# An Update on The Diagnosis and Management of Heavy Menstrual Bleeding

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# Normal Menstrual Cycle

- Length 21-35 days
- Duration < 8 days
- Blood loss < 80 ml

# Common Terminology for Abnormal Uterine Bleeding

| Descriptive Term | Bleeding pattern |
|---|---|
| Menorrhagia (HMB) | Regular cycles, prolonged duration, excessive flow |
| Metrorrhagia | Irregular cycles, bleeding between periods |
| Menometorrhagia | Irregular, prolonged, excessive |
| Hypermenorrhea | Regular, normal duration, excessive flow |
| Polymenorrhea | Frequent cycles < 21 days |
| Oligomenorrhea | Infrequent cycles > 35 days |

# Definition of heavy menstrual Bleeding

- Objective

  Menstrual Blood Loss > 80ml per period

- Subjective:
  - Menstrual flow that soaks through one or more sanitary pads or tampons every hour for several consecutive hours
  - The need to use double sanitary protection to control menstrual flow
  - The need to change sanitary protection during the night
  - Menstrual period that lasts longer than 7 days
  - Menstrual flow that includes large blood clots
  - Heavy menstrual flow that interferes with regular lifestyle

- Practical:

  Menstrual flow that is deemed to be excessive by the patient

# Epidemiology

- 5% of women 30-49 Y/O consult their Gynecologist annually for menorrhagia.
- 60% of women with menorrhagia will have a hysterectomy within five years.
- 30% of all women undergoing hysterectomy for menorrhagia have a normal uterus removed.
- 50% of women who undergo hysterectomy menorrhagia is the main presenting problem.

# Etiologies
# Local

- Anatomic:
  - Endometrial Polyps
  - Submucus Leiomyomas
  - Adenomyosis
- Neoplastic
  - Endometrial hyperplasia
  - Endometrial cancer

# Etiologies
# Systemic

- Haemostatic disorders
- Hypothyroidism
- PCOS
- Liver disease
- Anticoagulation therapy
- Hormonal therapy

# Diagnostic work up

Two main Goals:

- Rule out endometrial hyperplasia or endometrial cancer
- Identify the cause(s) of the bleeding in order to provide effective treatment that will result in adequate relief of her symptoms

# Age-associated Risk of Endometrial Cancer

| Age Group | Endometrial Cancer Rate per 100,000 |
|---|---|
| 30-34 | 2.8 |
| 35-39 | 6.1 |
| 40-49 | 36.5 |

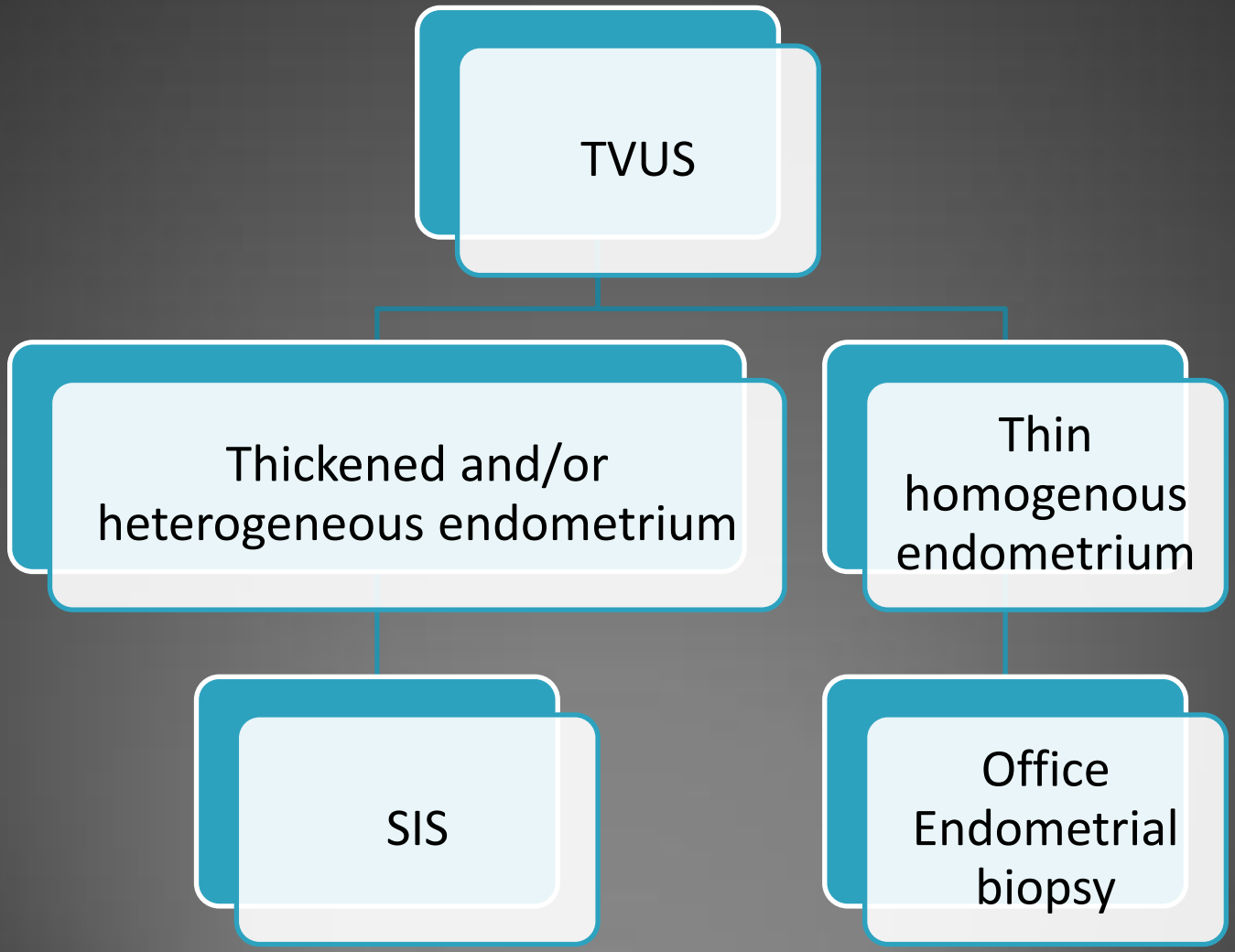
# Diagnostic work up

- History
- Physical Exam
- Laboratory Studies
- Imaging studies
- Pathology

# Laboratory Studies

- CBC
- TSH, Free T4
- FSH, LH
- Prolactin
- PCOD labs if indicated
- Coagulation studies if indicated

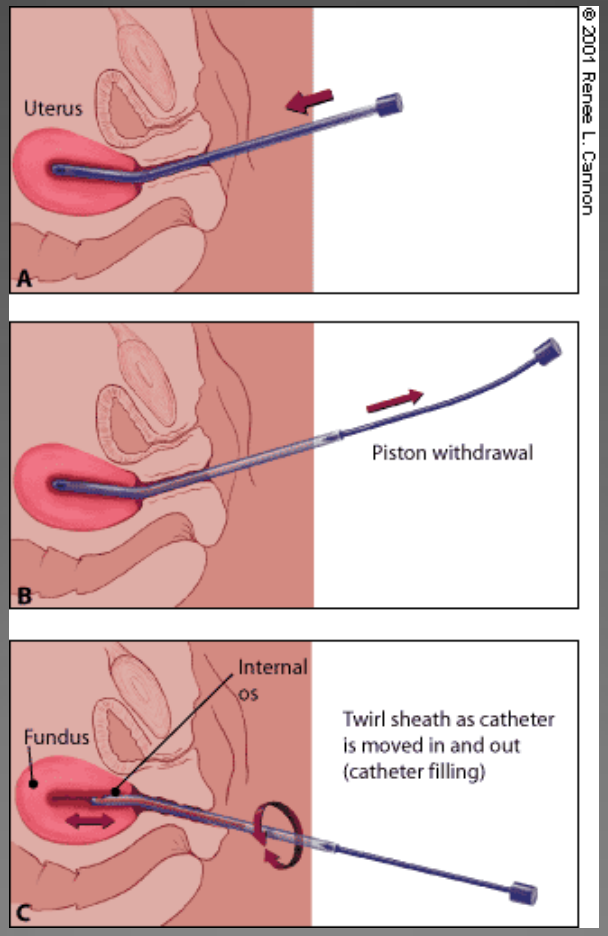
# Imaging/Pathology Diagnostic Algorithm-1



# Endometrial thickness

| Day of cycle | Phase | Thickness (mm) | Appearance |
|---|---|---|---|
| 1-4 | Menstrual phase | 1-4 | Small amounts of fluid may be seen endovaginally |
| | | | Thin interrupted central cavity |
| 5-14 | Proliferative phase | 4-8 | Mildly echogenic surrounded by thin hypoechoic band |
| | Periovulatory | | Multilayered with echogenic line of opposing endodremetria and echogenic outer rim |
| 15-28 | Secretory phase | 8-16 | Thick |
| | | | Echogenic with through transmission |

# Office Endometrial Biopsy



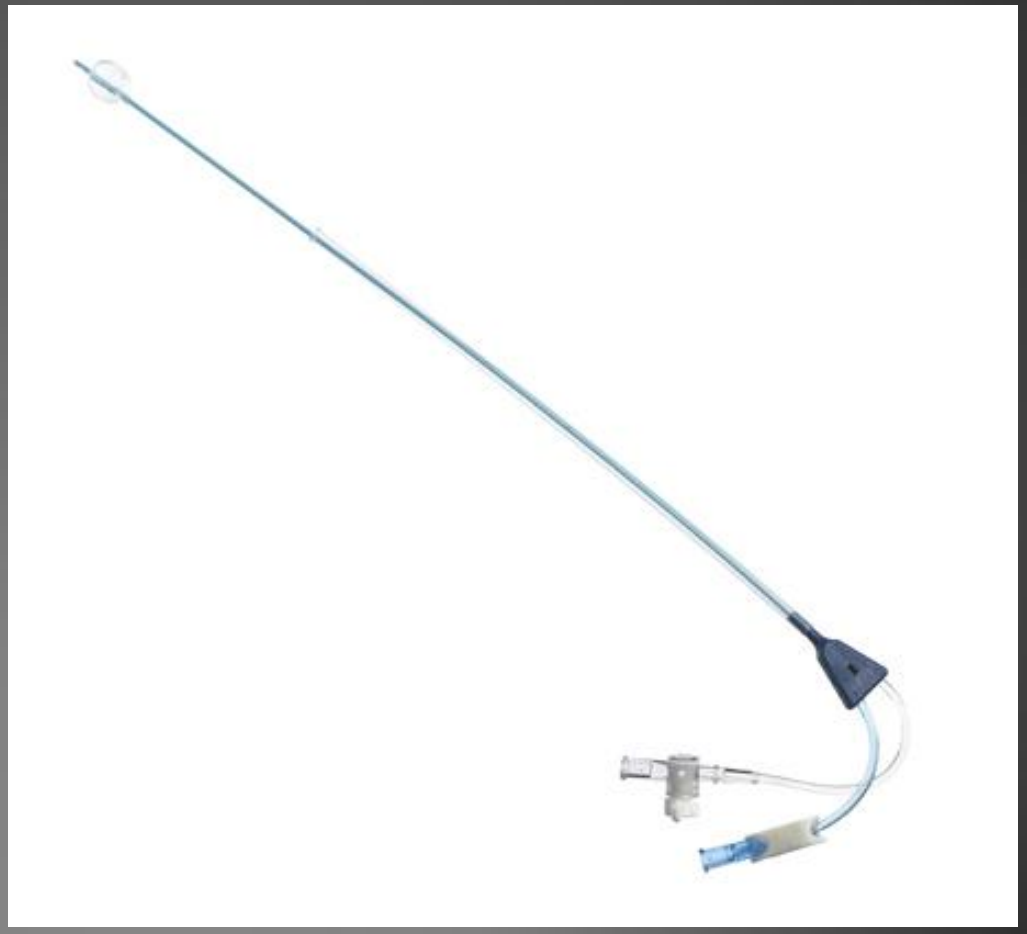
# Saline Infusion Sonohysterography (SIS)

