Benign Gynecology Notes

1. Abnormal Uterine Bleeding (AUB)

2. Dysmenorrhea

3. Endometriosis

4. Adenomyosis

5. Fibroids (Leiomyomas)

6. Uterine Anomalies

Benign Gynecology
Abnormal Uterine Bleeding

Personal Notes

ABNORMAL UTERINE BLEEDING

- Abnormal uterine bleeding (any disturbance in an amount, regularity, length or frequency of menstrual flow)
- It can be chronic or acute
- Chronic: AUB in most cycles of the last 6 months
- Acute: single episode that necessitates taking immediate or emergency medical treatment. High dose Conjugated equine estrogen can arrest bleeding.
- Dysfunctional uterine bleeding
- HMB: heavy menstrual bleeding (menorrhagia)
  - Frequent cycle - polymenorrhea
  - Delayed cycle - oligomenorrhea
  - Decreased flow - hypomenorrhea
  - More than 80 ml blood loss
- Amenorrhea: no menses
- Intermenstrual bleeding

Heavy menstrual bleeding:

- perceived by patient
- abnormal duration more than 8 days
- Normal duration 2-8 days.

Frequency:

- 24-38 days is normal
- If it is happening at an interval < 24 days : frequent cycle and > 38 days: infrequent cycle.

Regularity:

- Difference between the longest and the shortest cycle is < 7-9 days.

CLASSIFICATION OF ABNORMAL UTERINE BLEEDING

Structural problems:

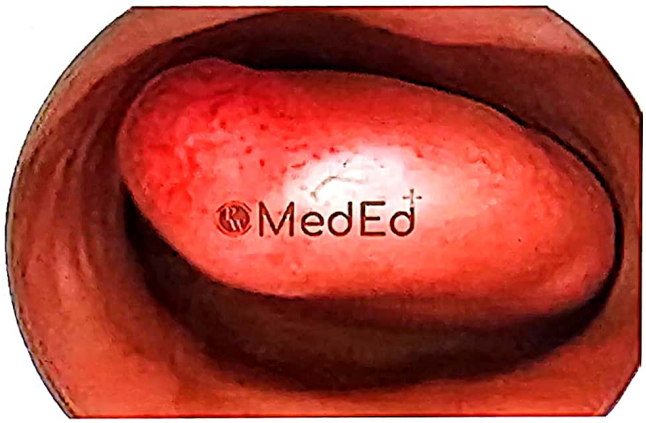
- P: polyp
- A: adenomyosis
- L: leiomyoma
- M: malignancy + premalignant lesion

FUNCTIONAL PROBLEMS

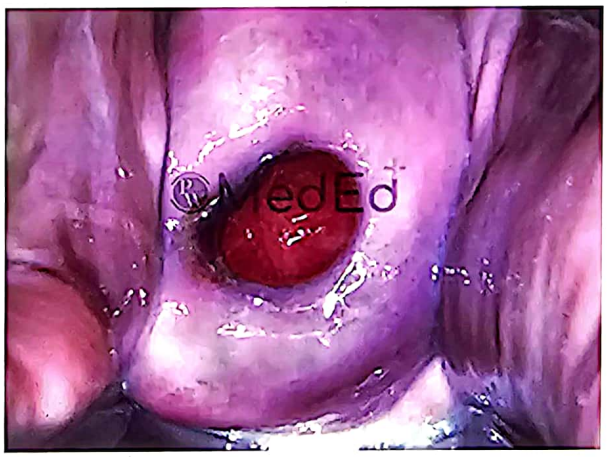
- C: coagulation
- O: ovulatory
- E: endometrial causes
- I: iatrogenic causes
- N: not otherwise classified

Personal Notes

UTERINE POLYP



Endometrial polyp



Cervical polyp

Clinical presentation:

- Heavy menstrual bleeding
- Intermenstrual bleeding
- Bloody discharge
- Cervical polyp: post coital bleeding

Treatment:

- Polypectomy
  - Cervical - polypectomy forceps
  - Endometrial - hysteroscopy polypectomy

ADENOMYOSIS

Personal Notes

- Presence of endometrial glands in the myometrium
- Estrogen dependent disease

Clinical presentation:

- Heavy menstrual bleeding
- Dysmenorrhoea
- Dyspareunia
- Infertility

Examination:

