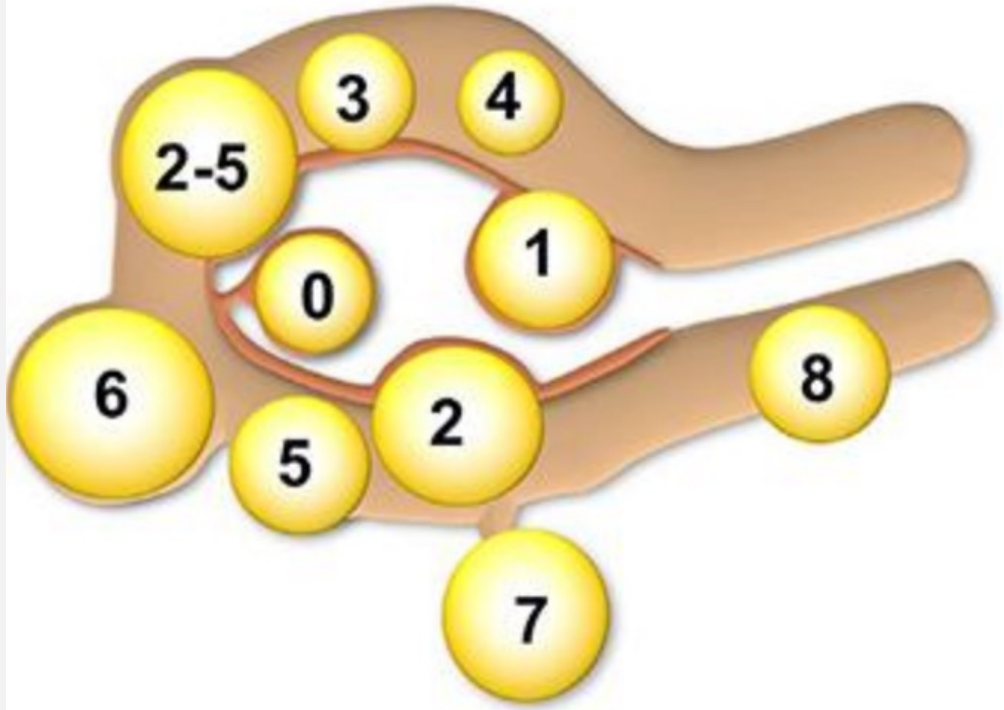
RISK FACTOR :

- Hypoestrogenism state .
- Parity
- African
- Obesity
- PCOS
- Family history
- Age

PROTECTIVE FACTOR :

- Smoking
- Multiparity
- Progestin pills
- Late menarche

FIGO leiomyoma subclassification system



SM – submucous	0	Pedunculated intracavitary
	1	<50% intramural
	2	≥50% intramural
	3	Contacts endometrium; 100% intramural
O – Other	4	Intramural
	5	Subserous ≥50% intramural
	6	Subserous <50% intramural
	7	Subserous pedunculated
	8	Other (specify eg, cervical, parasitic)

Hybrid (contact both the endometrium and the serosal layer)	Two numbers are listed separated by a hyphen. By convention, the first refers to the relationship with the endometrium while the second refers to the relationship to the serosa. One example is below.	
	2-5	Submucous and subserous, each with less than half the diameter in the endometrial and peritoneal cavities, respectively.

TYPES :

- Intramural myomas **(FIGO type 3, 4, 5)** – the most common type , These leiomyomas are located within the uterine wall.