**Tampa Catheter**

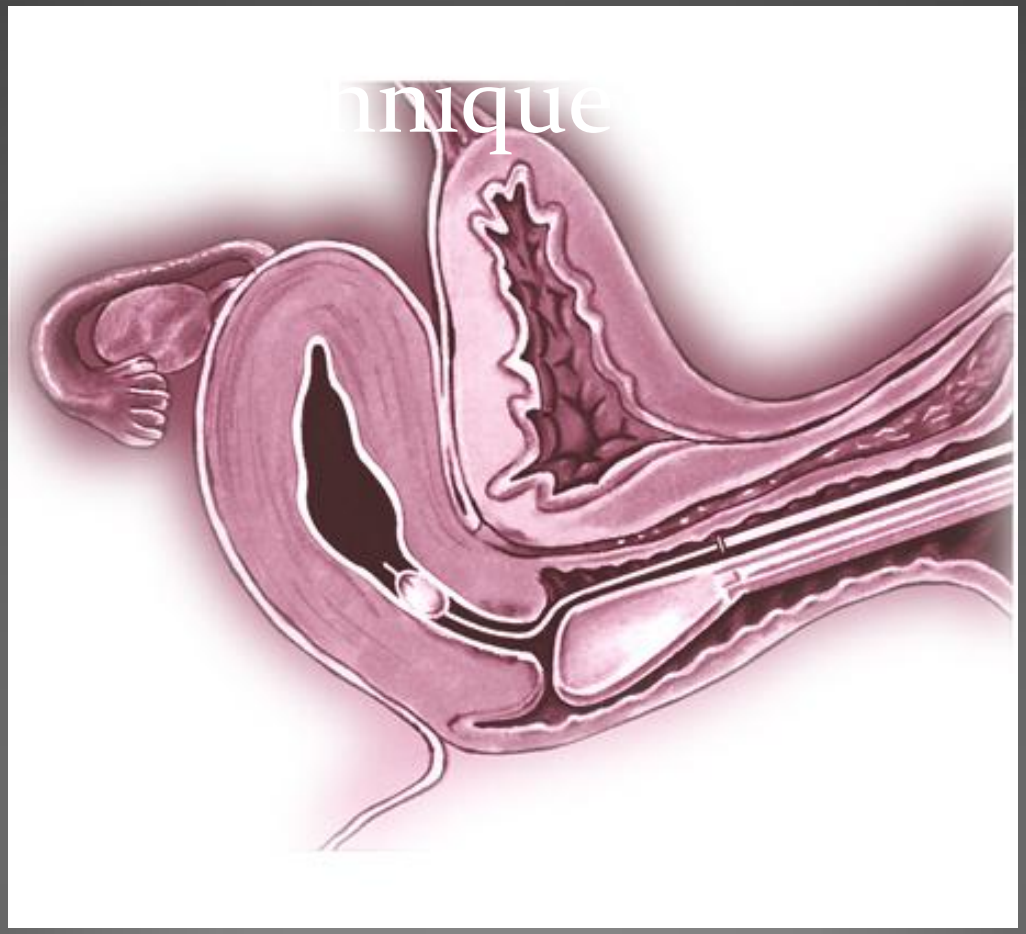
**Goldstein Catheter**

# Saline Infusion Sonohysterography (SIS)

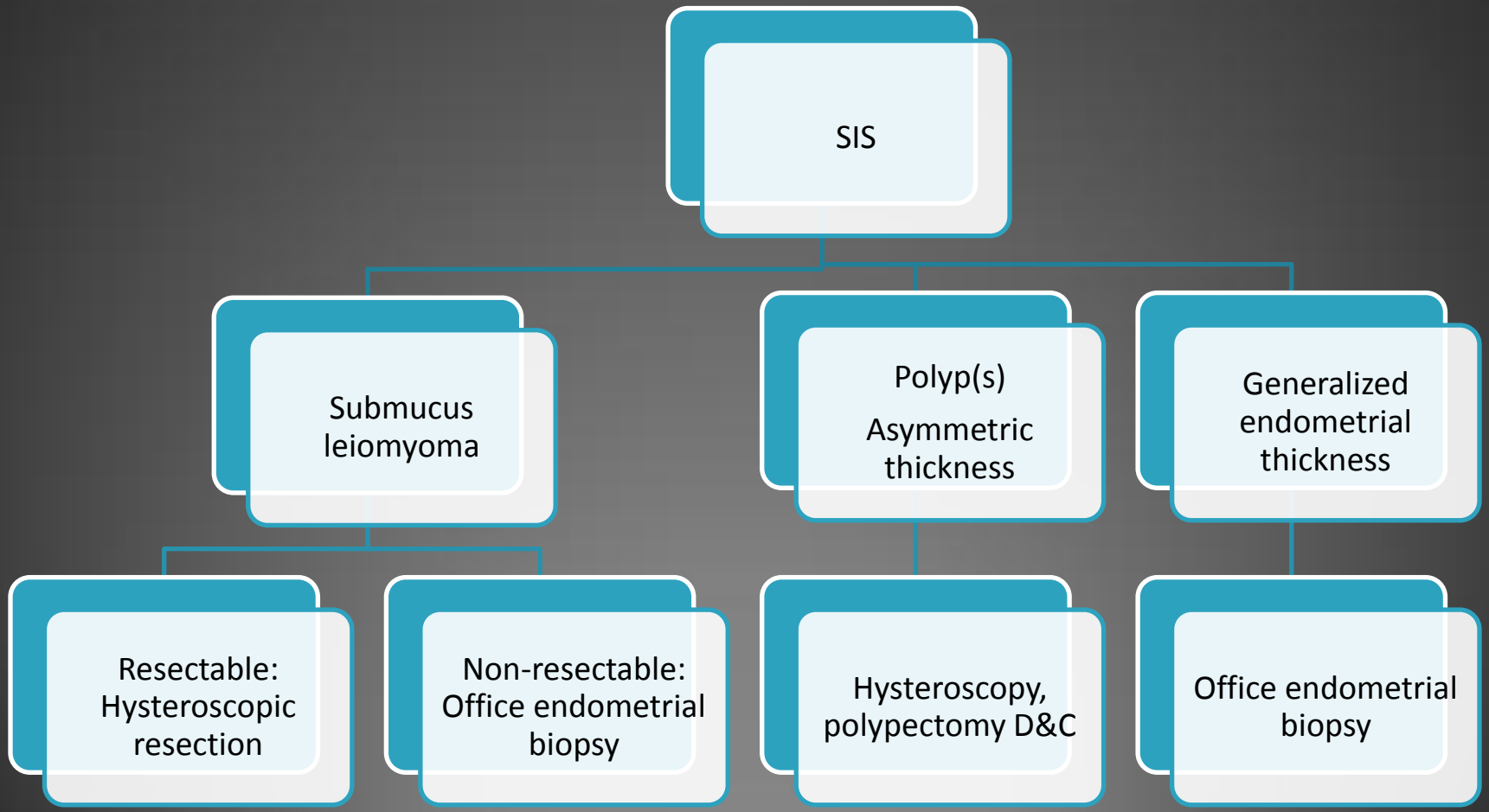
Balloon Catheter



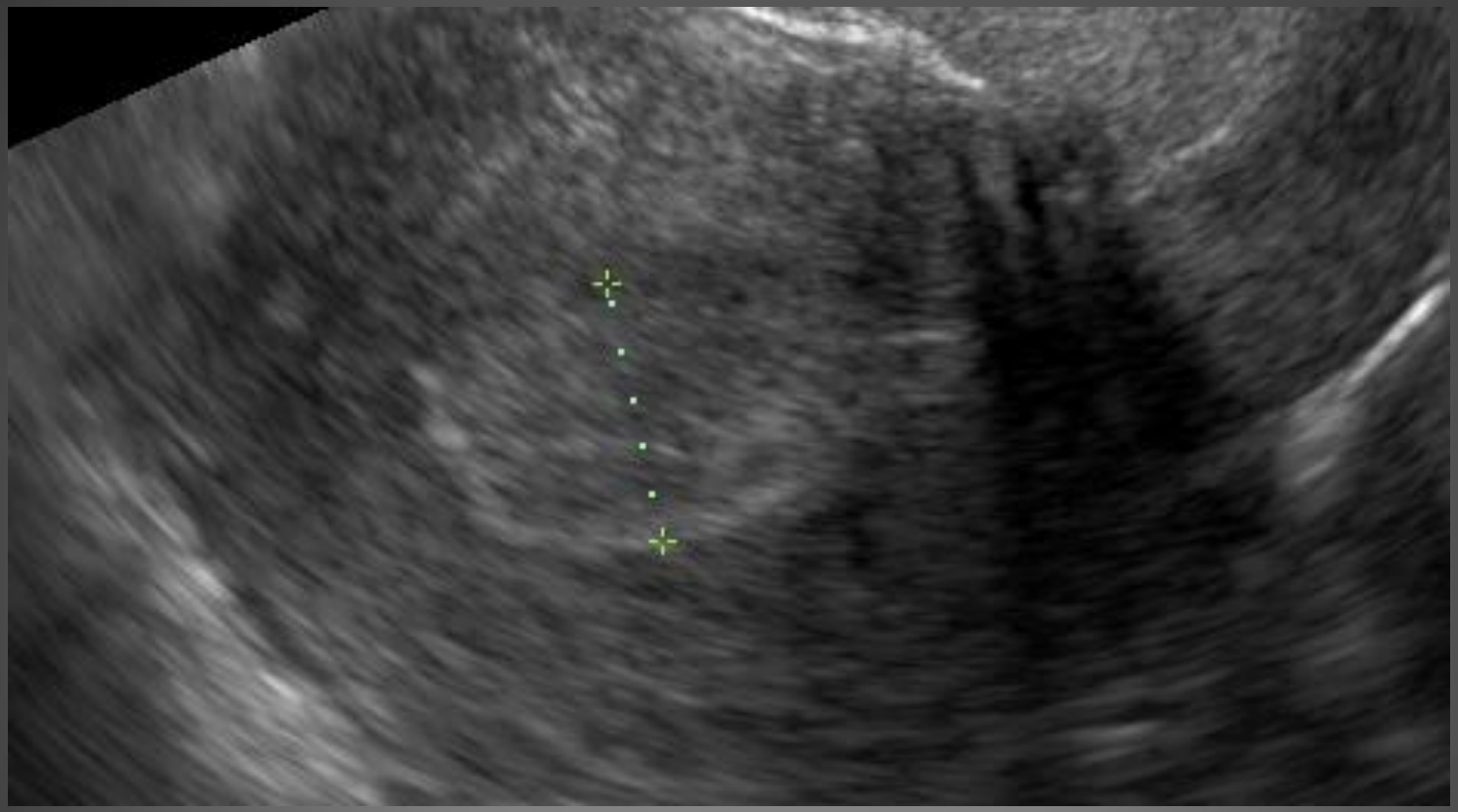
# Saline Infusion Sonohysterography (SIS)



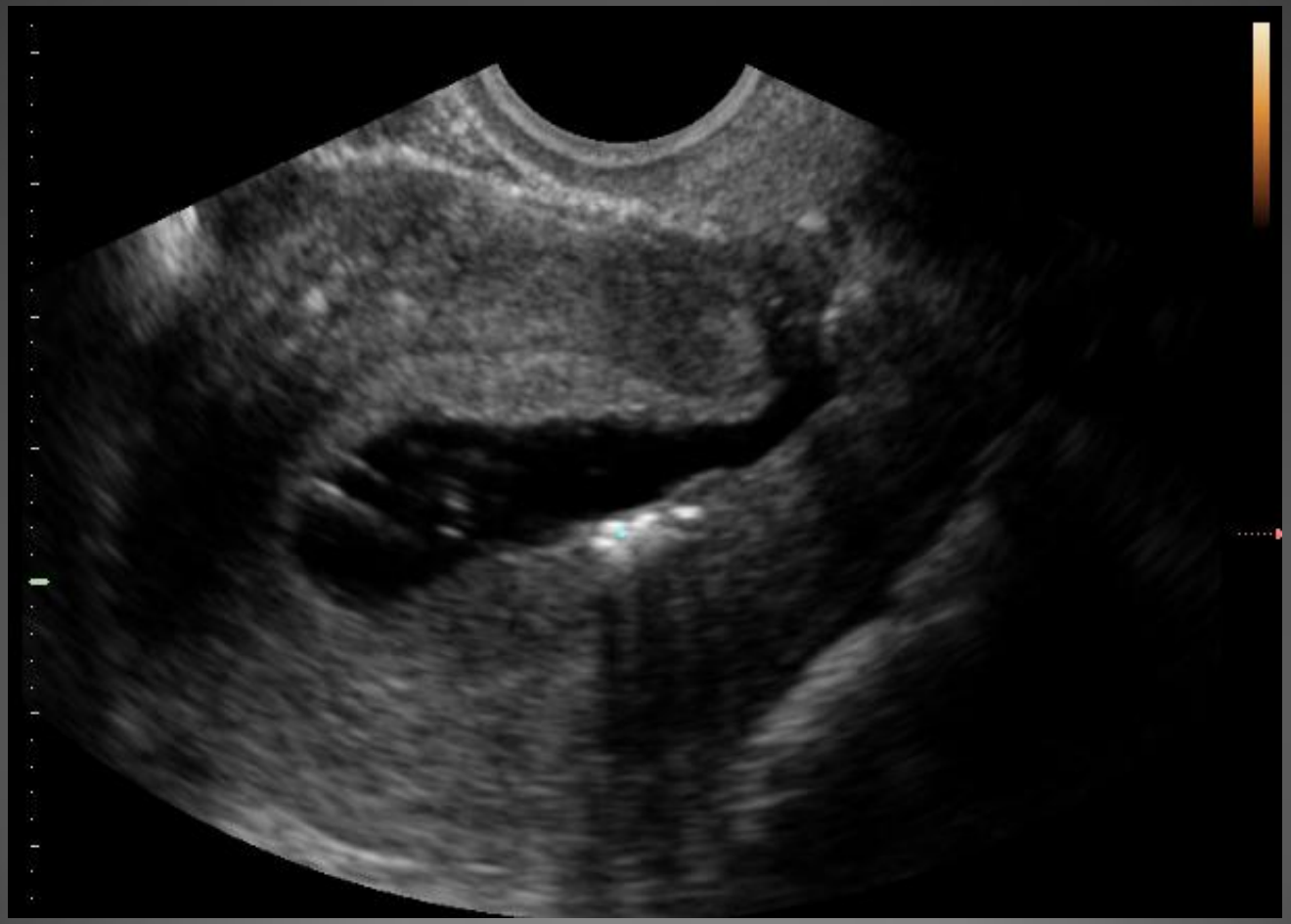
# Imaging/Pathology Diagnostic Algorithm-2