- Uterus will be diffusely enlarged but never more than 12 to 14 weeks.
- Tender uterus (Halban sign)

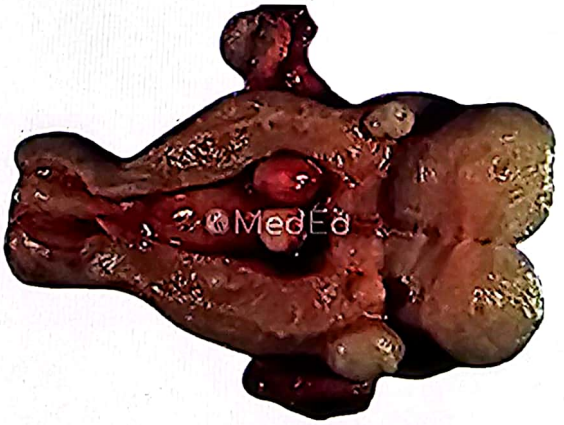
Management of heavy menstrual bleeding:

Progesterone dependent management:

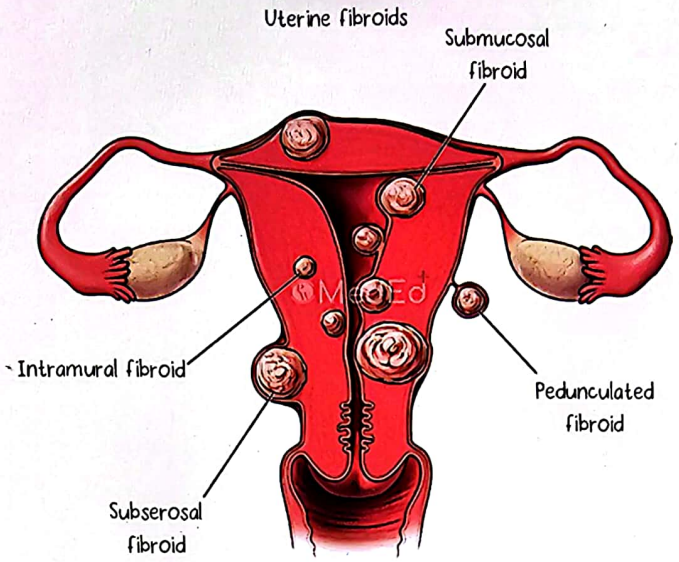
- Oral
- LNG - IUD

If the family is complete then hysterectomy can be performed.

LEIOMYOMA



- Known as fibroid
- Most common benign tumor of uterine smooth muscles
- Three types of fibroids:
  - Submucosal
  - Intramural
  - Subserosa



- Submucosal fibroid causes heavy menstrual bleeding

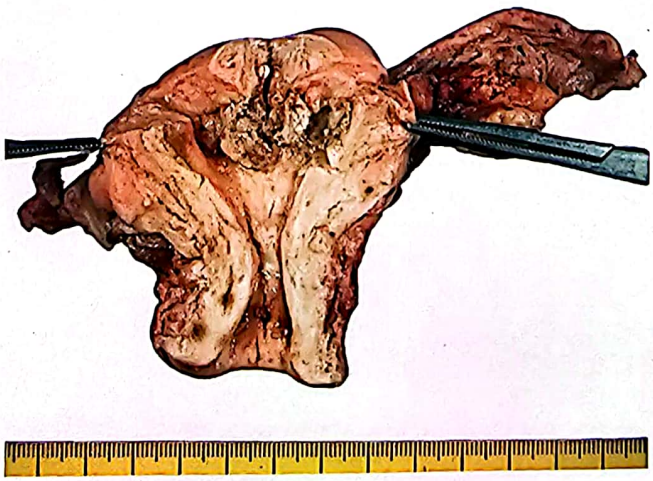
Clinical presentation:

- Feeling of mass per abdomen
- Infertility
- Recurrent pregnancy loss
- Heavy menstrual bleeding
- Per abdomen: uterus may be palpable
- Per vaginal: uterus is nontender irregularly enlarge

Management:

- Surgery
- Myomectomy
- If the family is complete we can do hysterectomy

MALIGNANCY AND HYPERPLASIA



Endometrial cancer

Personal Notes

- Endometrial cancer
- Endometrial hyperplasia
- Cervical cancer
- Cervical intraepithelial neoplasia

Personal Notes

COAGULOPATHY

- Most common: von Willebrand disease
- It can present with puberty menorrhagia
- Drugs that cause coagulation defects there are not AUB-C, they are included in AUB-I.
- Management: Replacement of factor

ANOVULATORY CAUSES

- Anovulatory cycles
- Infrequent cycles
- Heavy menstrual bleeding
- PCOS
- Management: OCPs pills

ENDOMETRIAL CAUSES

- Endometritis
- Management: Treatment of infection

LATROGENIC CAUSES

- Drugs: heparin, warfarin , rivaroxaban, etc.

NOT OTHERWISE CLASSIFIED

- Rare causes like arteriovenous malformations

GENERAL ASSESSMENT

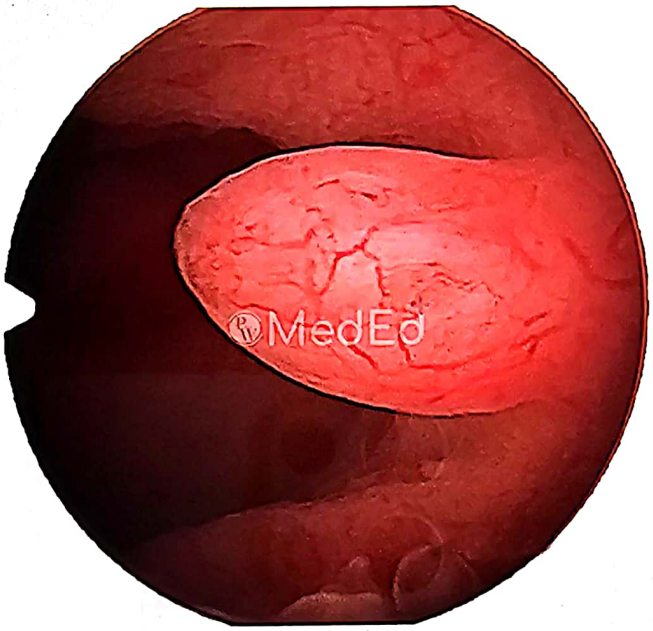
- History (AUB-O: drug history, acne, hirsutism, any other virulence factor, galactorrhea, AUB-E history of PID, TB)
- Rule out pregnancy
- Examination
- CBC (anemia)
- Platelets (OTPThrombocytopenia)
- WBC (leukemia)
- LFT (liver problem) because liver synthesized clotting factor
- PT/INR/APTT
- VWB factor if there is history of puberty menorrhagia
- All of this there is a history of easy bruisability
- Bleeding gums during brushing

STRUCTURAL CAUSES

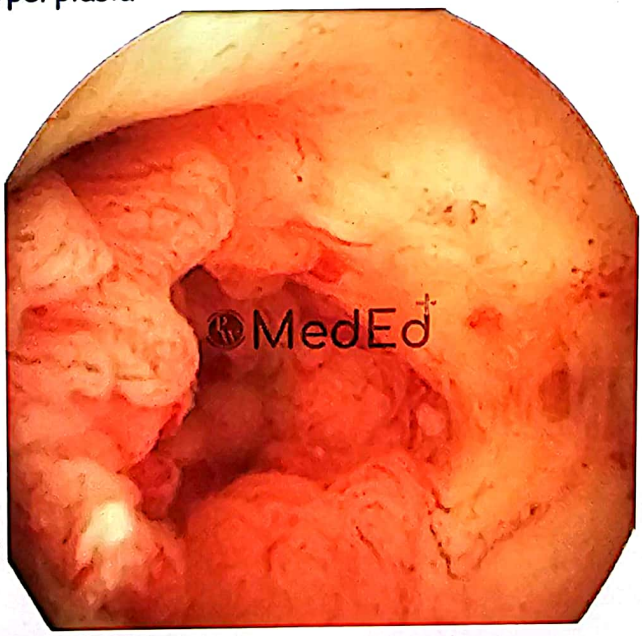
- PALM:
- Imaging: 1st line imaging transvaginaly Sonography (TVS)

HYSTEROSCOPY

Polyp:



Endometrial hyperplasia:



Uterine submucosal fibroid:

- MRI:
  - No need for screening or diagnosis
  - Mainly for surgical preparation

Personal Notes

EDOMETRIAL SAMPLING (DONE AT PREMENSTRUAL PHASE)

Personal Note:

- AUB - M: diagnosis of endometrial hyperplasia
- AUB - L: diagnosis of endometritis
- AUB - O: endometrial aspirate if it shows proliferative changes then it's anovulatory cycle.