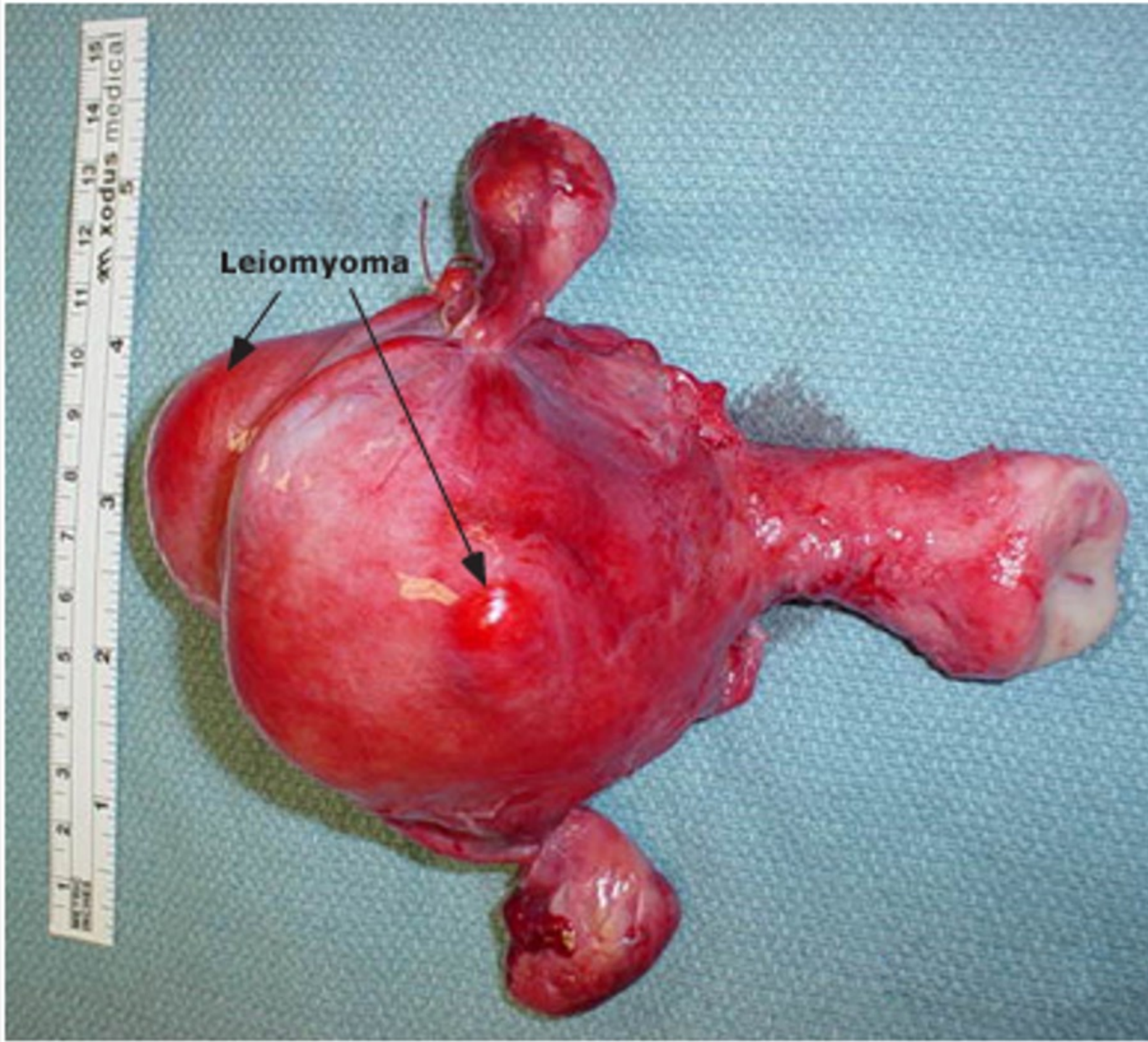
- Submucosal myomas **(FIGO type 0, 1, 2)** – These leiomyomas derive from myometrial cells just below the endometrium (lining of the uterine cavity). These neoplasms protrude into the uterine cavity .

CONT.

- Subserosal myomas **(FIGO type 6, 7)** – These leiomyomas originate from the myometrium at the serosal surface of the uterus. They may have a broad or pedunculated base .

- Cervical myomas **(FIGO type 8)** – These leiomyomas are located in the cervix rather than the uterine corpus.

TEST YOU SELF



SYMPTOMS

Most fibroids (up to 70%) are asymptomatic

If symptomatic fibroids can cause a variety of symptoms :

1. Abnormal uterine bleeding (AUB), typically menorrhagia: increase in amount, duration or both at regular interval, if irregular this is menometrorraghia may be associated with submucosal fibroids.
2. Pressure symptoms (feeling of heaviness or a mass) urinary, pelvic and back pain
3. If the fibroid presses upon the bladder, it may cause frequency of urination or nocturia
4. Recurrent miscarriage if pregnant
5. Secondary infertility, which depends on site, size and number
6. Fibroids do not usually cause pain, but severe pain may occur when degeneration (acute infarction) occurs within a fibroid

MECHANISM BY WHICH FIBROIDS CAUSE AUB ?

1. Endometrial stretching (most acceptable, due to increase of the cavity size – increase surface area
2. Increased vascularity that needs more blood to grow
3. Mechanical interference, which affects uterine contractility
4. Growth factors secreted by fibroids interfere with the blood clotting cascade
5. Hormonal changes cause endometrial hyperplasia due to hyperestogenic state

HOW DO FIBROIDS CAUSE INFERTILITY ?

1. Interferes with implantation (Submucosal) implantation occur this increases risk of miscarriage
   - Anatomical effect, distortion of the uterine cavity and if tubal obstruction (intramural) which prevent sperm from passage indication for surgical Mx
3. Alteration of endometrial blood supply
4. Decrease tubal motality

HOW TO MAKE DIAGNOSIS?