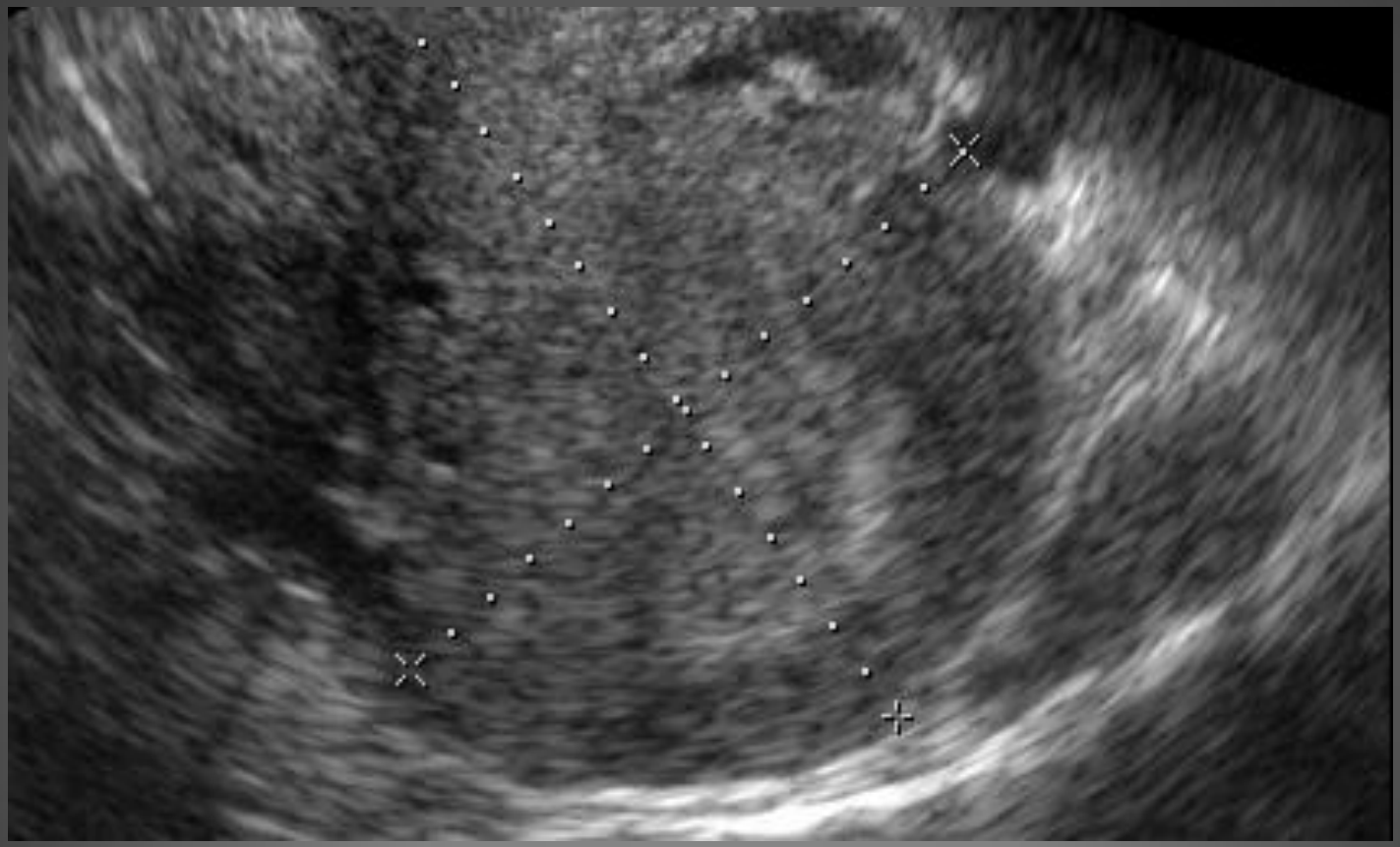
# Thickened Endometrium



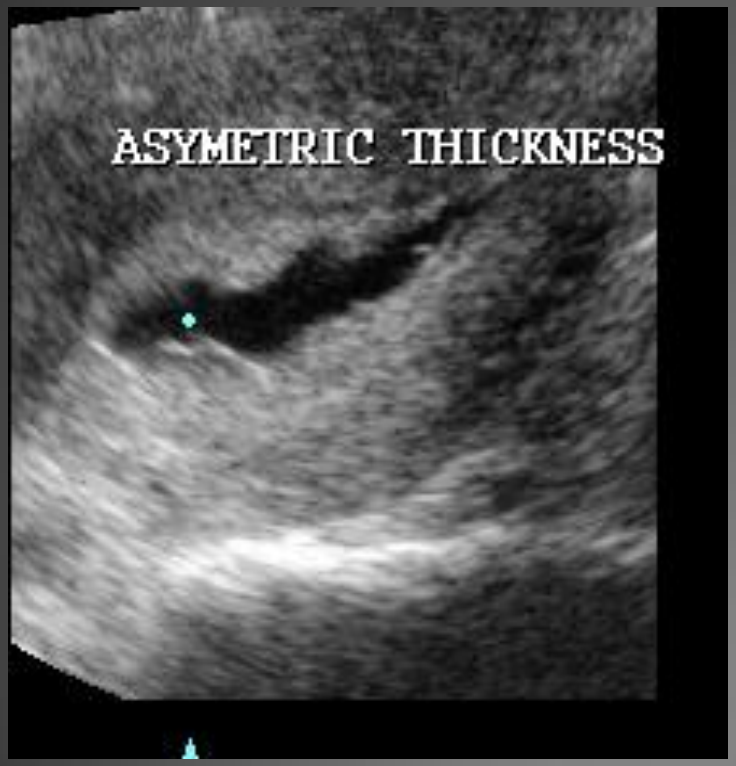
# Generalized Thickness

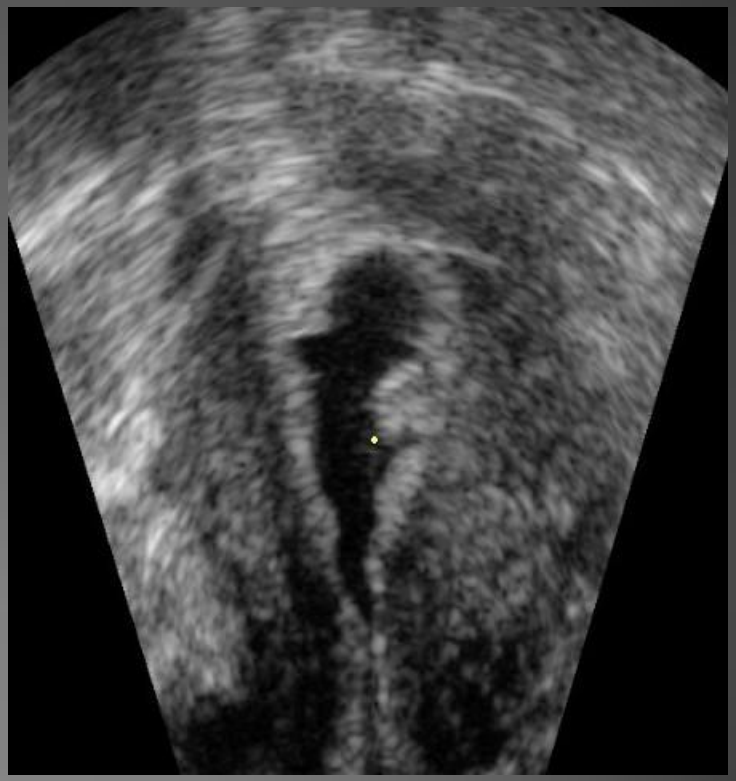


# Heterogeneous Illdefined Endometrium

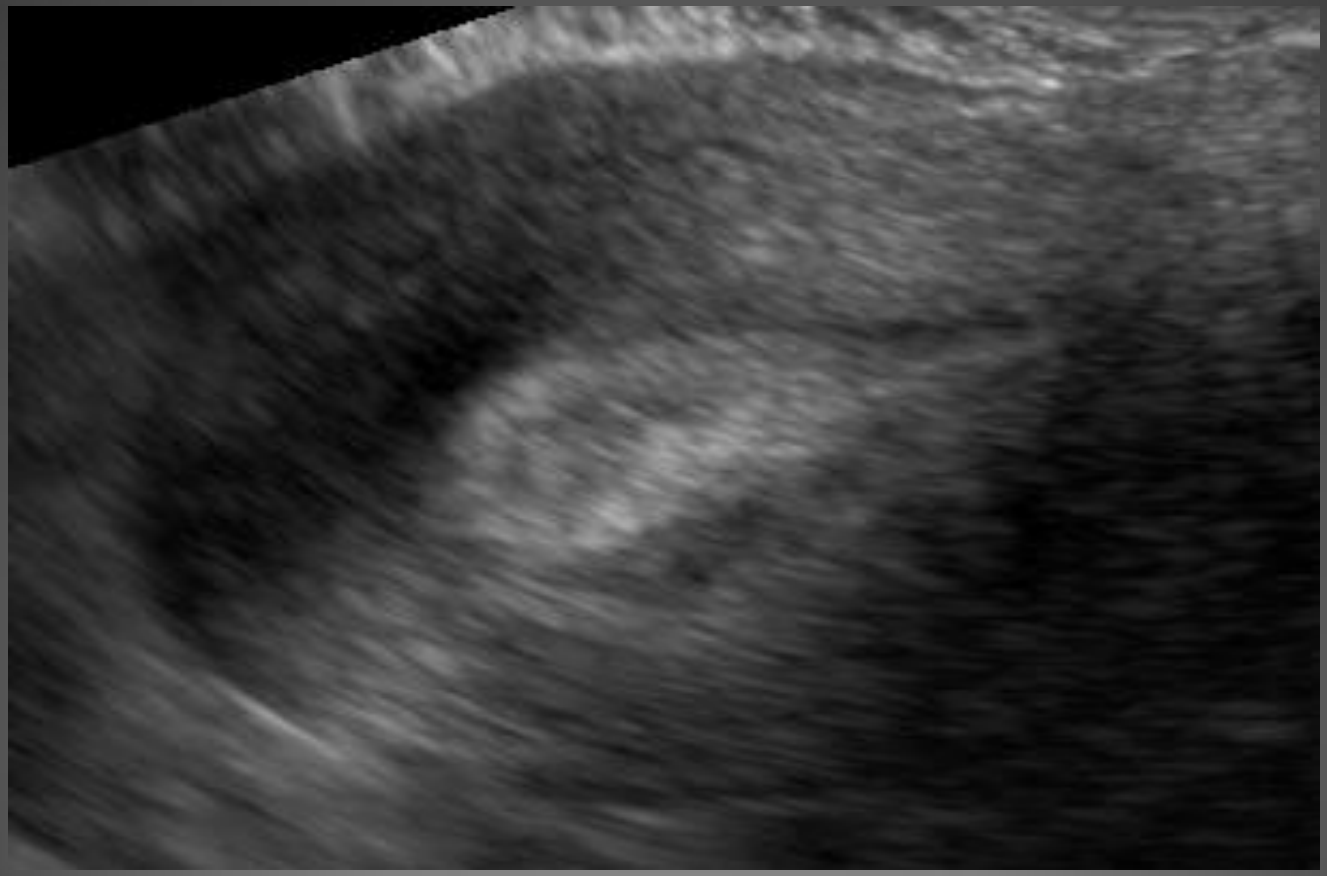


# Asymmetric Thickness

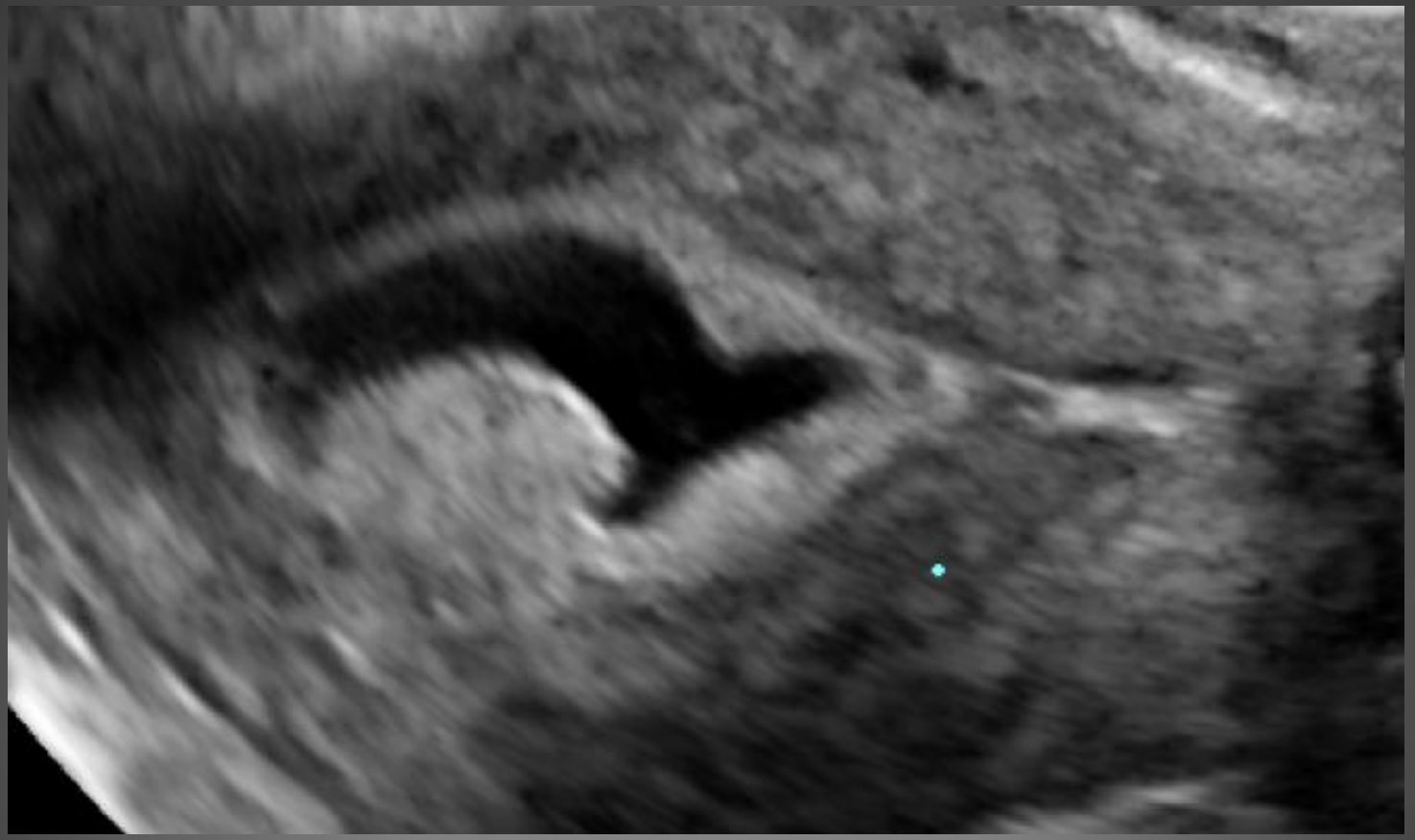


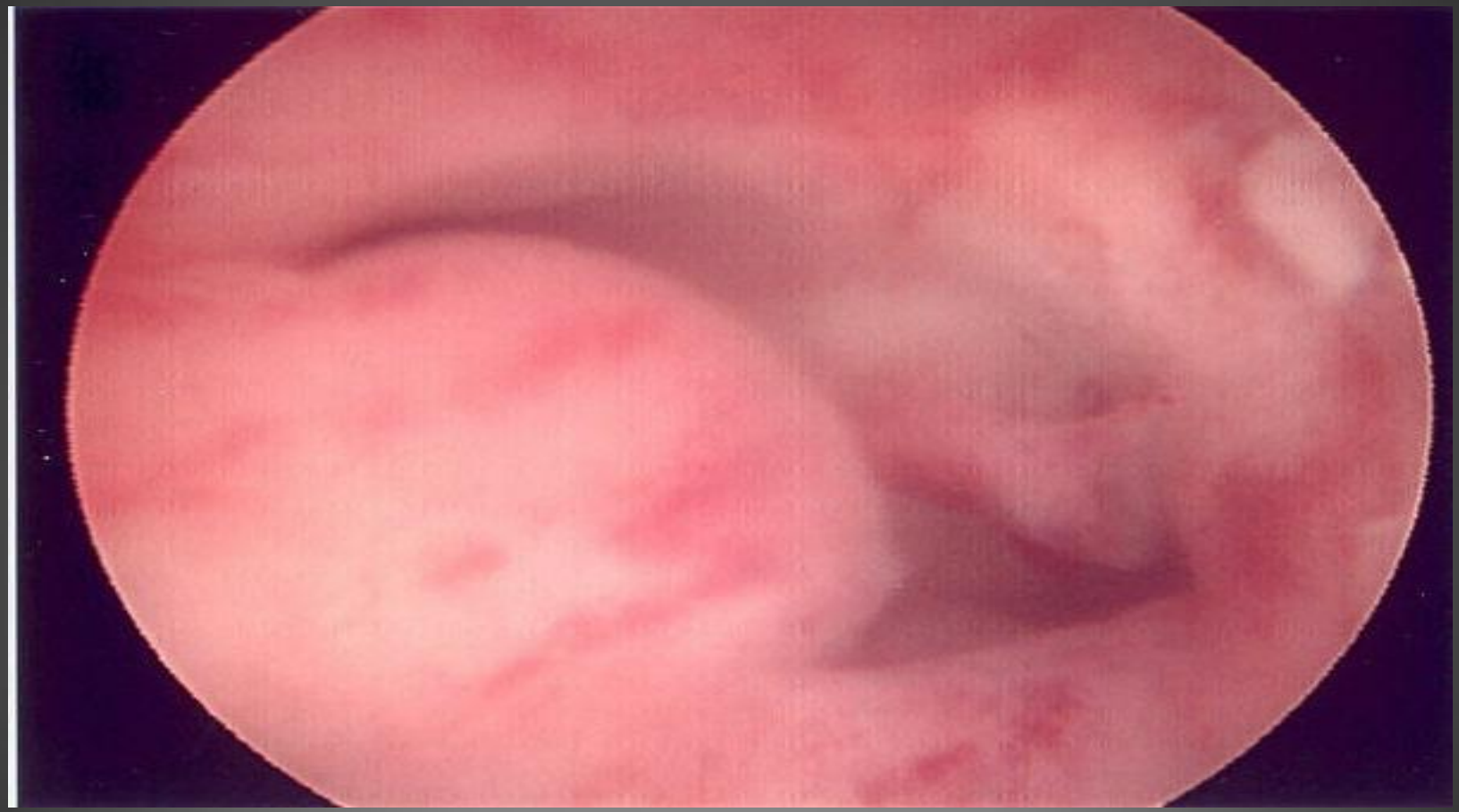
# Heterogeneous Endometrium



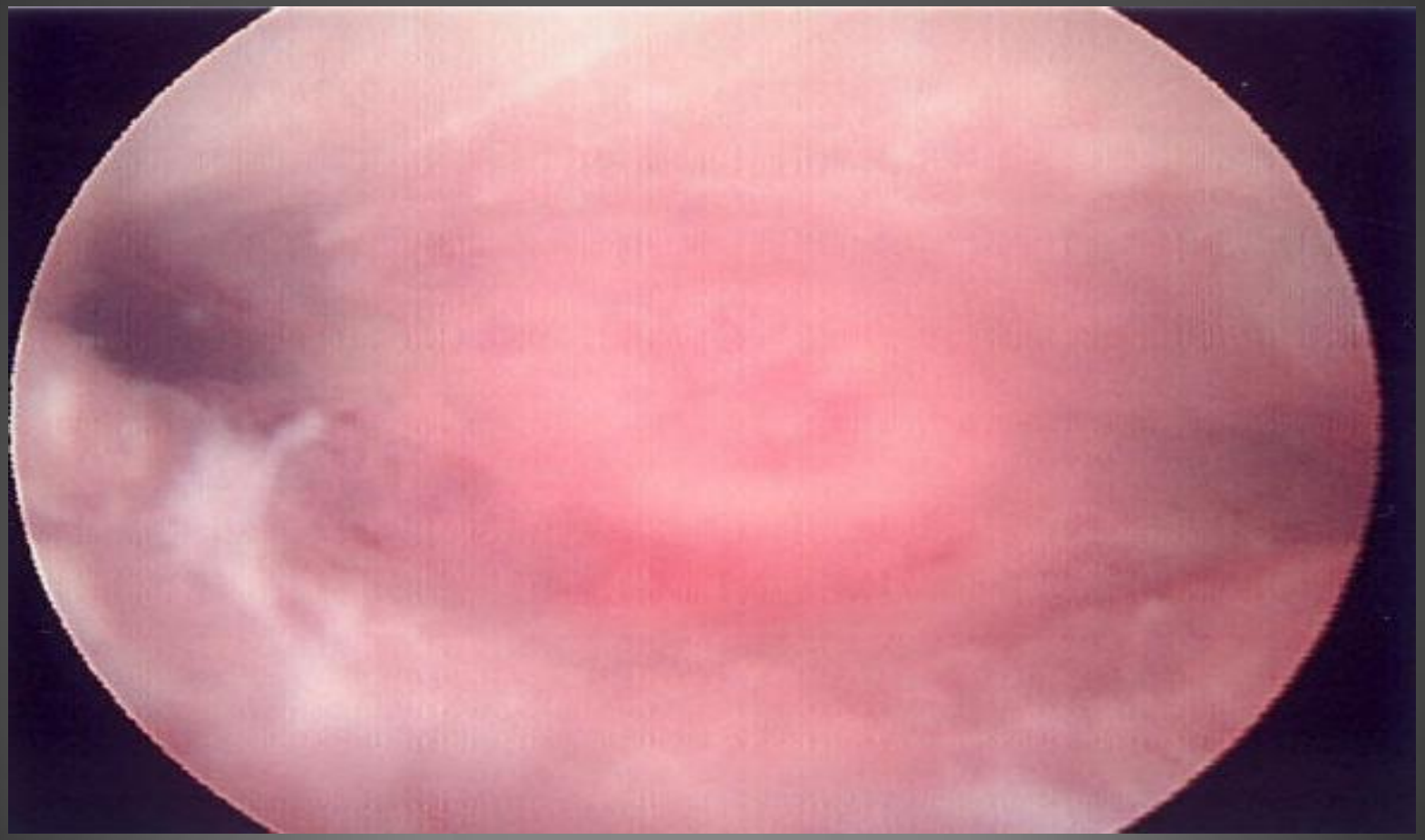
# Endometrial polyp



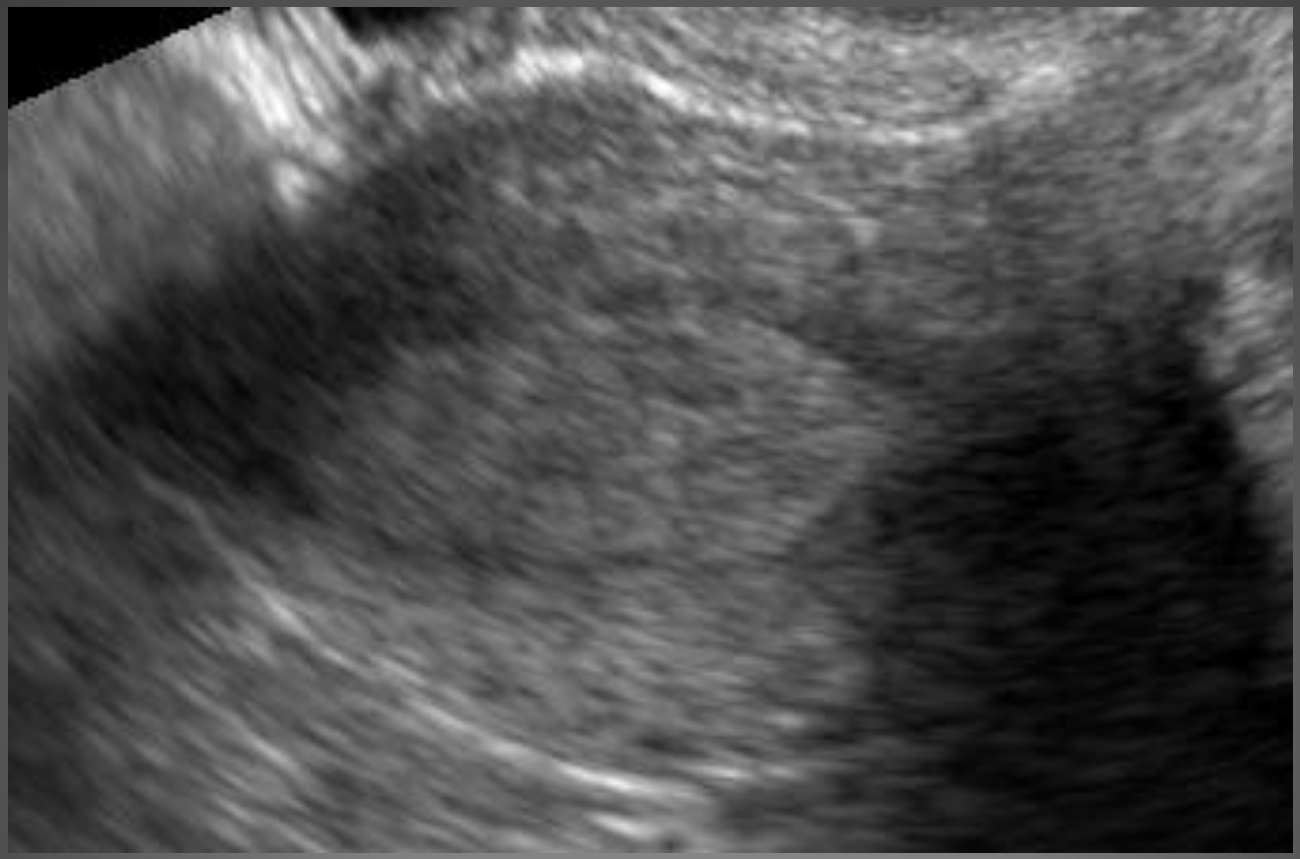
# Endometrial polyp



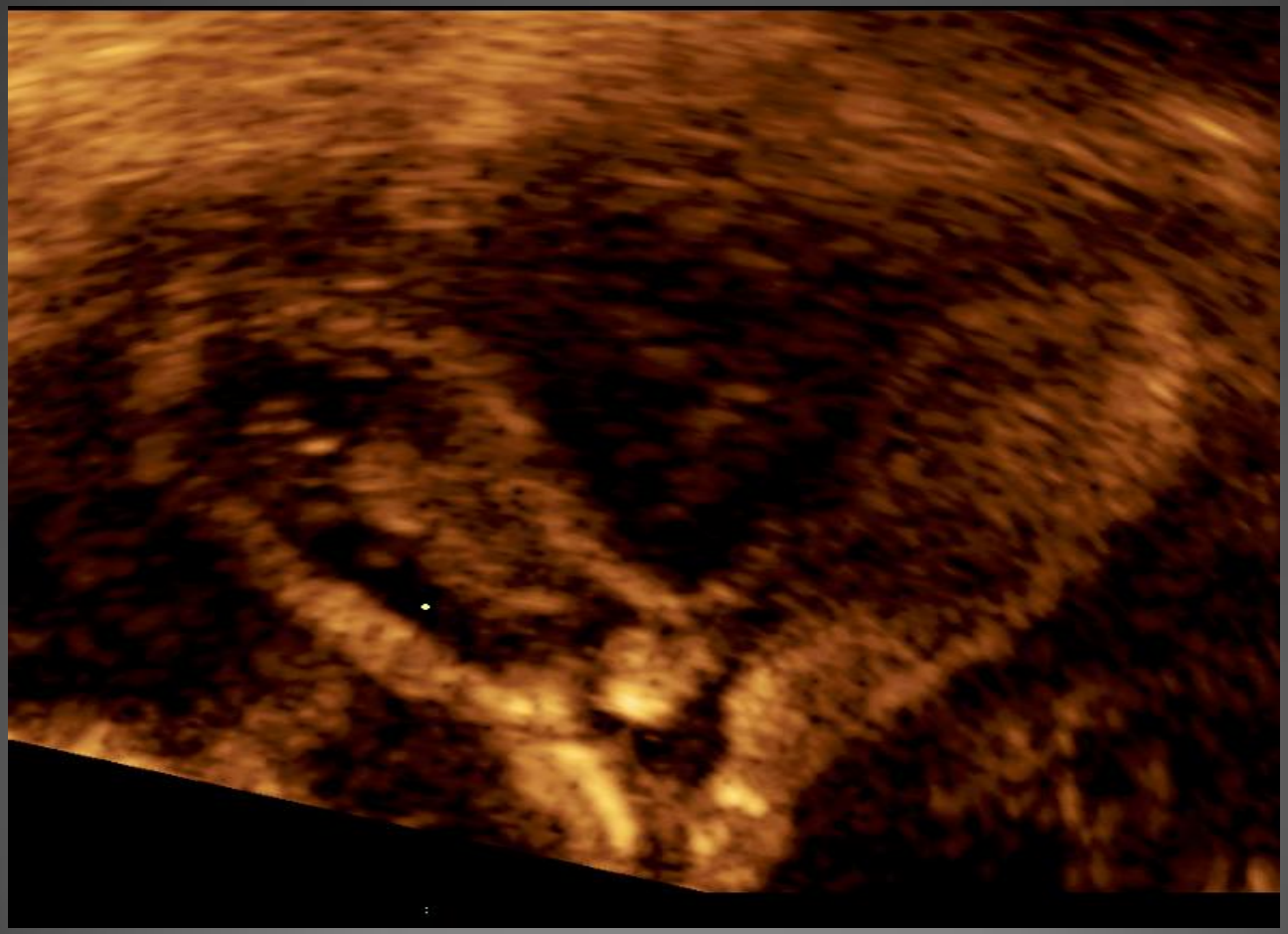
# After Resection



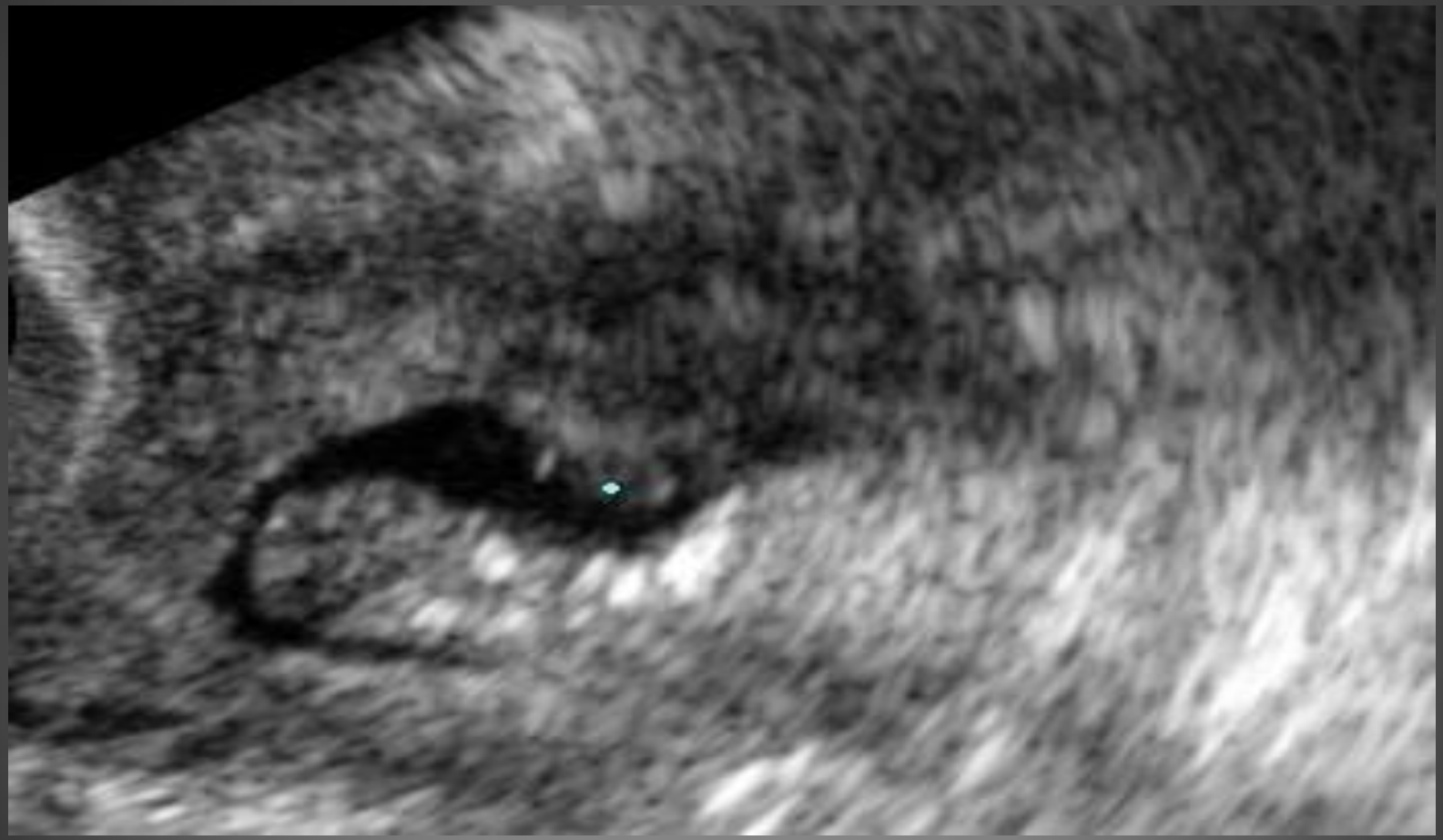