Indications of endometrial sampling:

- Any postmenopausal bleeding
- Women age > 40 year with AUB
- Pre hysterosalpingography

MANAGEMENT OF AUB

For PALM: Medical management first line if it fails then surgical management.

- Drugs:
  - NSAIDs + tranexamic acid
  - OCPs (COCS)
  - Progesterone (atrophy of endometrium)
  - SSRM (mifepristone ulipristal)
  - GnRH analogues
  - LNG IUD
- Surgical management:
  - P - Polypectomy
  - A - LNG - IUD or surgery
  - L - Surgery
  - M - Surgery
- For COEIN:
  - C - Medical management + factor replacement
  - O - OCPs
  - E - Antibiotics
  - I - remove causative agent
  - N - Uterine artery embolization

Endometriosis

ENDOMETRIOSIS

Personal Notes

It is the presence of endometrial tissues in areas other than the endometrium.

- Recurrent disease
- Disease of reproductive age group
- Estrogen dependent disease
- Endometrial glands and stroma present in peritoneal cavity, ovary, bladder, rectum.
- Endometrial glands present in myometrium is called adenomyosis.

Theories:

- Sampson's theory of retrograde menstruation: at the time of menses instead of flowing out the endometrium is flowing backwards into the uterus through the tube and into the peritoneal cavity.
- Theory of coelomic metaplasia: whenever retrograde menstruation occurs, blood irritates the peritoneal surfaces and this leads to metaplasia.
- De novo generation from totipotent cells

Risk factors for endometriosis:

- Early age at menarche
- Frequent Cycles
- Nullipara

Protective factors:

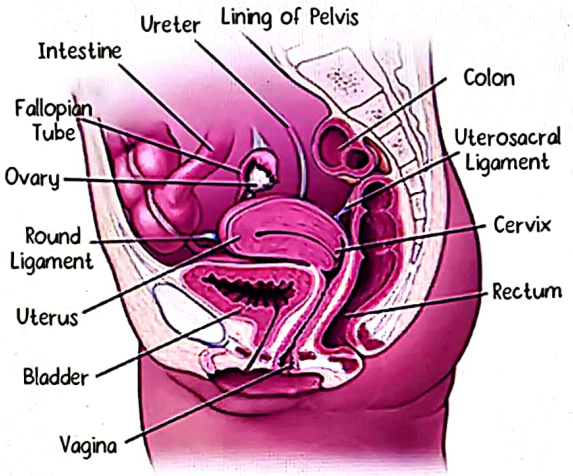
- Multiparity
- Use of OCPs (decidualization of the stroma of the endometrium)

Theory of direct implantation:

- Iatrogenically transferred some endometrial tissue from one place to another place.
- Cyclical pain in the lump (on cesarean scar)

Treatment of scar endometriosis is wide local excision.

Possible Sites of Endometriosis

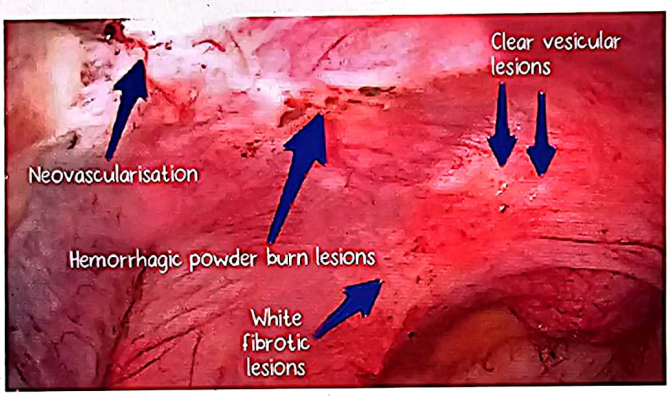


- Most common site of endometriosis is ovary followed by POD and uterosacral ligaments