1-Clinical presentation

2-Bi-manual exam:

Irregular non tender enlarged uterus.

3-Ultrasound

4-MRI (for site,size ,number)

. It allows your provider to gain a road map of the size, number and location of the fibroids. We can also distinguish between fibroids and adenomyosis, which sometimes gets misdiagnosed.

5-By hysteroscope

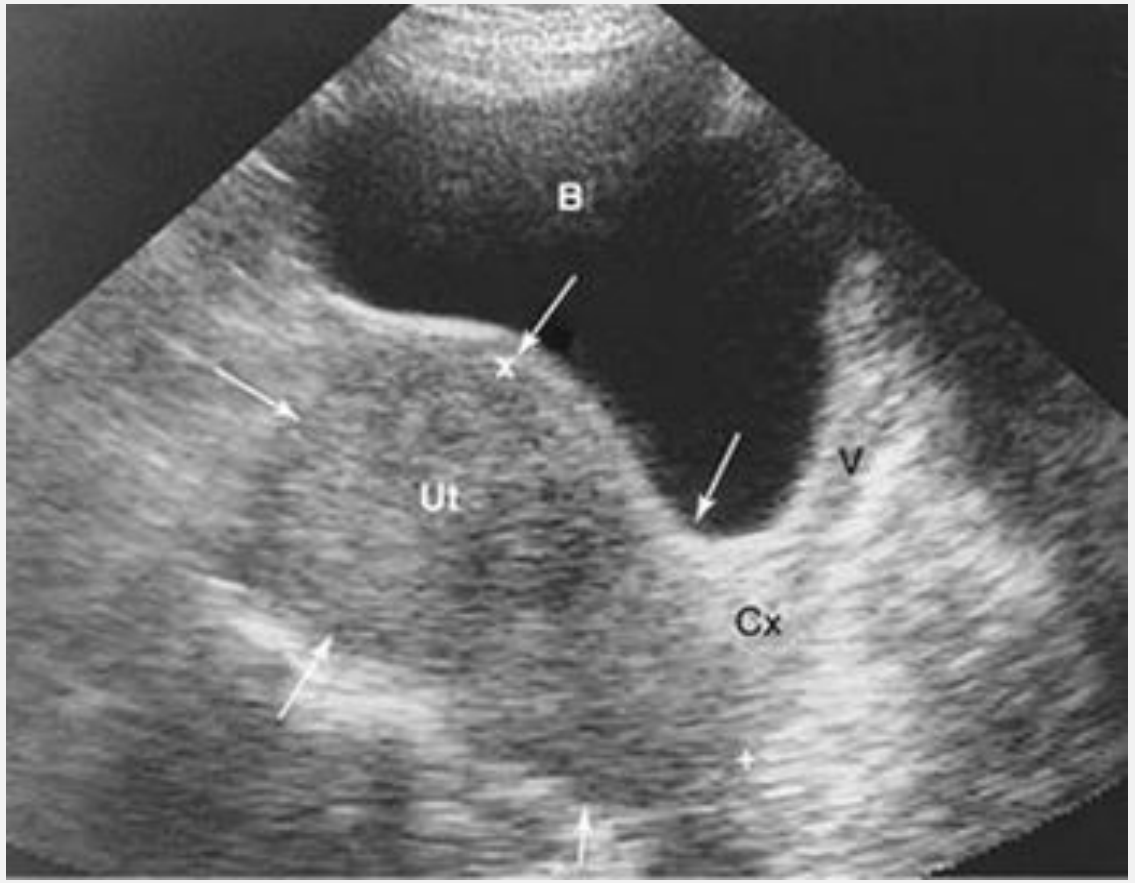


FIGURE 19-4 Ultrasound image of a uterus (Ut) enlarged and irregularly distorted by multiple leiomyomas (arrows). Such studies are useful to exclude ovarian enlargement. B, bladder; Cx, cervix; V, vagina. (From Mettler FA: Essentials of Radiology, 2nd ed. Philadelphia, Saunders, 2005.)