# Thickened Endometrium



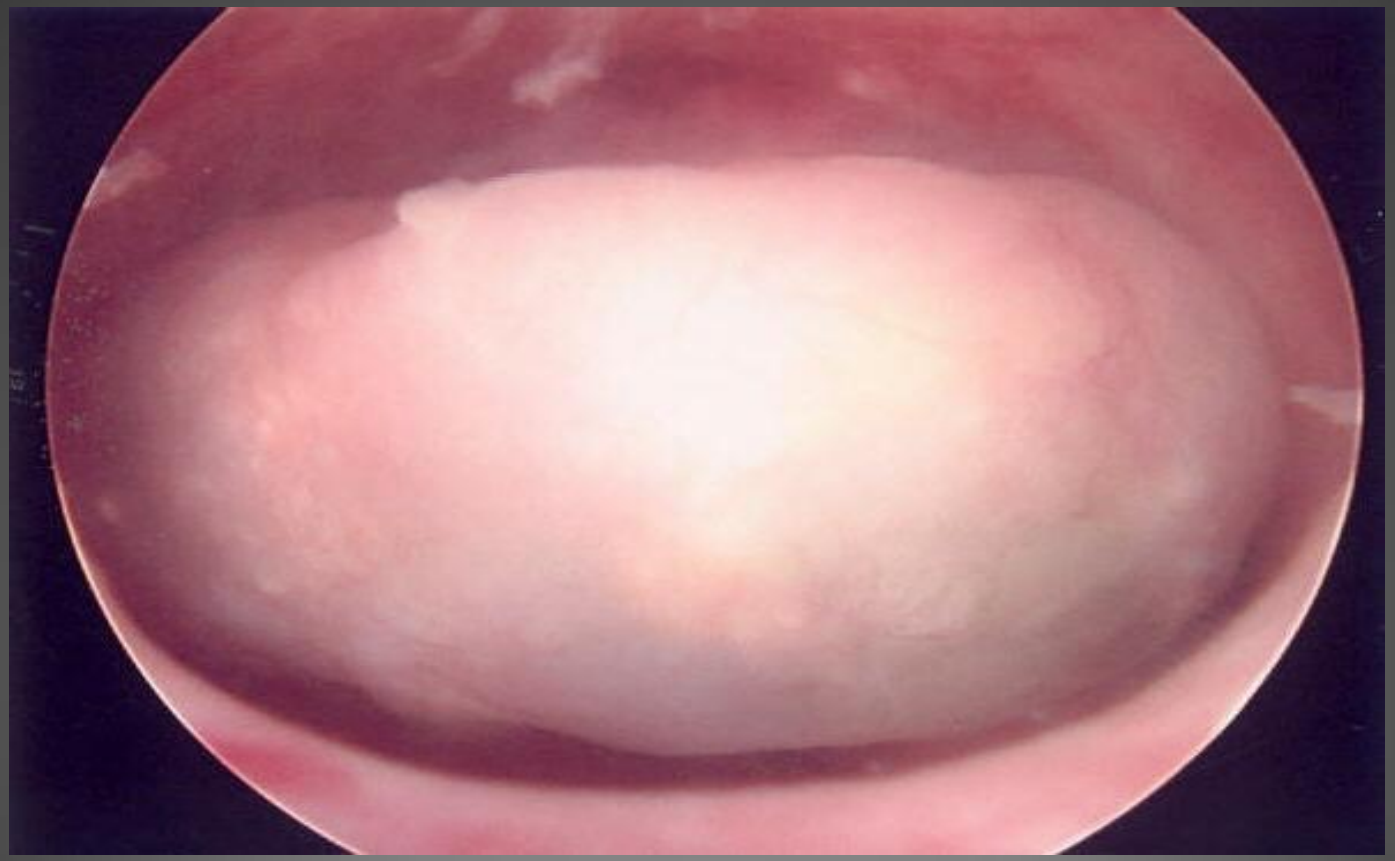
# Uterine Septum & Endometrial Polyp



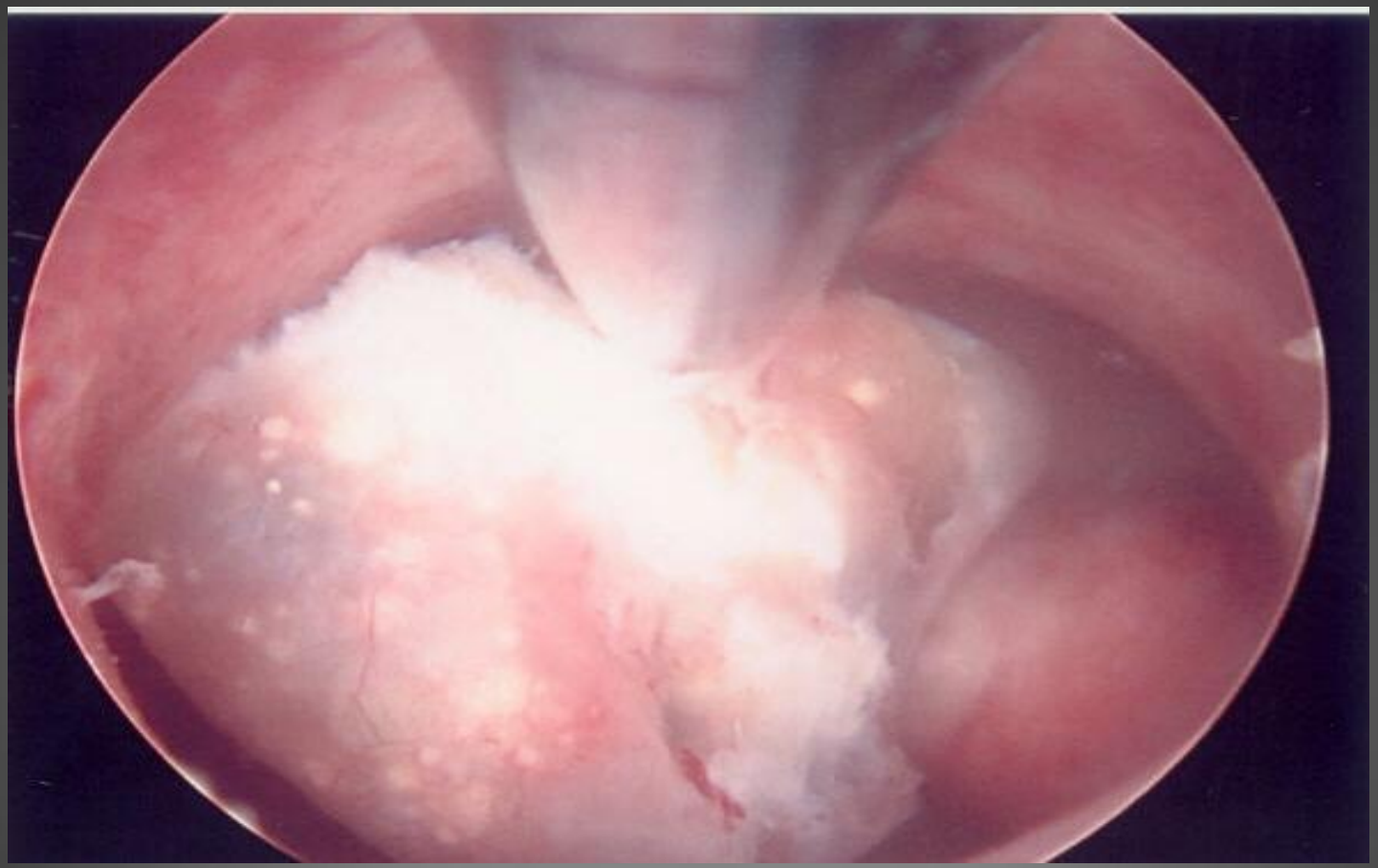
# Thickened heterogeneous endometrium



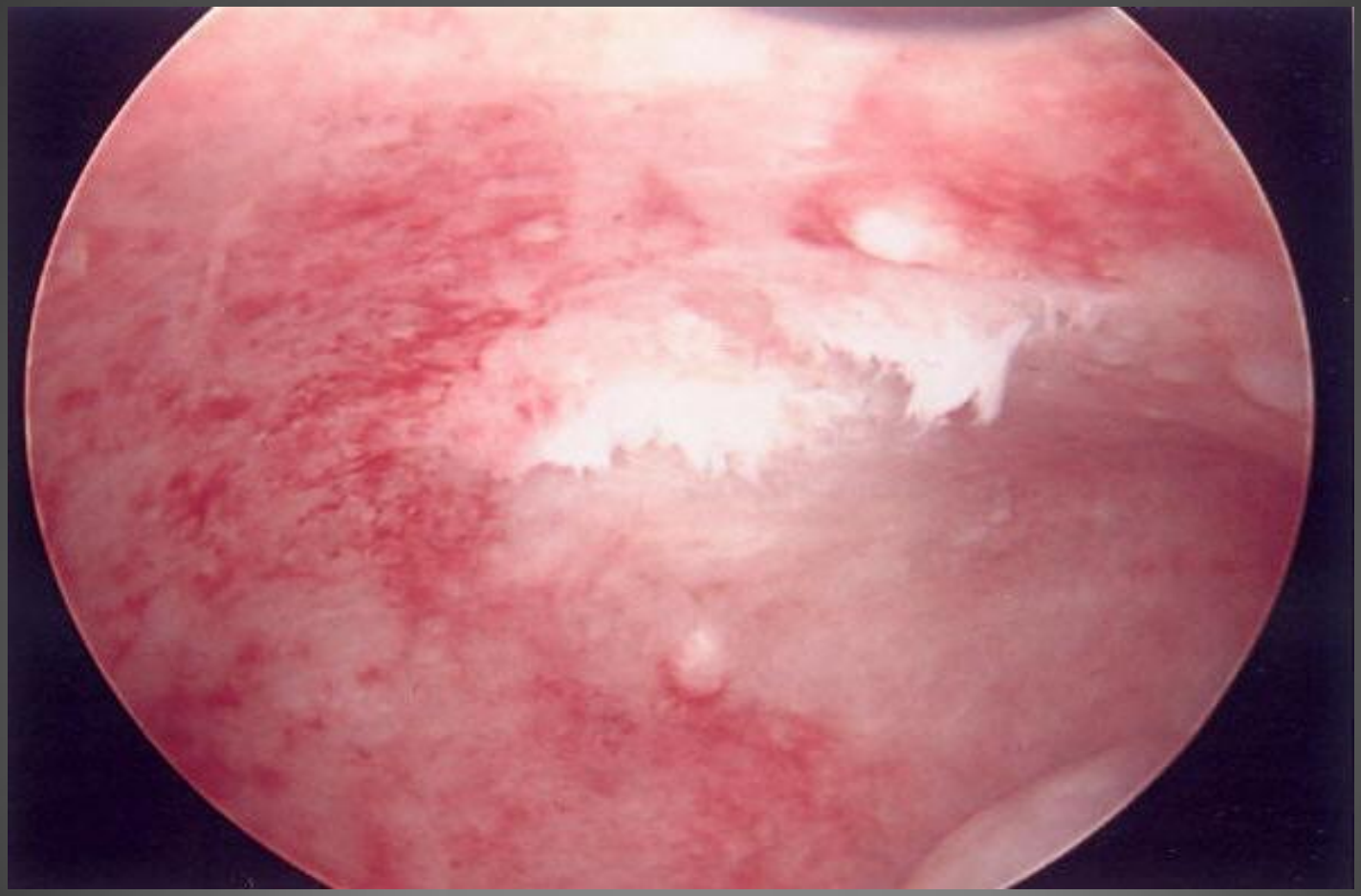
# Large polyp



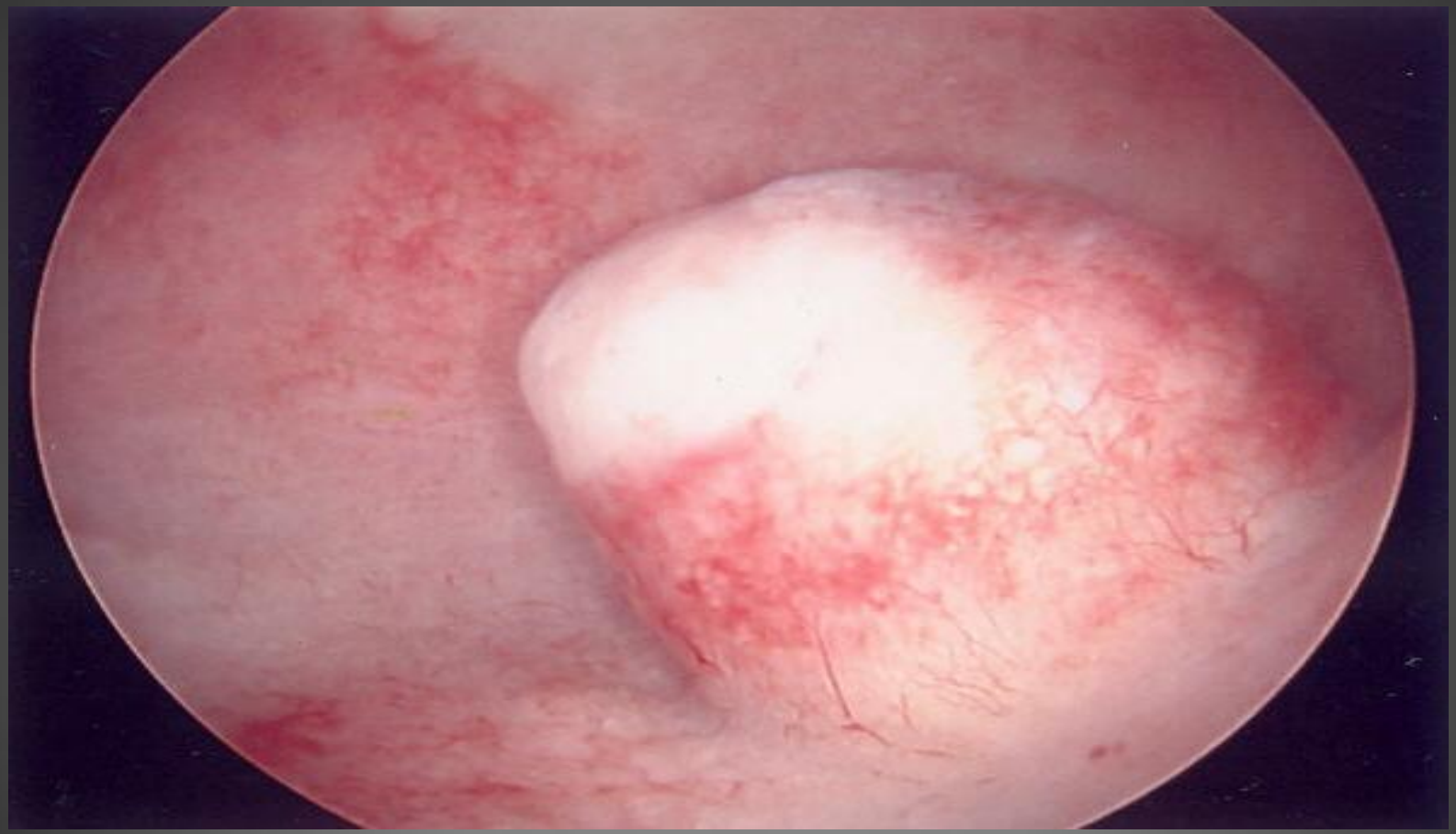
# Polyp is being removed



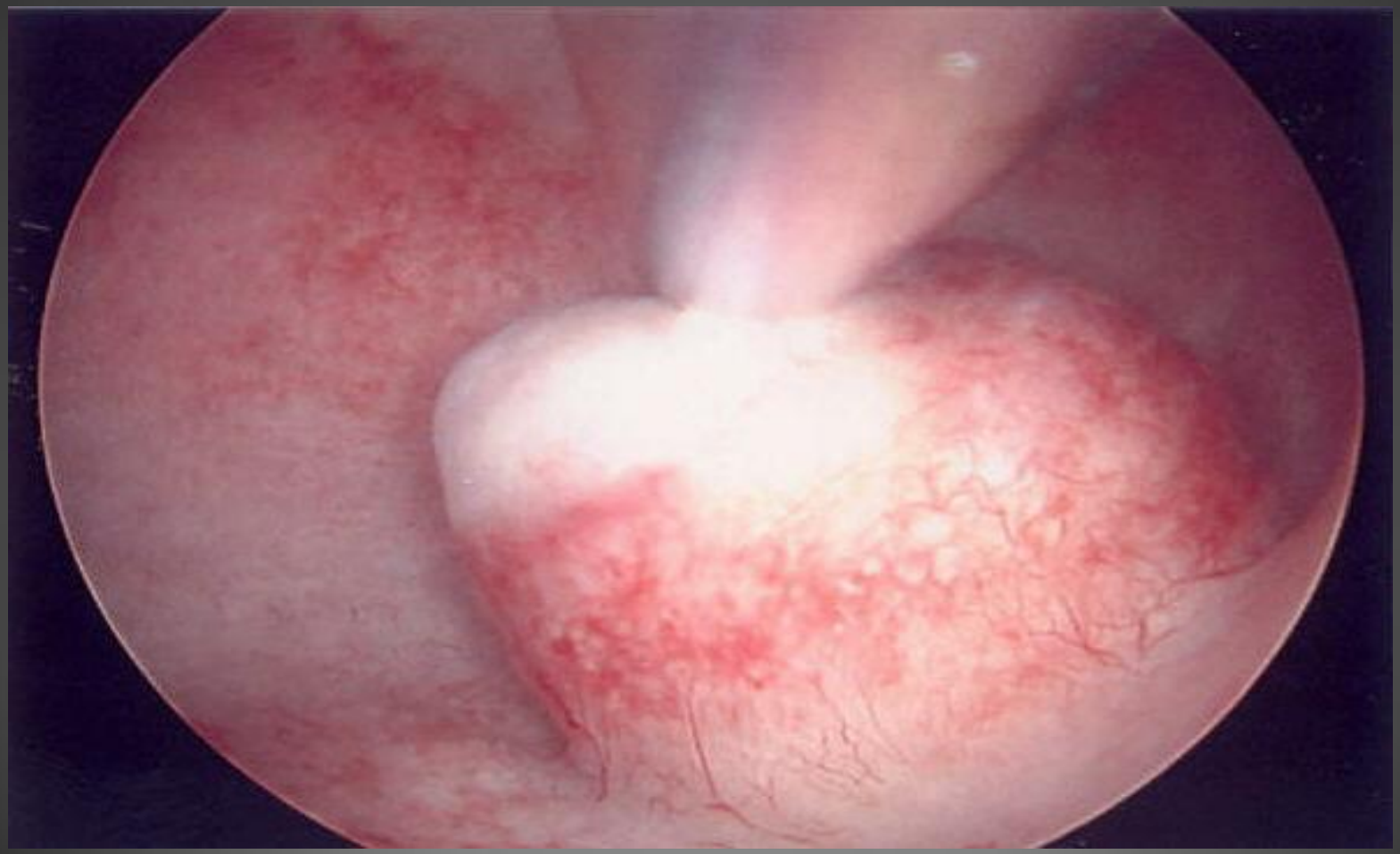
# Polyp is totally removed



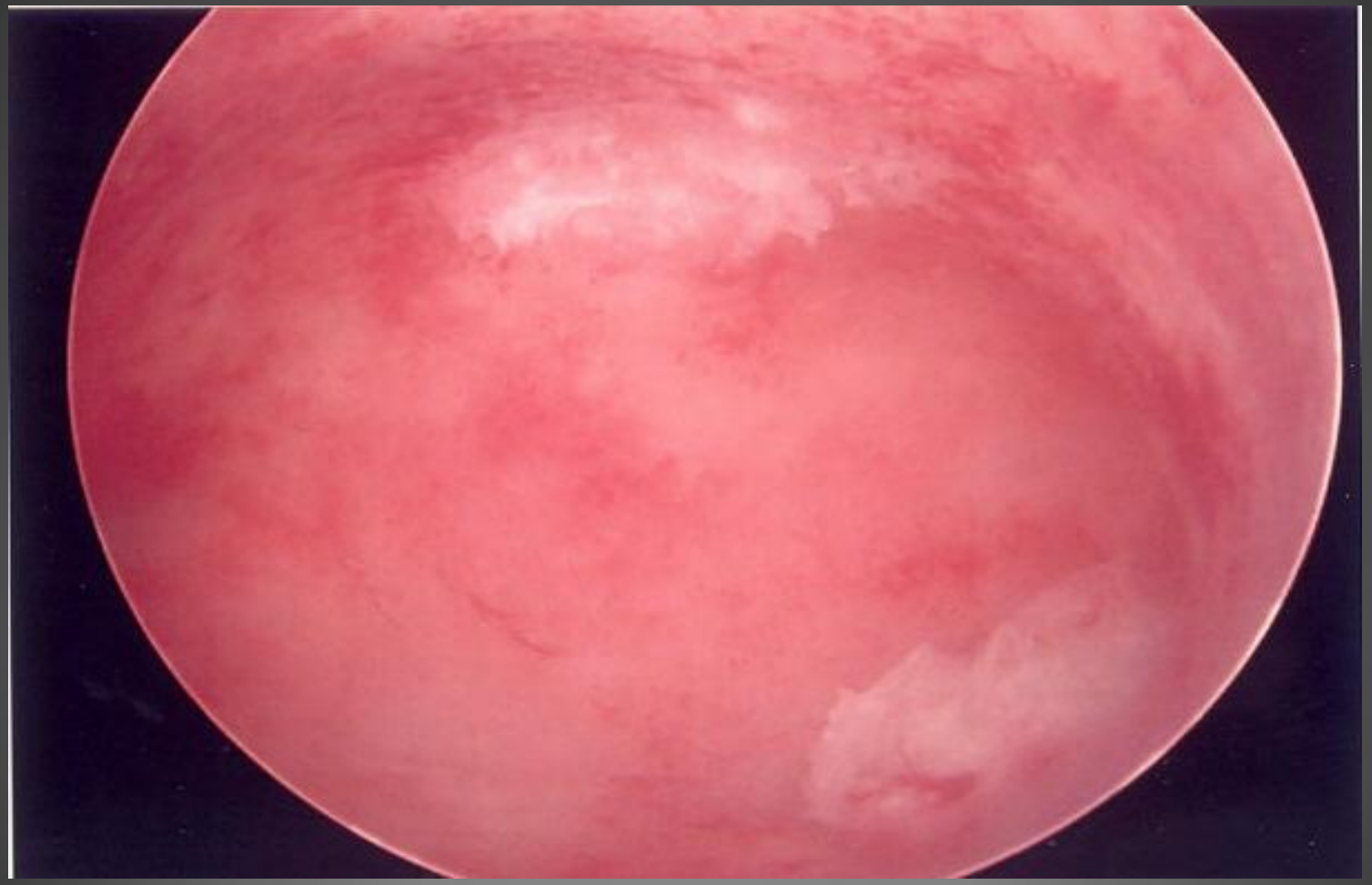
# Submucus leiomyoma



# Leiomyoma is being removed

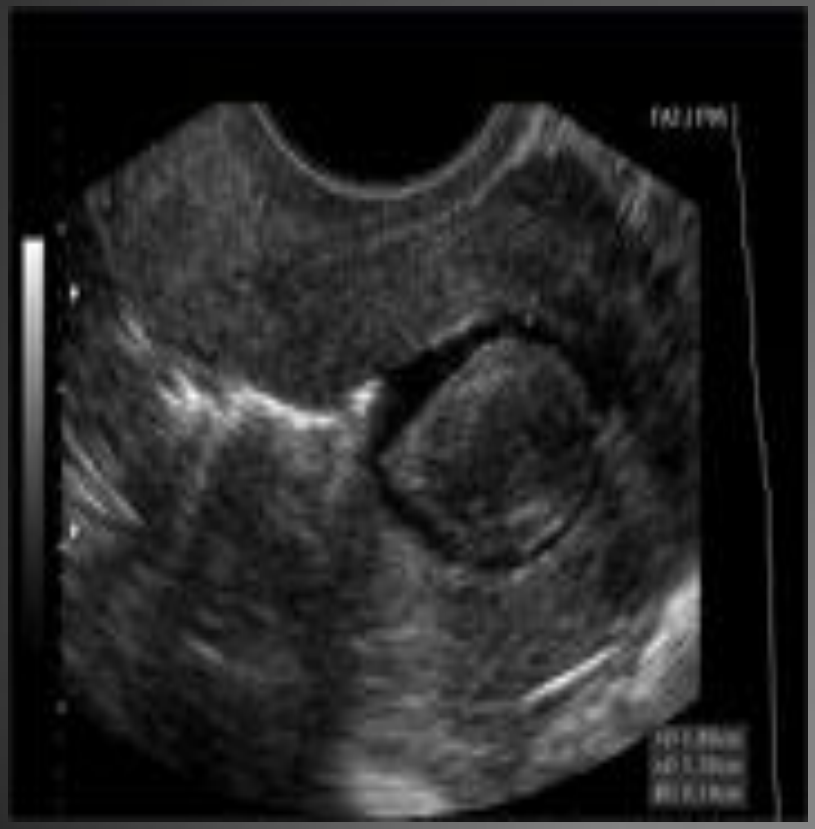


# Final result

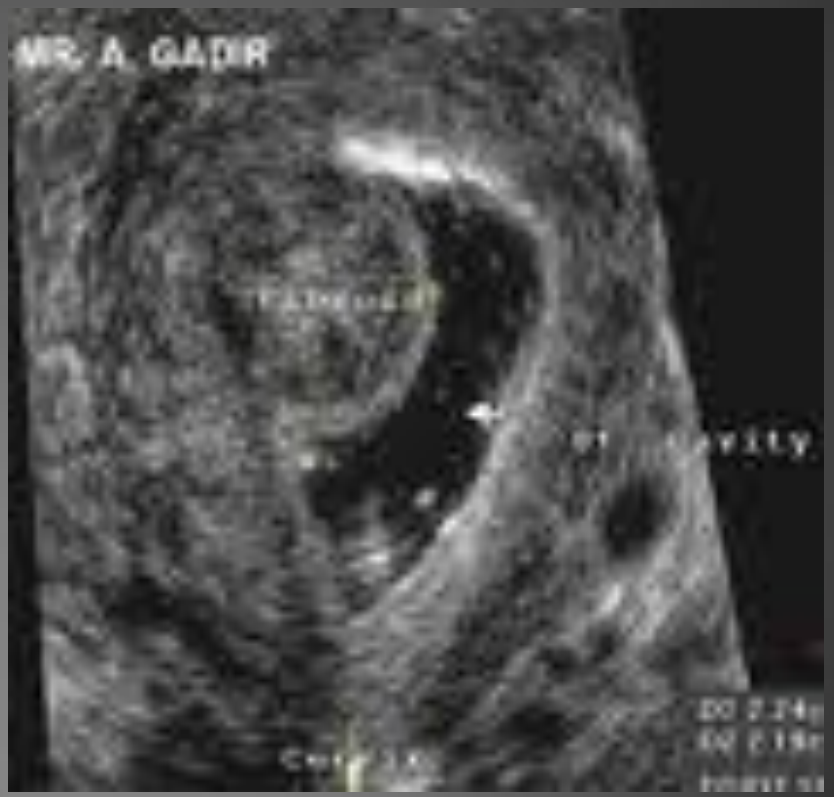


# Submucus Leiomyomas

**Type I**

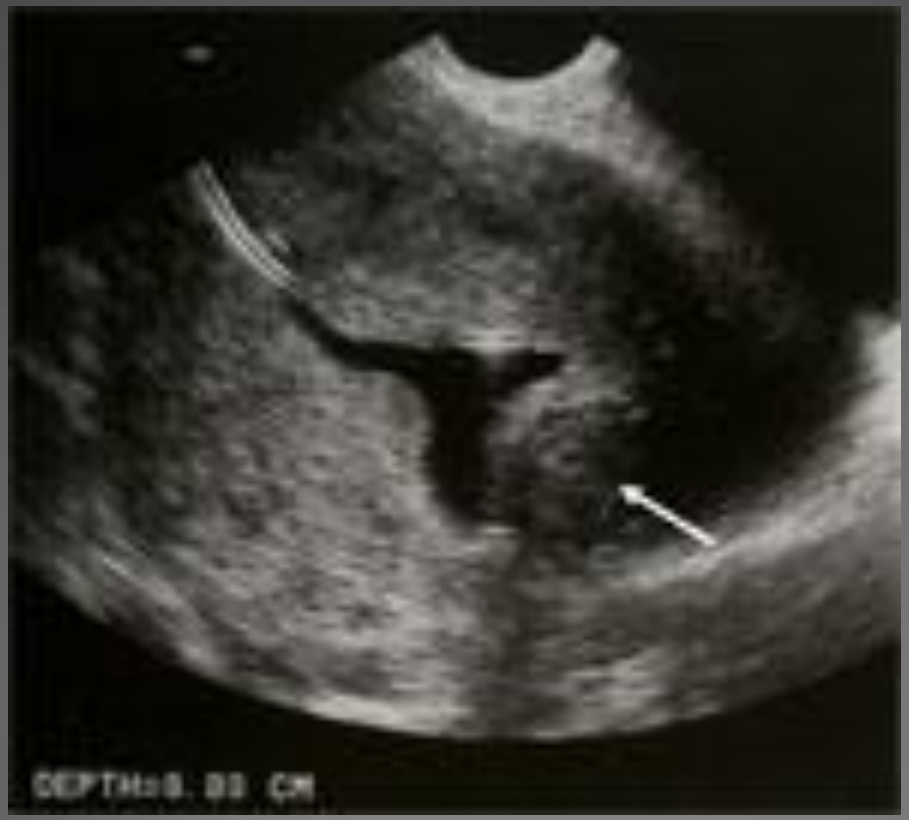