Clinical features:

- Dysmenorrhoea (most common-bleeding within the peritoneal cavity can cause irritation of the peritoneum and pain)
- Fibrosis occurs due to irritation of the peritoneum and kinking of the fallopian tube this will cause infertility.
- Dyspareunia (painful intercourse due to present of endometriotic lesions in the uterosacral ligaments)
- Heavy menses
- Chronic pelvic pain
- Dysuria (in bladder endometriosis)
- Hematochezia (in rectal endometriosis)

Powder burn lesions



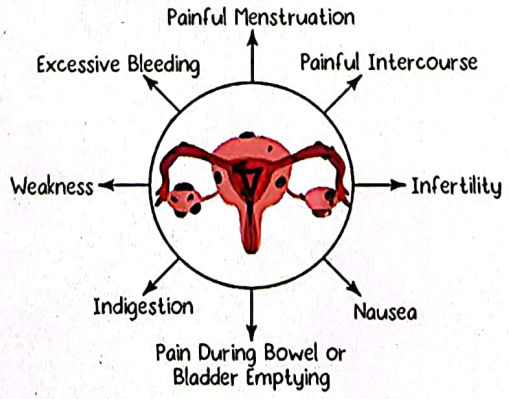
- Ovary has cystic form endometrium, at menses they can bleed and turn into chocolate brown color, called chocolate cyst. This can also cause pain.

Diagnosis of endometriosis:

- Clinical
- Laboratory
- Imaging
- Surgical

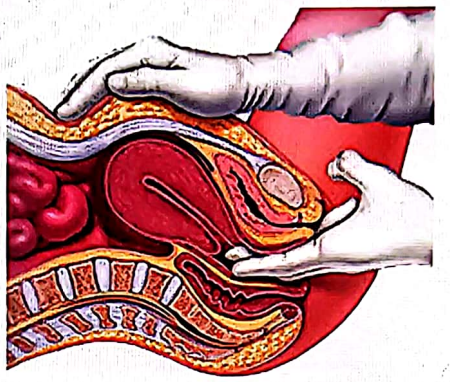
Clinical diagnosis:

Symptoms of Endometriosis



- P/A examination: unremarkable
- Mass-if cysts is very large

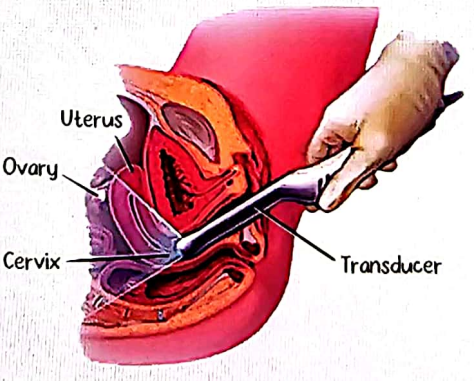
- P/S examination: pinpoint cervix (very characteristics for endometriosis)
- P/V examination: uterus is fixed and retroverted, nodules on the uterosacral ligaments, POD is obliterated, no mobility of the uterus.
- Forniceal mass and tenderness present in case of chocolate cyst.



Laboratory investigation:

- CA 125: non-specific marker for peritoneal inflammation.
- Normal CA 125: less than 35
- CA 125 increase in,
  - TB of abdomen
  - Pancreatitis
  - Endometriosis
  - Pregnancy
  - Ovarian tumors

Transvaginal ultrasound:



- Ground glass appearance
- Uterus is retroverted

MRI:

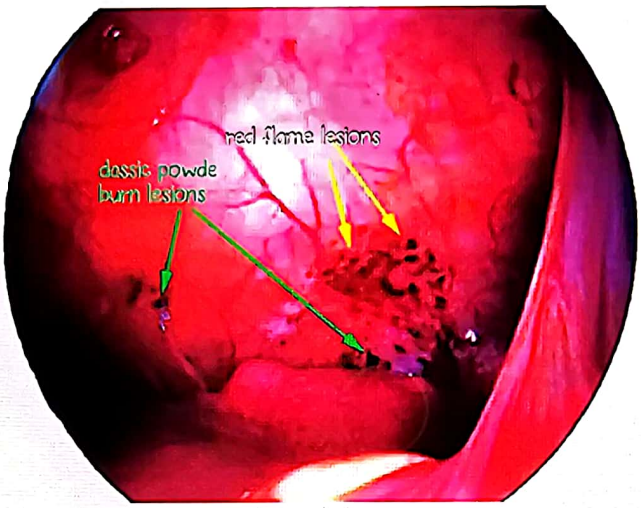
- Not required

Surgical diagnosis:

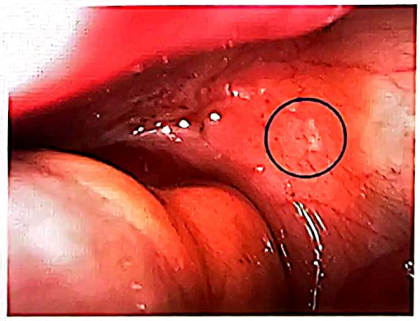
- Gold standard investigation for endometriosis is laparoscopy.

Personal Notes

Blue black powder burn lesions

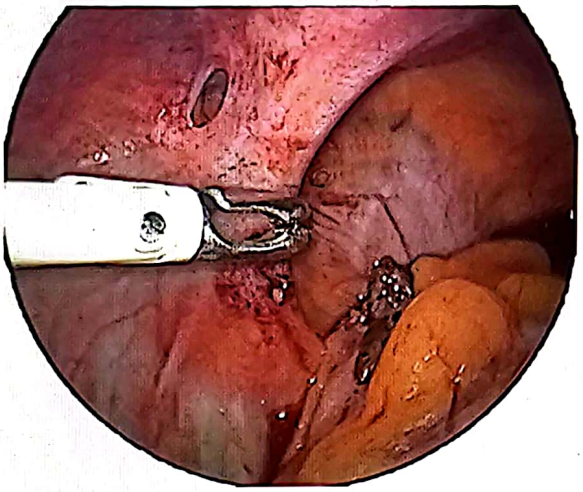


Red and flame like lesions (neovascularization)

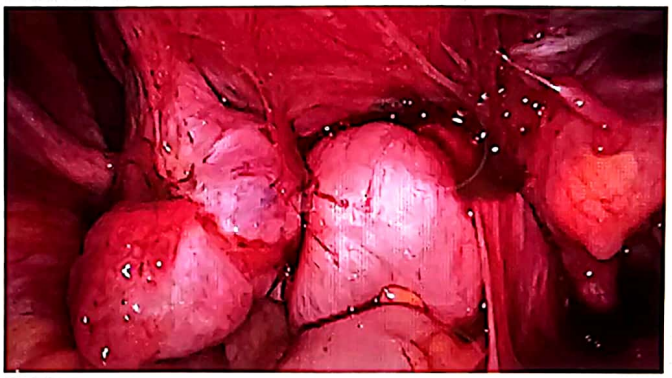


White and opaque lesions

Chocolate cyst (endometrioma)



Peritoneal damage



Frozen pelvis

MANAGEMENT

- Management depends on,
  - Age of the patient
  - Pain predominant symptoms or infertility predominant symptoms
  - Family complete or not
- Approach:
  - Treatment of pain
  - Treatment of infertility
- Medical management is preferred over surgical management especially in younger women.

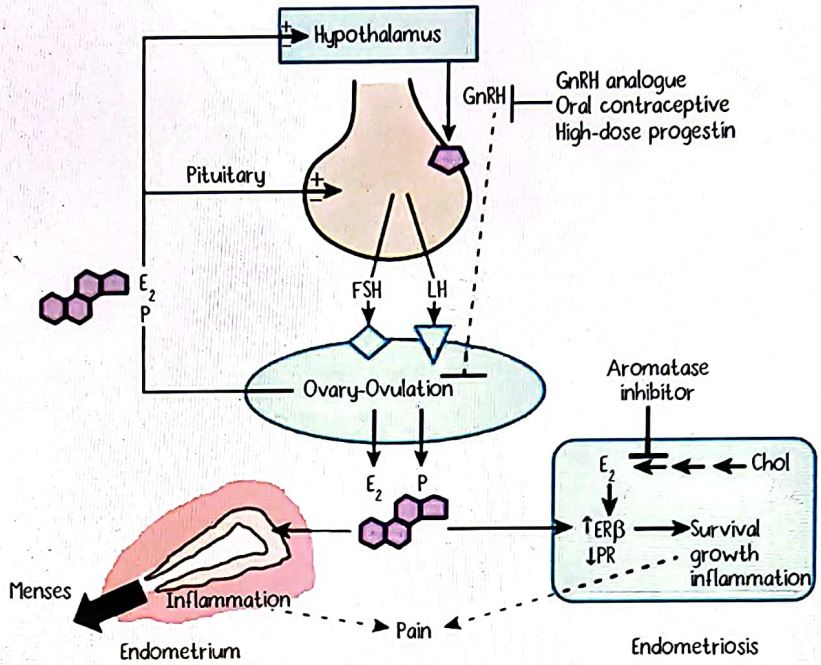
Medical management:

- NSAIDS
- Hormonal treatment

Personal Notes

Target of treatment:

Personal Notes



- Progesterone causes atrophy of endometrial glands and stroma.
- Aromatase inhibitor: letrozole
- OCPs
- High dose progesterone
- GnRH antagonists
- Pulsatile release of GnRH causes increase FSH and LH.
- Continuous release of GnRH (as caused by GnRH depot injections) causes down regulation of FSH and LH, so estrogen also decreases.

Estrogen-progesterone contraceptives:

- Continuous (lower recurrence)
- Cyclical
- Progesterone only pills better than OCPs.

Progestins:

- High dose of progestins
- 19-nortestosterone derivatives (dienogest 2 mg OD given continuously)
- It will cause atrophy of ectopic endometrium
- It will also cause amenorrhea

LNG - IUD:

- Mirena
- No menopausal effect
- Life period - 5 years

Personal Notes

GnRH agonists:

- Leuprolide monthly depot injections (flare up reaction then relief in symptoms)
- Side effects:
  - Menopause like symptoms
  - Bone loss
- Never give more than 6 months without hormonal therapy due to risk of bone loss.

GnRH antagonists:

- Oral drug: elagolix

Danazol:

- Androgenic drug
- It causes:
  - Weight gain
  - Voice huskiness
  - Virilization (hirsutism)
  - Danazol is no longer given due to unacceptable side effect profile

Aromatase inhibitor:

- Letrozole
- Works on granulosa cells.
- Used with a combination of progesterone.
- Cabergoline (0.5 mg twice a week)

Surgical treatment:

- Conservative surgery
  - Excisional/ablation therapy
  - Excise - cystectomy of chocolate cyst
  - Ablate endometriotic spots
  - Presacral neurectomy (ablate culprit nerves)
  - Laparoscopic uterosacral nerve ablation
- Definitive surgery
  - Total abdominal hysterectomy (TAH)
  - TAH + excise all endometriotic spots + bilateral salpingo-oophorectomy (BSO)
  - In adenomyosis - TAH only

Post operative medical therapy:

- High dose progesterone (dienogest or LNG-IUD) to prevent recurrence.

Treatment of endometriosis associated infertility:

- Ovarian stimulation
- IUI

- IVF
- Ovarian stimulation and IUI used in I and Ii grade infertility.
- IVF used in III and IV grade infertility.

Chocolate cyst is less than 3 cm - no management

If more than 3 cm, removal of cyst.

Endometriosis and cancer:

- Endometriosis associated with clear cell carcinoma (ovarian cancer - hobnail like morphology)

Scar endometriosis:

- Iatrogenically some cells transfer from one place to another place.
- Nodule in cesarean scar
- Cyclical pain in nodule
- Tenderness
- Treatment of choice: wide local excision with the margin of 1 cm to prevent recurrence

Question: 45 years old P2L2 with complaints of chronic pelvic pain and severe dysmenorrhoea not responding to medical treatment for endometriosis.what should be the definitive management in this patient?