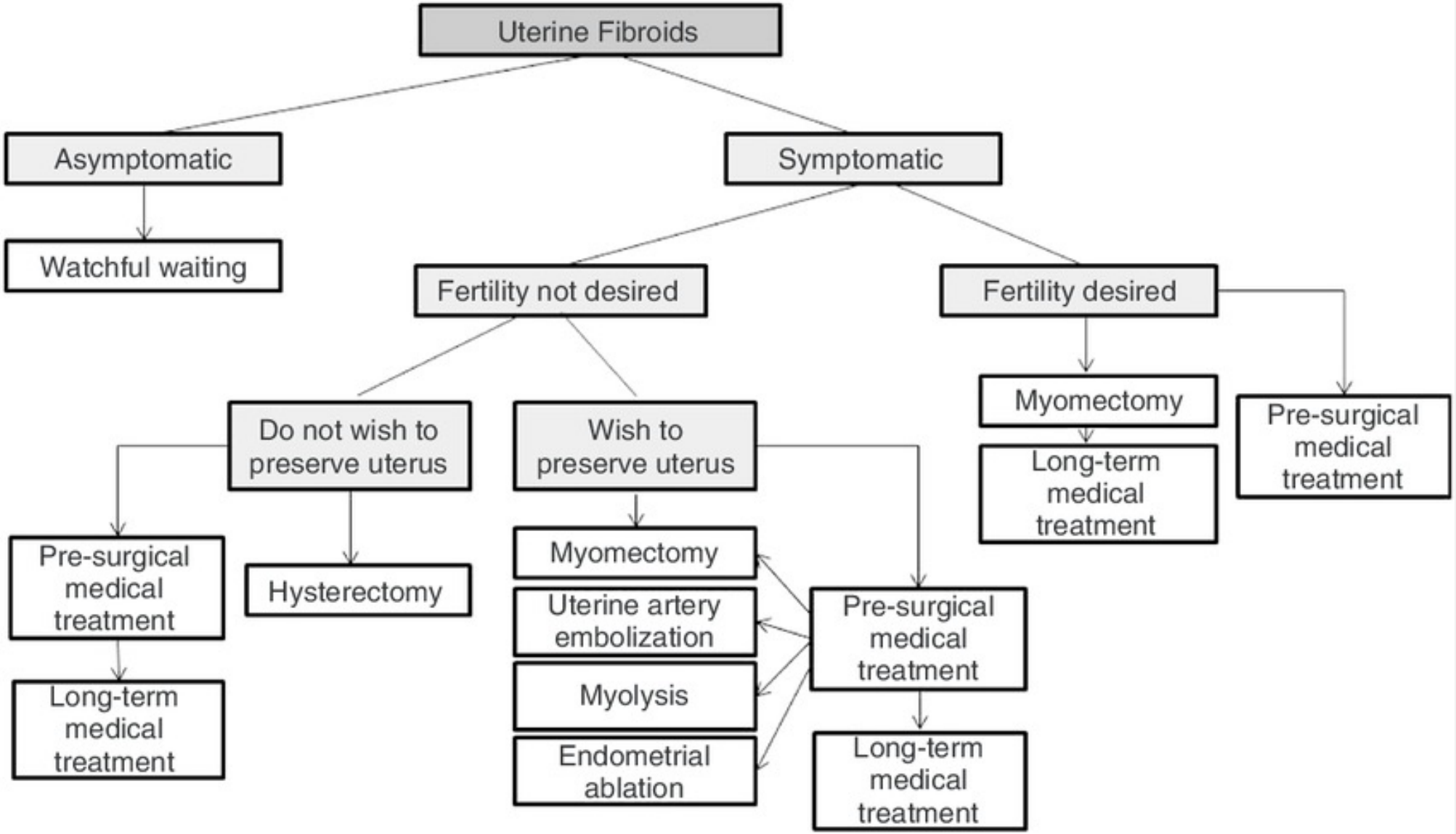
MANAGEMENT

- Management of fibroids is influenced by many factors including; the *age of the patient, her fertility wishes, wither or not she has any symptoms, the patient wishes and the size and number of fibroids present.*
- In general, we have 3 main line of management.

A. Expectant

B. Medical

C. Surgical



Medical treatment includes:

1. Fibroid-directed therrapies: ulipristal acetate and GnRH agonists
2. Symptom relieving therapies, as listed in Table 2

1. Pt young in reproductive age, symptomatic: go for surgery
2. Pt premenopausal: medical till menopause (hypoestrogenic state, it will shrink on its own)
3. Pt during waiting list for surgery: medical Mx
4. Pt young, small fibroids with severe AUB and don't want hormonal therapy: NSAIDs (20-50% decrease the bleeding)

EXPECTANT MANAGEMENT

- Consists of follow-up every 3 to 6 months .
- Used in cases of perimenopausal women with small and asymptomatic fibroids.