**Type II**

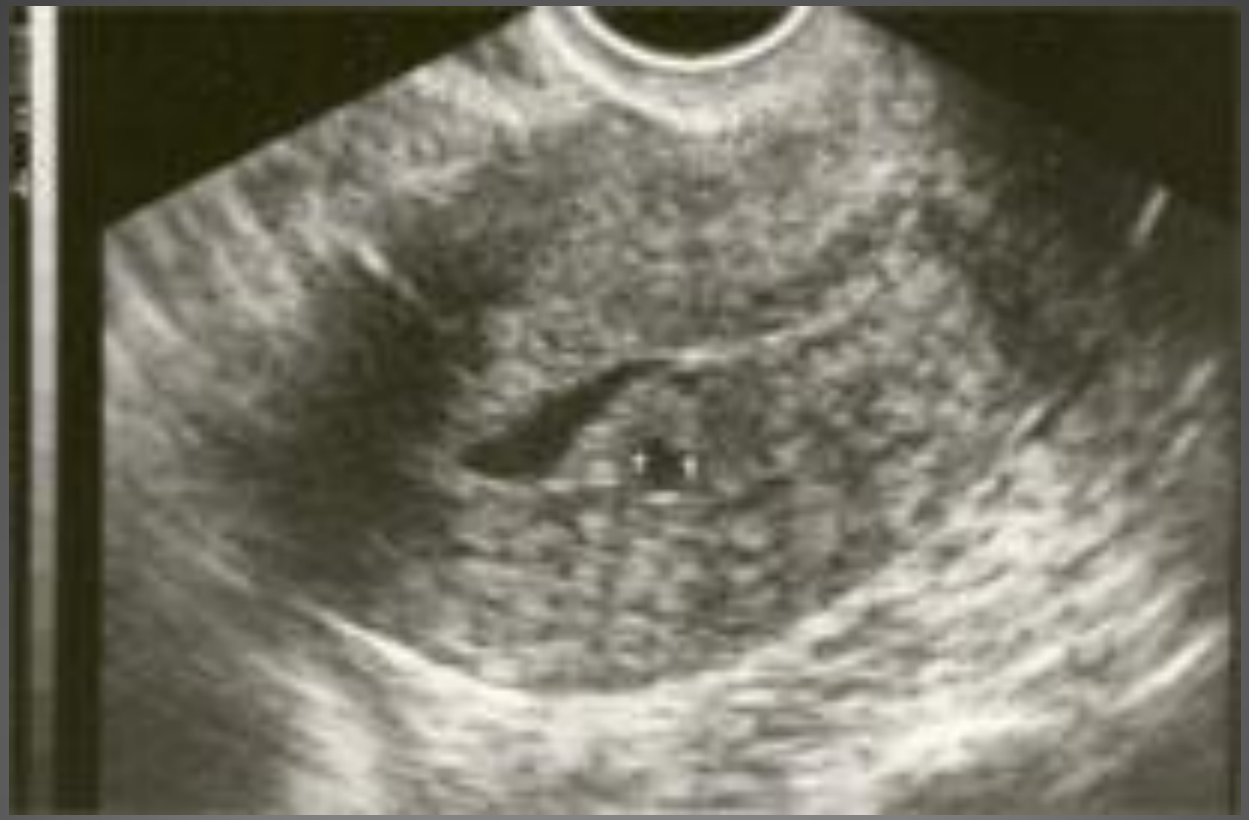


# Submucus Leiomyomas

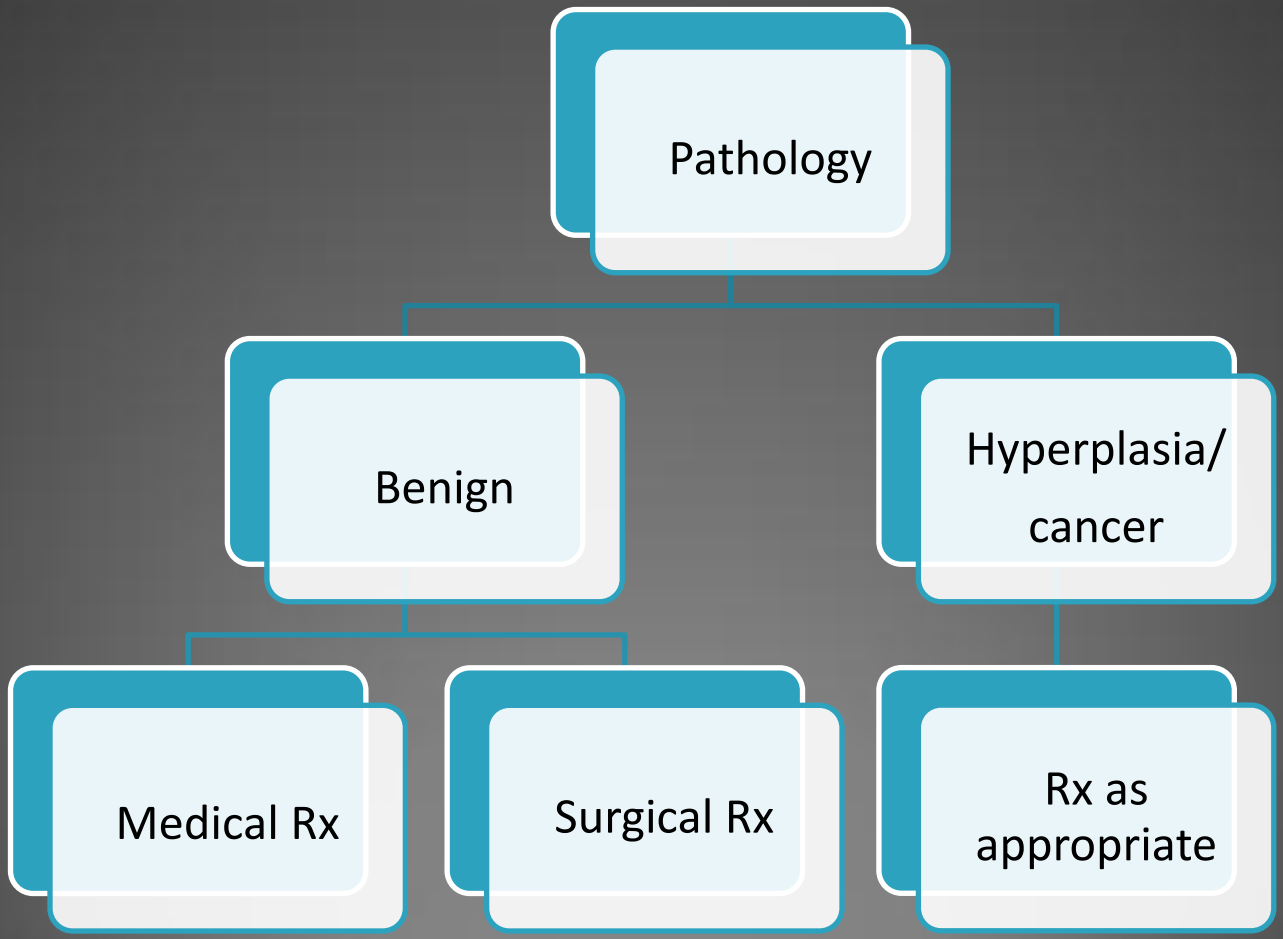
Type III



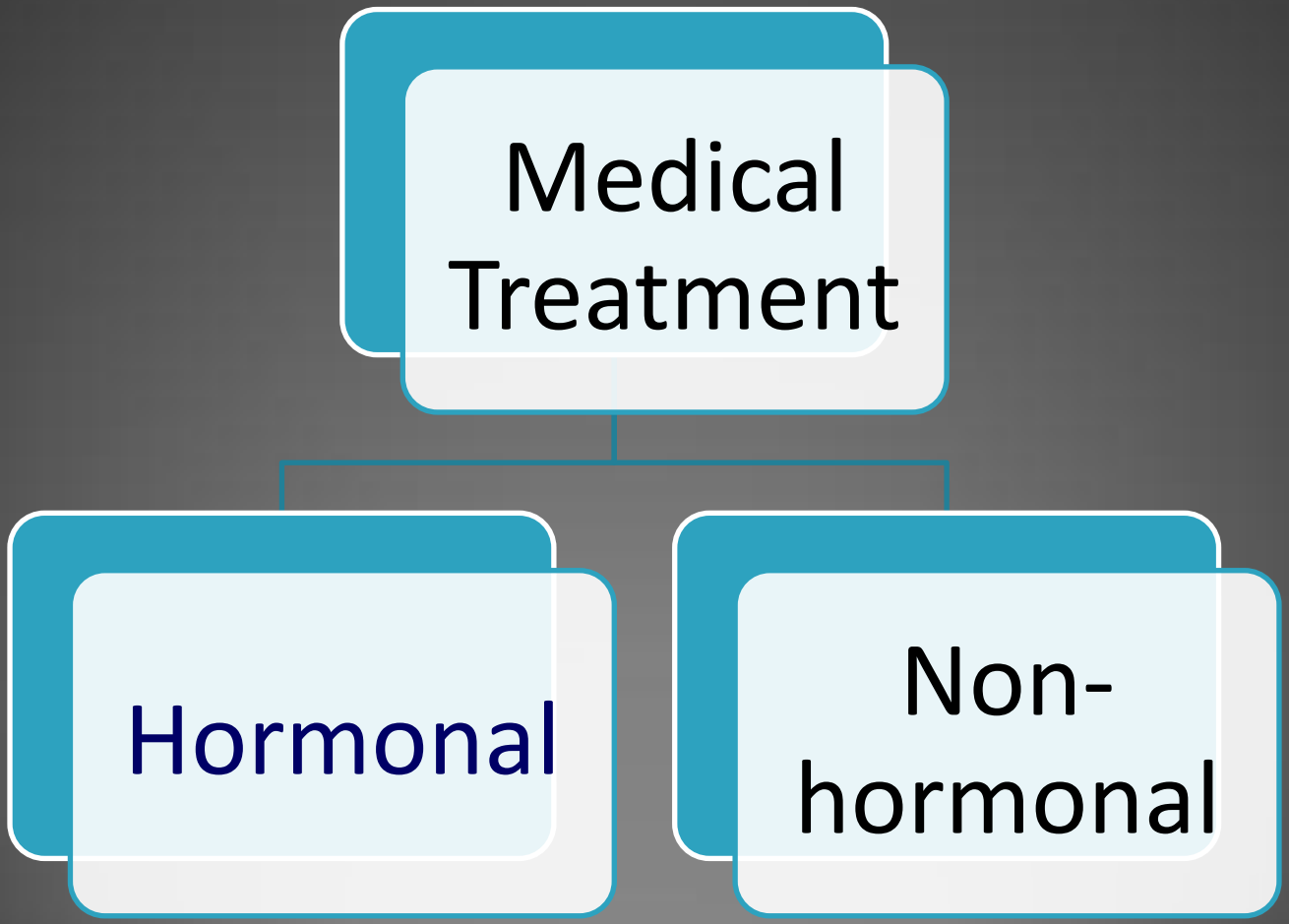
# Tamoxifen Effects
# Sub-endometrial Cyst



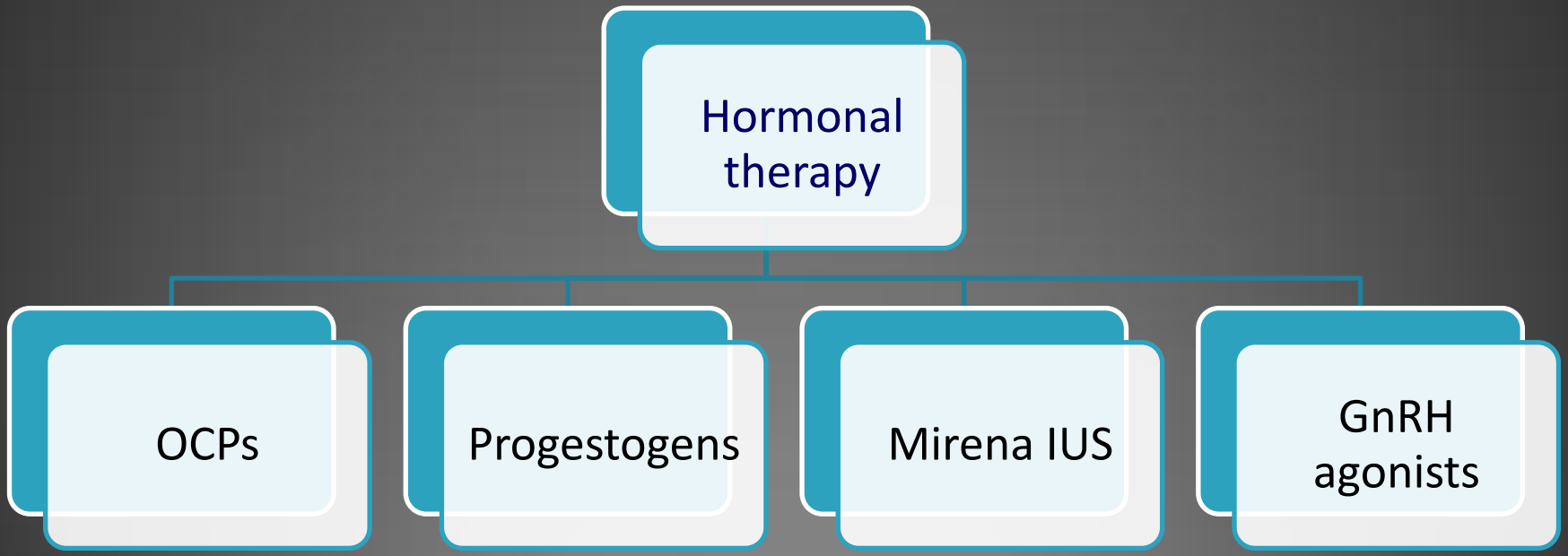
# Imaging/Pathology Diagnostic Algorithm-3



# Treatment-1



# Treatment-2


Hormonal therapy
OCPs
Progestogens
Mirena IUS
GnRH agonists

# Oral contraceptives

- Effective only 50-60% of the time.
- Must be continued in order to remain effective
- Undesirable side effects, including headaches, weight gain, and nausea
- Increased risk of VTE
- Contraindicated in smokers after 35