MEDICAL MANAGEMENT

- In general we use medical treatments for patients who are:

A. Perimenopausal

B. Unfit for surgery

C. Currently on the waiting list (Preoperative)

D. Patient wishing to delay surgery

Medical management

- NSAIDs (Mefenamic acid/Naproxen)
  - can be used to reduce menorrhagia, and in small fibroids
- Progesterone (Medroxyprogesterone)
  - can be used as an IM injection every 3 months to suppress menstruation
- Mirena (Levonorgestrel-releasing intrauterine system)
- **GnRH analogue** (Danazol/Decapeptyl)
- Ulipristal acetate

GNRH ANALOGUE (DANAZOL/DECAPEPTYL)

- Thus creating a pseudo menopause via blockade of the Hypothalamic-pituitary-gonadal axis (Hypogonadotropic Hypogonadism)

❖ For how long do we keep the patient on GnRH analogues ?

- The standard course of treatment is **12 weeks**, at which the patient should achieve a 50% reduction in fibroid size. However, new evidence shows that after 8 weeks of treatment there's no added benefit. Also keep in mind the risk of osteoporosis associated with this type of treatment due to its effect on estrogen, creating a pseudo-menopause state, this becomes evident in patient's treated for more than 6 months.

❖ How does GnRH act?

- it causes **hypogonadotropic hypogonadism**, which will shut down the pituitary, NO FSH, NO LH so no folliculogenesis and no estrogen so hypoestrogenic state will occur and this decrease the need of blood supply, so low vascularity leads to low size eventually decreasing the Symptoms (decrease intra-op bleeding, and decrease the decline in Hb which will provide time to correct the anemia)

ULIPRISTAL ACETATE

- Selective progesterone receptor modulator.
- Used for the management of heavy uterine bleeding due to fibroids and preoperative treatment of fibroids to achieve a reduction in their size before surgery
- effective in reducing fibroid symptoms and size but has **no** effect on fibroid volume
- (NICE)recommend for take Daily 5 mg dose of UPA can be given for up to four courses of treatment. This should be offered to women who present with HMB with a myoma size ≥ 3 cm diameter
- Mechanism: The female hormone progesterone is thought to play a role in the development of fibroids. Ulipristal acetate works by blocking the effects of progesterone. This stops the fibroids from growing and they shrink in size
- **Contraindication:**

1. Pregnancy and breastfeeding.
2. Genital bleeding of unknown etiology or for reasons other than uterine fibroids.
3. Uterine, cervical, ovarian or breast cancer.
4. Underlying hepatic disorder.

❖ UPA and surgery:

1. Optimization of anemic patients prior to surgery as this has been shown to improve clinical outcomes for women who have menorrhagia particularly coupled with **anemia**
2. Women who have **large submucous** fibroids.
3. In women who are having a **hysterectomy** in order to reduce the size of fibroids, which may allow for a more beneficial minimal access route thus decreasing morbidity.

❖ The use of UPA and GnRH analogues has been explored before surgery as these agents are known to diminish the size of uterine fibroids preoperatively.

- Ulipristal acetate treatment advantage is faster to control in 90% of cases **uterine bleeding** associated with fibroids than GnRH agonists , UPA significantly improved **quality of life** and **pain reduction.**
- GnRH analogues advantage its make **surgery** easier and safer ,decreasing uterine size and/or increasing hemoglobin levels for women preparing for surgical treatments.
- GnRH analogues due to their **side effects**, which include menopausal symptoms and osteoporosis, their use is limited. Also GnRH analogues is associated with an increased risk of fibroid **recurrence** and that they may distort the fibroid capsule.

SURGICAL MANAGEMENT

- **The surgical approach depends on :**
  - **SIZE OF FIBROIDS**
  - **NUMBER OF FIBROIDS**
  - **LOCATION OF FIBROID**
  - **DESIRED FERTILITY AND UTERINE PRESERVATION**

*** MRI – The best way to localize and estimate the volume of each fibroid and determine it's position relative to endometrium and other anatomical structures.**

- **Indications for surgical intervention :**
  - *** When fibroids are not amenable to medical therapies**
  - *** Large sized uterus (> 12 to 14 gestational size)**

- **Surgical Methods :**
  - Myomectomy
  - Endometrial Ablation
  - Uterine artery embolization (UAE)
  - Hysterectomy (Definitive Therapy)
  - Other Technologies

- **Some points about management :**
  - Submucosal fibroids less than 5 cm, maybe resected at the time of hysteroscopy
  - Pedunculated, subserosal and many intramural fibroids maybe removed Laprascopically
  - Laparotomy is generally reserved for larger or numerous tumours

- **Myomectomy :**

  - YOUNG PATIENT, SYMPTOMATIC, WITH FERTILITY WISHES OR PATIENT'S DESIRE

  - Considered as safe a alternative to hysterectomy !

  - Less risk of intra-operative injury to bowel, bladder and uterus

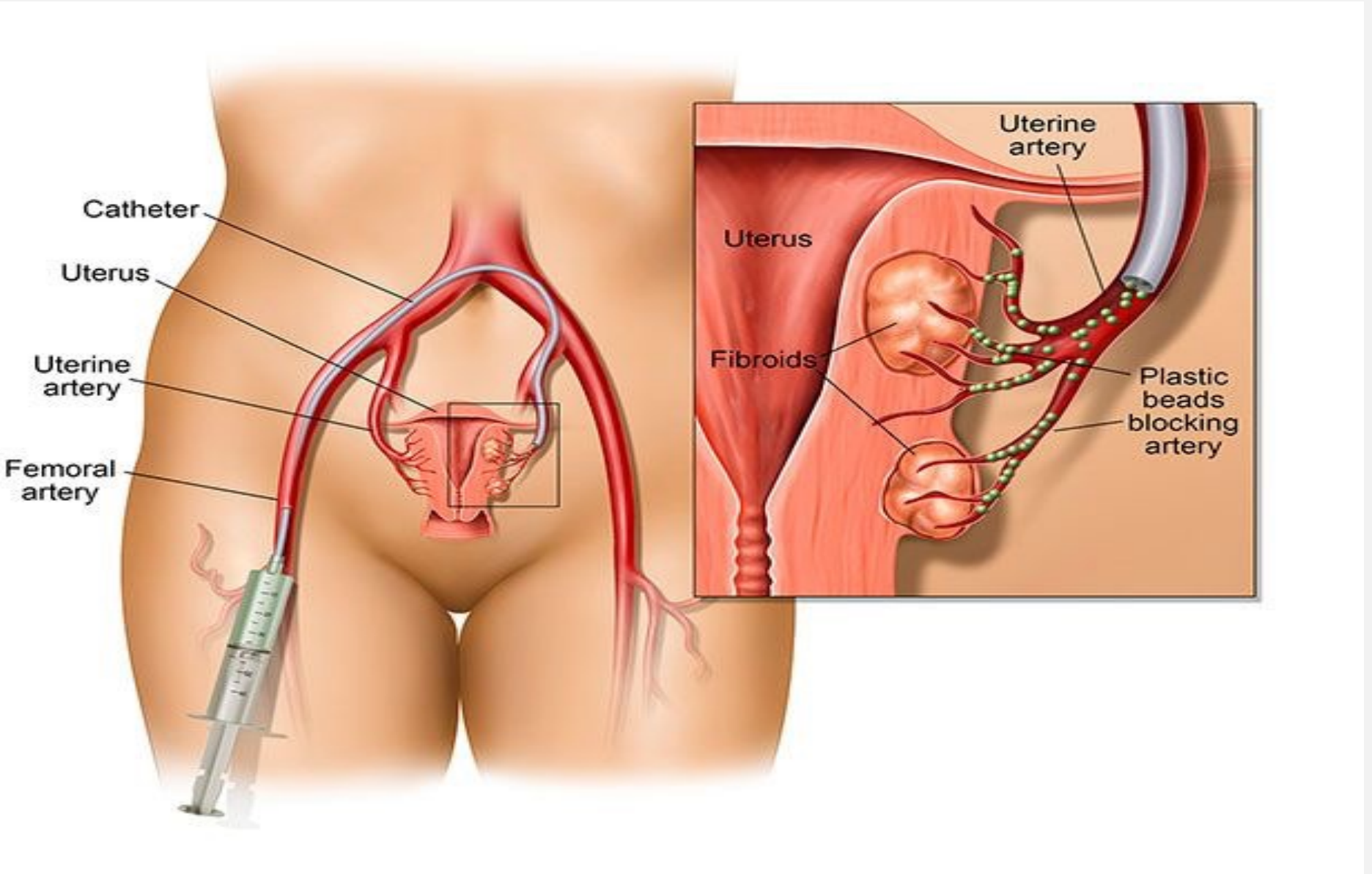
  - New fibroids may form following myomectomy (11% of women with 3 fibroids or fewer and about 25% of women with four or more fibroids will require subsequent operation)

- **Uterine Artery Embolization :**

  - ONLY FOR A LIMITED NUMBER OF FIBROIDS (Mostly single large fibroid), DESIERD FERTILITY OR UTERINE PRESERVATION, PATIENT UNFIT FOR A SURGERY

  - Performed under conscious sedation, using small coils introduced into UTERINE ARTERY via transcutaneous femoral approach (Coils occlude artery feeding fibroid)