# Progestogens

- Progestogens (Norethisterone or Medroxyprogesterone Acetate) given in the luteal phase (Day 12-26), are not effective in reducing regular heavy menstrual bleeding
- Long course of high dose Norethisterone (Day 5-25) is effective.
- Disadvantages: Fatigue, mood alteration, weight gain, lipid abnormalities, increased risk of VTE

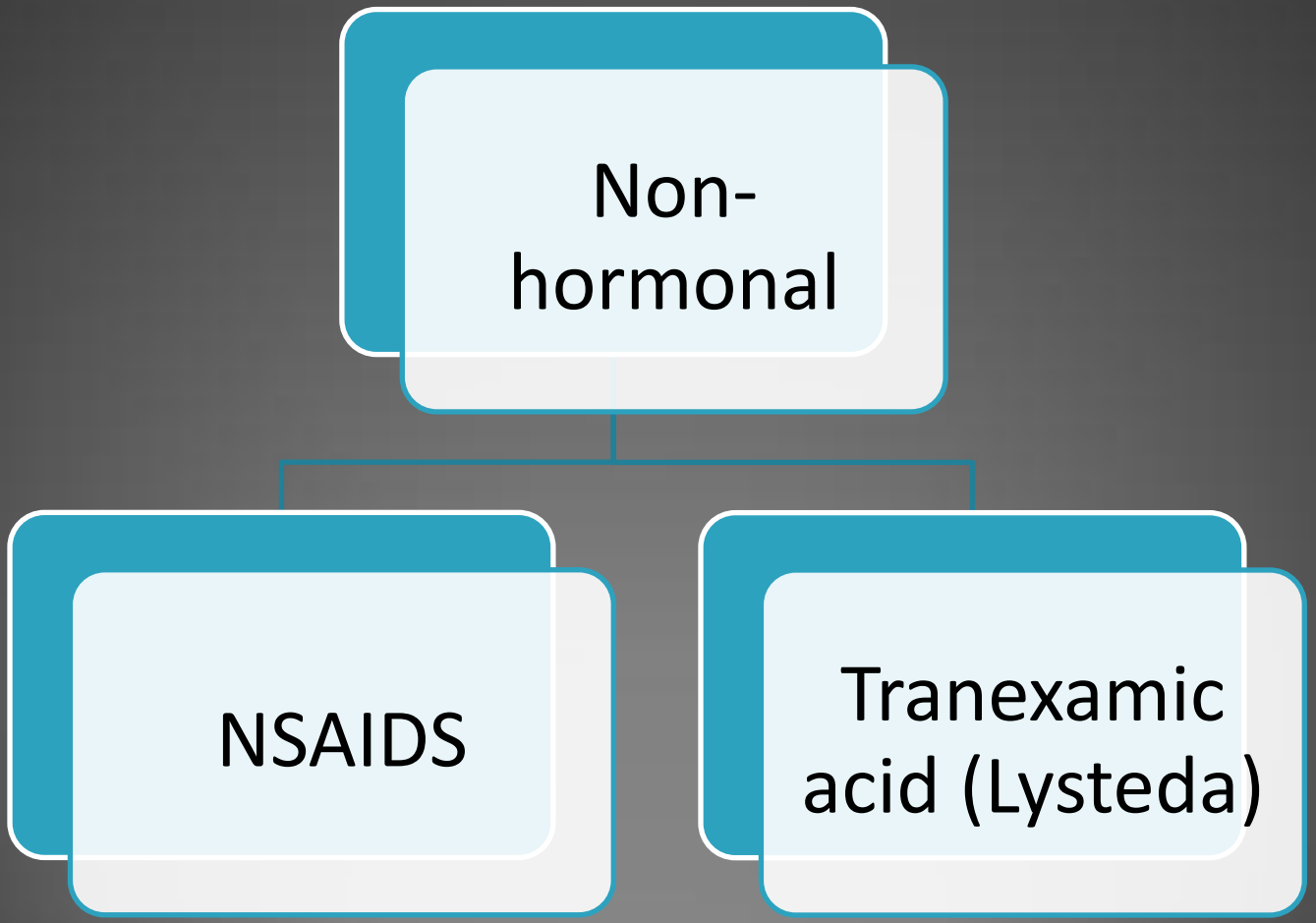
# GnRH Agonists

- Gonadotrophin releasing hormone analogues are effective in reducing heavy menstrual blood loss but side effects and cost limit their long-term use.
- They may be of benefit for rapid reversal of severe anemia in preparation for surgery.