  - High risk of placental complication (Accreta), PPH and premature delivery

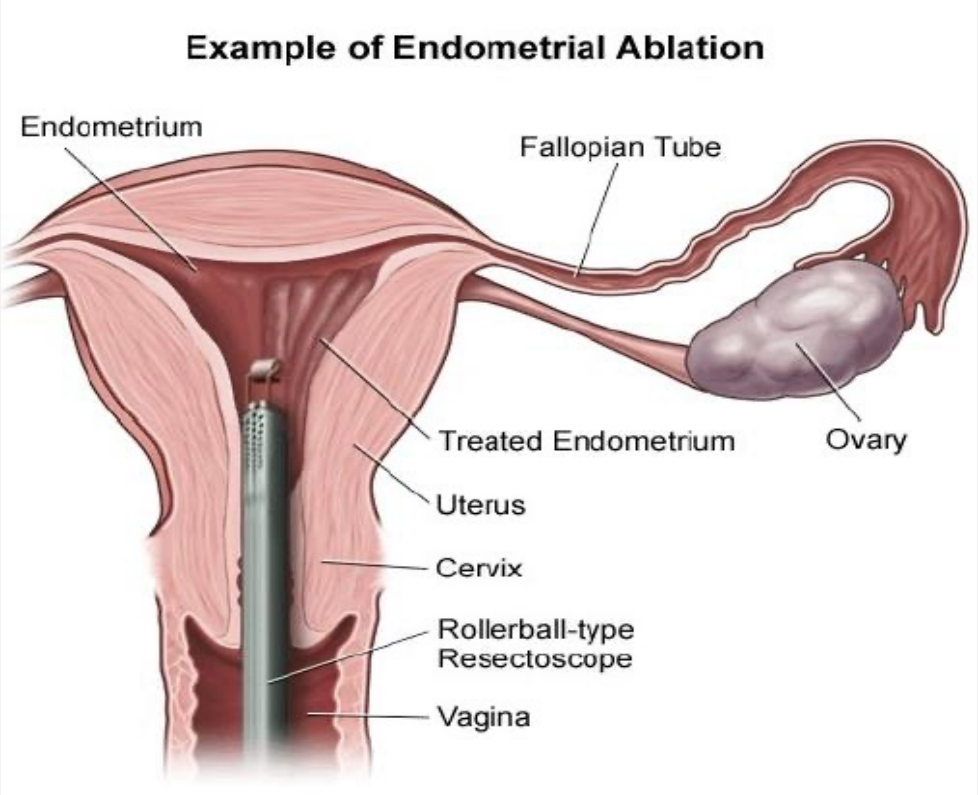

Catheter
Uterus
Uterine artery
Femoral artery
Uterine artery
Uterus
Fibroids
Plastic beads blocking artery

- **Endometrial Ablation :**

- FOR WOMEN DESIRED UTERINE PRESERVATION BUT NOT FUTURE FURTILITY

- Over 70% of women have a significant decrease in menstrual blood loss after one treatment

*** Others, require repeat ablation or Hysterectomy !**



- **HYSTERECTOMY :**
  - **DEFINITIVE THERAPY FOR FIBROIDS**
  - **NO DESIRED FERTILITY OR UTERINE PRESERVATION**
  - **If the uterus very large and bulky (Laparotomy is the preferred approach)**
  - **Women with smaller uteri (Vaginal or Laparoscopic hysterectomy preferred)**

*** Usually ovarian preservation is encouraged unless the women is over 60 years old or has risk factor for ovarian carcinoma !**