# Mirena Intrauterine System

- Reduces the bleeding in about 90% of patients
- Side effects: infection, perforation, pain
- Good overall patient satisfaction

# Treatment-3



# Tranexamic Acid (Lysteda)

# Tranexamic Acid (Lysteda)

**LYSTEDA: Antifibrinolytic activity in the endometrium**

- Helps stabilize and preserve the fibrin matrix to reduce menstrual bleeding by moderating plasmin activity

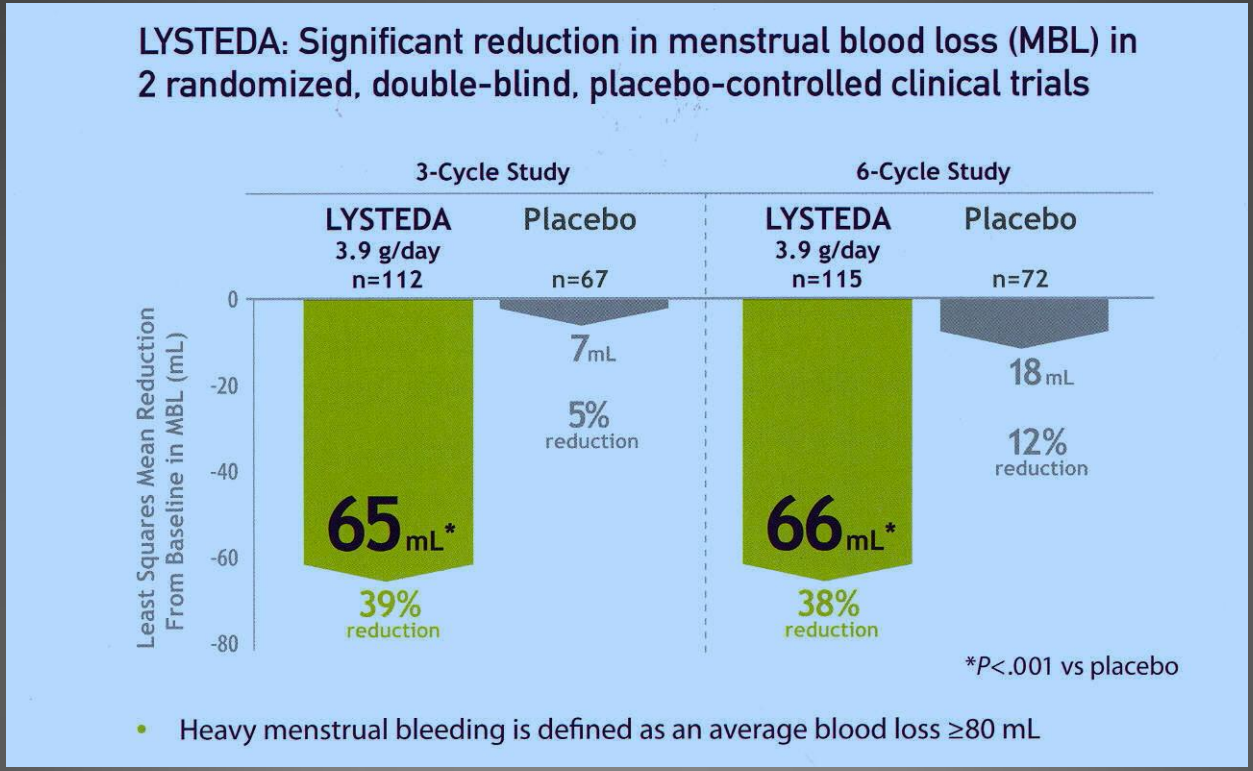
**LYSTEDA: A therapy she takes only during her menstrual phase**

- Recommended dose is two 650-mg tablets taken 3 times a day
- Maximum 5-day course of therapy each month