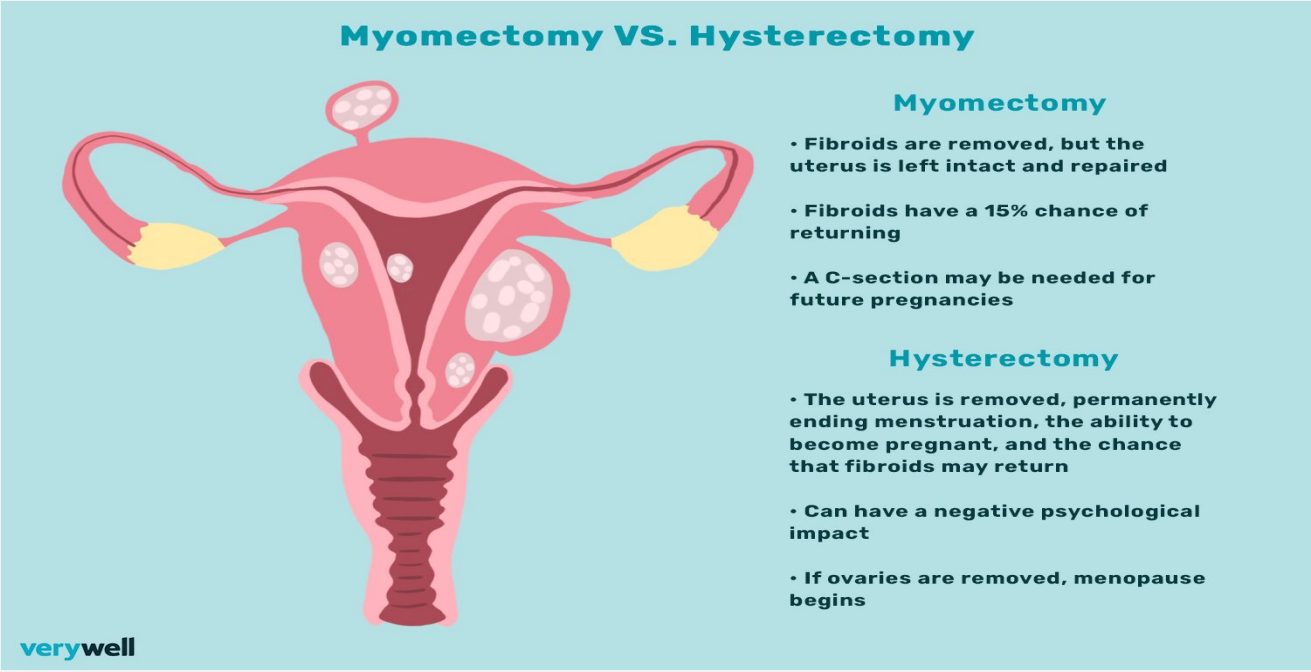


TABLE 19-1

INTERVENTION FOR PATIENTS WITH FIBROIDS NOT AMENABLE TO MEDICAL THERAPY*

Clinical Presentation	Nonmedical Options	Comments
Desired fertility or uterine preservation	Myomectomy or uterine artery embolization (UAE)†	Usually used for a limited number of fibroids
Poor surgical risk	Endometrial ablation or UAE	UAE only for a limited number of fibroids
No desired fertility or uterine preservation	Endometrial ablation or hysterectomy	Hysterectomy is definitive therapy
Rapidly growing uterus (double in size in 6 months)	Exploratory laparotomy, abdominal hysterectomy	More extensive surgery if malignancy discovered

*Generally failed medical therapy or large (>12 to 14 weeks' gestational size) uterus.
†Pregnancies after UAE are at higher risk.

LEIOMYOSARCOMA

- Traditionally, a rapid growing fibroid was considered highly suspicious of being a malignant tumor (leiomyosarcoma), recent studies however showed that this was not a reliable sign of malignancy.

Leiomyosarcomas are rare, occurring in less than 1 per 1000 women operated on for presumed fibroids. There are 2 theories to their origin :

1. Malignant transformation from fibroid to a sarcoma, which is the less accepted theory

2. Leiomyosarcoma arising de novo from uterine muscle, which is more accepted

- Any rapid growing fibroid (More than 1 cm/year) should alarm you **to the possibility of leiomyosarcoma, and thus requires a more extensive workup to rule it out.**

- **Other important factor that should be alarming is** growth after menopause.

- **Histological criteria to distinguish leiomyosarcoma from leiomyoma :**
  - **Mitotic Count (Usually > 10 per 10 high power fields)**
  - **Presence or absence of cellular atypia**
  - **Presence or absence of coagulative necrosis**

*** Mean age of patients with leiomyosarcoma is about 55 years old**

*** Management – Mainly TOTAL ABDOMINAL HYSTERECTOMY AND BILATERAL SALPINGO-OOPHORECTOMY !**

FIBROIDS IN PREGNANCY

- The presence of fibroids during pregnancy would likely increase globally due to delay in childbearing age which is more prevalent now
- The complications associated with presence of fibroids during pregnancy – Degenerative changes which commonly causes abdominal pain, miscarriages, malposition or malpresentation IUGR, APH, preterm labour, obstructed labour, high CS rates
- During pregnancy, 5-10% of women with fibroids undergo painful RED DEGENERATION caused by haemorrhage into the tumour
- Although most women with uterine fibroids have a regular pregnancy
- Uterine fibroids in pregnancy are usually asymptomatic – So, first line of management is Conservative (Monitoring and watchful waiting) !
- In the presence of complications, Caesarean myomectomy can be performed with good results in carefully selected cases !
- Myomectomy may result in excessive blood loss – Lead to inevitable hysterectomy or maternal mortality (Caused by increased uterine vascularization during pregnancy)

THANK YOU