**LYSTEDA: Discontinuation rates comparable to placebo**

- 0.8% of patients taking LYSTEDA discontinued due to adverse events in a 3-cycle study, compared with 1.4% in the placebo group
- 2.4% of patients taking LYSTEDA discontinued due to adverse events in a 6-cycle study, compared with 4.1% in the placebo group

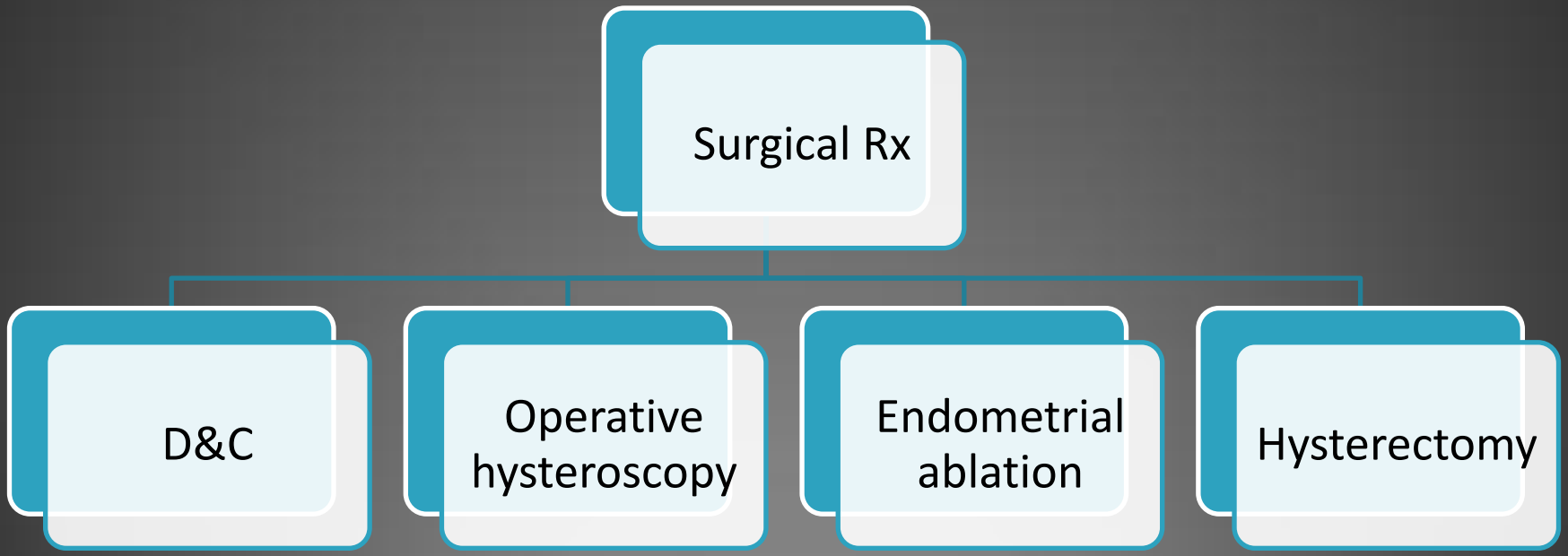
# Tranexamic Acid (Lysteda)



# NSAIDS

- **NSAIDs reduce menorrhagia when compared with placebo but are less effective than either Tranexamic acid or Danazol.**
- **Mefenamic acid (Ponstel) is the most commonly studied→20-30% reduction in blood loss.**
- **Other NSAIDS are as effective.**

# Treatment-4


Surgical Rx
D&C
Operative hysteroscopy
Endometrial ablation
Hysterectomy

# Surgical Treatment

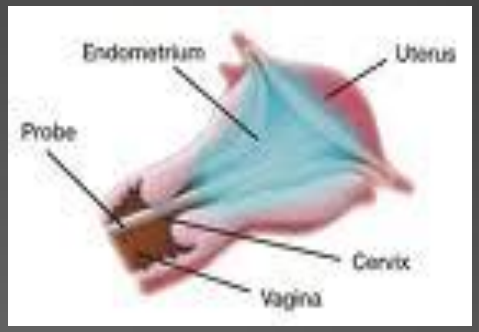
- **Dilation and curettage (D and C)**
  - D&C is not effective for therapy in women with heavy menstrual bleeding.
  - It ‘s value is only diagnostic when endometrial biopsy is deemed to be inadequate (Polyp, asymmetric thickness)
- **Operative hysteroscopy:**
  - **Removal of polyps**
  - **Resection of submucus leiomyomas**
- **Endometrial ablation**
- **Hysterectomy**

# Endometrial Ablation

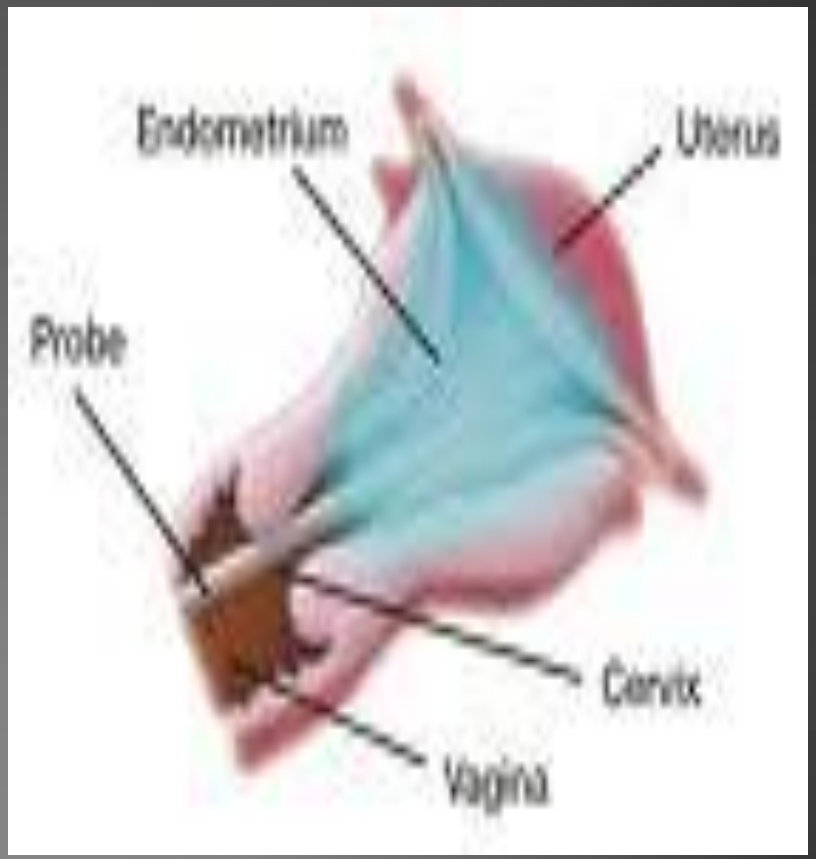
- Destruction of the endometrium to a sufficient depth to prevent regeneration and  to increase adhesion between anterior and posterior endometrium to decrease menstrual flow sufficient to avoid Hysterectomy.
- Can be achieved using different techniques.
- Women  are more likely to be satisfied with endometrial ablation than oral medical therapy.
- There is a similar satisfaction rate and efficacy with endometrial ablation and the Mirena  intrauterine system.

# Methods of  Endometrial Ablation

- Cryotherapy
- Novasure
- Thermal Balloon Ablation
- Circulating hot water




# Her Option Cryoablation

# GYNECARE THERMACHOICE
# Uterine Balloon Therapy System

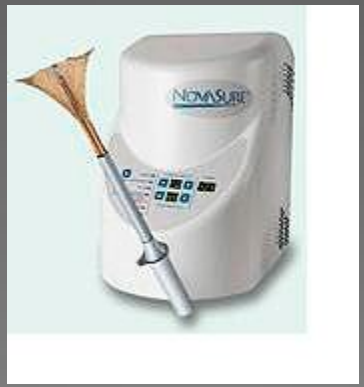
## *How it works:*

- Catheter with heater at tip enclosed in a balloon
- Balloon catheter inserted through cervix into uterus

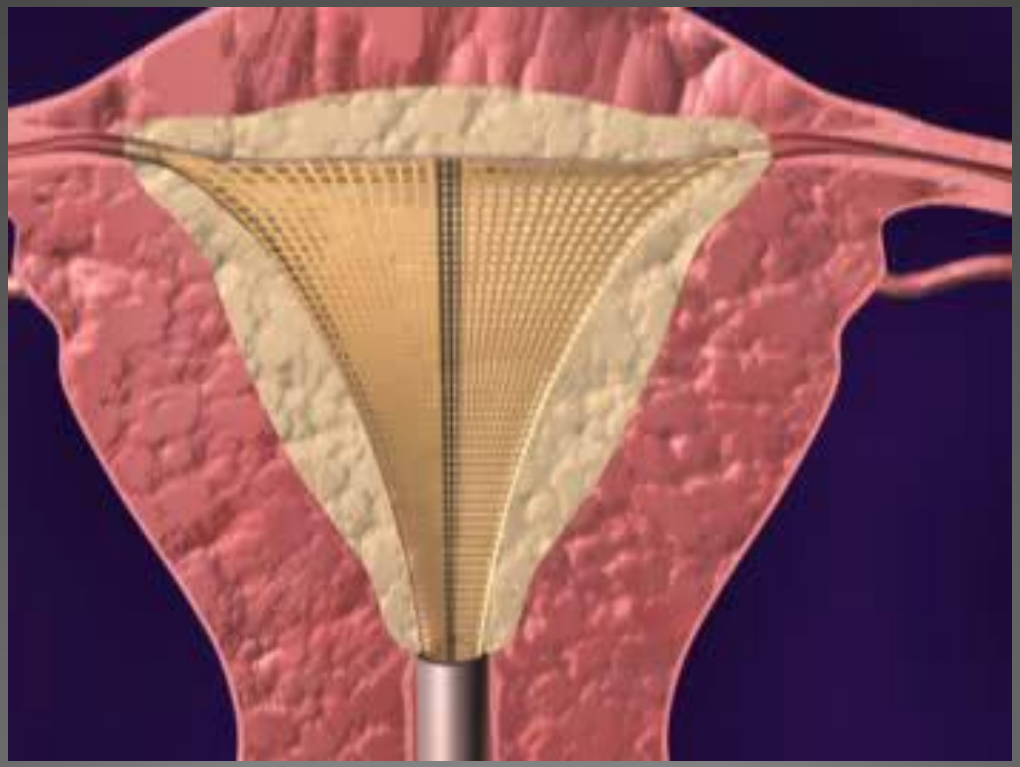
- Balloon filled with sterile fluid
- Expands to fit uterus size, shape
- Fluid in balloon is heated and circulated during 8 minute treatment cycle

- Uterine lining is destroyed by heat
- Fluid and catheter removed; nothing stays in uterus
- Uterine lining will slough off like a period in the next 7-10 days

# Novasure Radiofrequency Ablation



# Novasure Radiofrequency Ablation



**Electrical energy is delivered through the mesh for approximately 90 seconds.**

# Endometrial Ablation

## Efficacy

- Amenorrhea rate 15-55%
- Overall success rate 80-87%
- Patients are satisfied in 86-99%

# Endometrial Ablation

**TABLE 3. Comparative Amenorrhea/Success Rates for Endometrial Ablation**

| | Balloon | Cryotherapy | Bipolar Radiofrequency | Microwave | Hydrothermal Ablation | Rollerball |
|---|---|---|---|---|---|---|
| Postprocedure Interval | 3 y | 1 y | 3 y | 1 y | 3 y | 3 y |
| Amenorrhea | 15% | 22% | 44% | 61% | 53% | 51% |
| Satisfactory Reduction in Bleeding | 53% | 45% | 43% | 35% | 41% | 42% |
| Success | 68% | 67% | 87% | 96% | 94% | 93% |

# Endometrial Ablation

## Contraindications

## Absolute

- Complex hyperplasia/cancer
- Desiring future childbearing
- Acute PID

# Endometrial Ablation

## Contraindications

## Relative

- Simple hyperplasia
- Dysmenorrhea or chronic pelvic pain
- Multiple uterine fibroids
- Uterus > 12-14 weeks size
- Uterine prolapse

# Endometrial Ablation

## Complications

- Hematometria
- Cornual hydrosalpinx
- Adenomyosis
- Intrauterine scarring
- Retrograde menstruation → endometriosis
- Cyclical pelvic pain

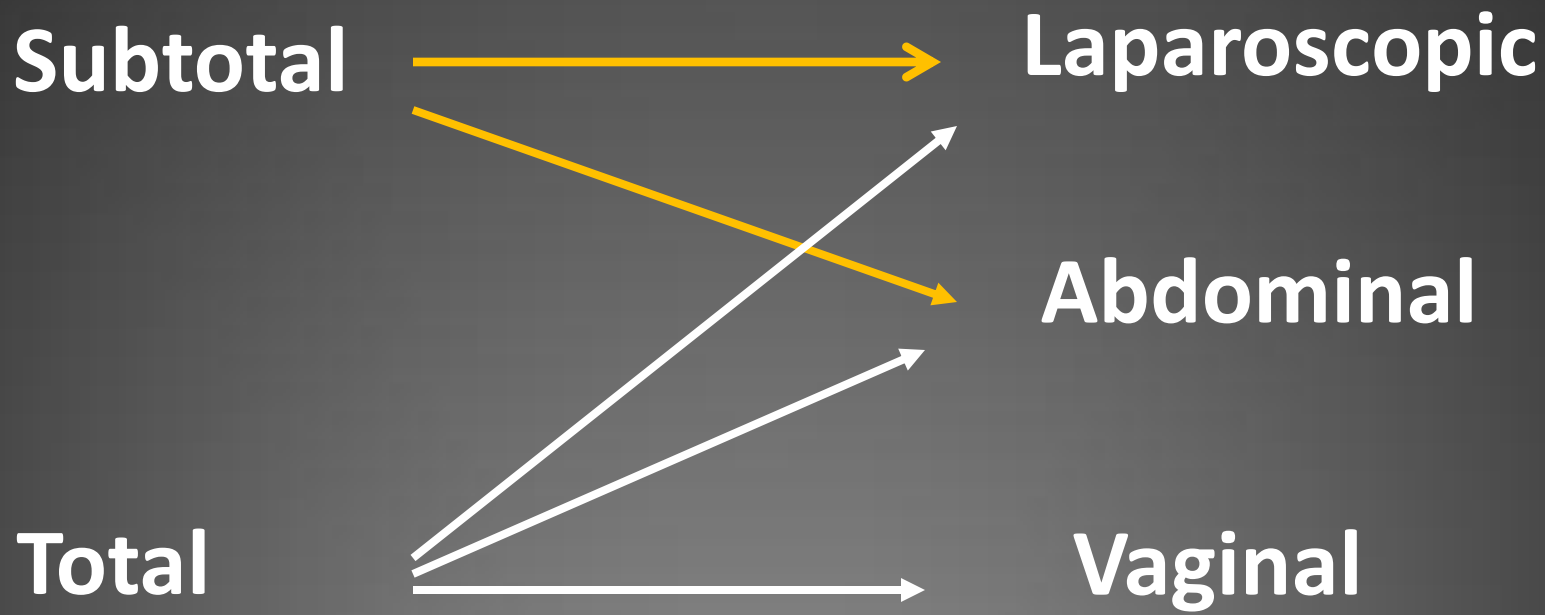
# Endometrial Ablation

## Pregnancy after ablation

- Reliable contraception is important
- Pregnancy happens in 0.7-3.2%
- When pregnancy occurred:
  - Spontaneous abortion 20%
  - Prematurity 42%
  - Cesarean section 71%
  - Placental complications 26%
  - Live children 77%

# Surgical Management

## Hysterectomy



# Summary

- Heavy Menstrual Bleeding is a common problem in reproductive age women
- Work up should exclude anatomical causes and endometrial hyperplasia/cancer
- Medical therapy (including IUS) should be first line.
- Endometrial ablation for women who refuse, fail or have a contraindication to medical therapy
- Minimally invasive surgical therapy for patients with anatomical causes
- Hysterectomy should be the last resort