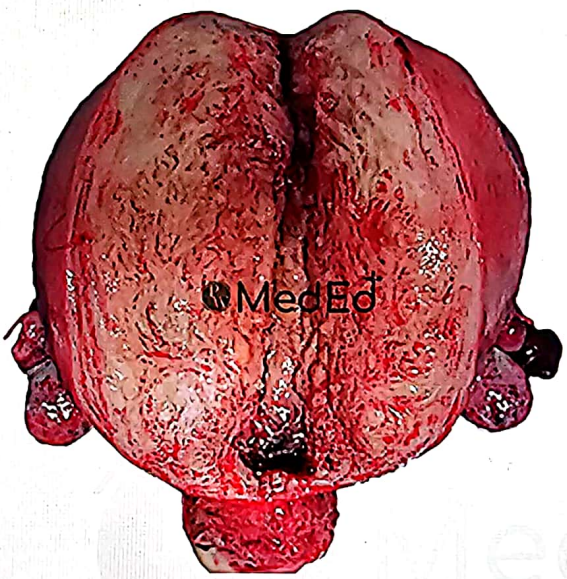
A. TAH
B. TAH + BSO
C. Ablation of endometriotic lesions
D. GnRH analogues

Answer: B - TAH + BSO

Adenomyosis

ADENOMYOSIS

Personal Notes



- Adenomyosis is the presence of ectopic endometrial tissue in the myometrium. Histologically, it is presence of endometrial tissue for more than 2.5mm of depth of myometrium below the endomyometrial junction.
- IOC of adenomyosis is-USG

Clinical features:

- Asymptomatic or symptomatic
- Dysmenorrhea, dyspareunia
- Chronic pelvic pain = pain > 6 months
- Abnormal uterine bleeding
- Infertility
- Recurrent implantation failure
- If asymptomatic → no treatment needed

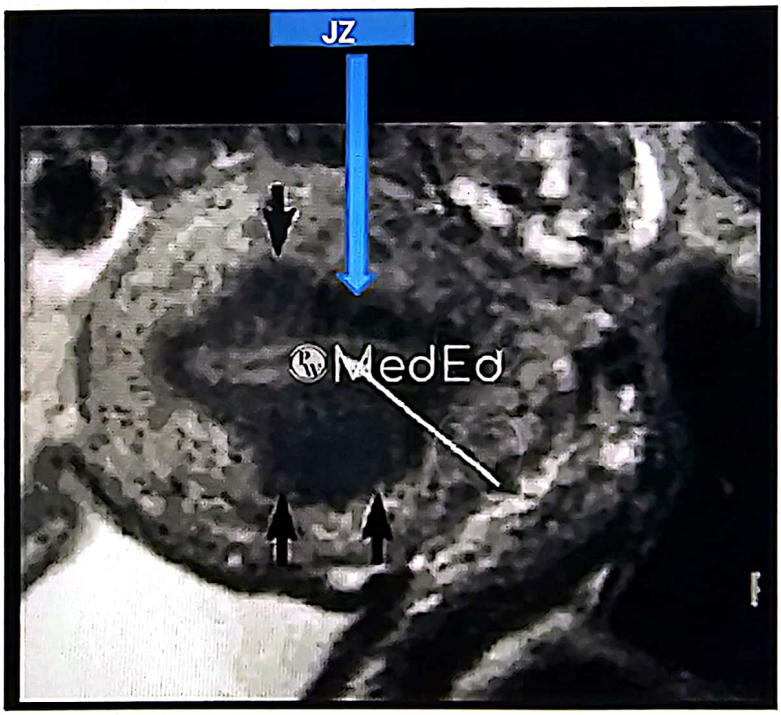
Risk factors:

- Reproductive age group
- Smoking
- Antidepressants
- Tamoxifen
- Adenomyosis and endometriosis are diseases of estrogen excess

Personal Notes

Diagnosis:

- Historically, it was only diagnosed on hysterectomy → globular uterus found on hysterectomy.
- Histopathology showed endometrial glands in the myometrium.
- Nowadays, USG is modality of choice
- Normal P/A exam
- Uterus diffusely enlarged
- Halban's sign – large and tender uterus on per vaginal exam
- Interrupted/hazy/irregular Junctional zone (JZ) seen in adenomyosis.



USG features:

- Interrupted JZ
- Irregular JZ
- Asymmetrical myometrial thickening
- Globular uterus
- Echogenic sub-endometrial lines and buds
- Myometrial cysts
- Hyperechogenic islands
- Translesional vascularity
- Fan-shaped shadowing or Venetian blind sign
- MRI is done in patients who are being planned for uterus-preserving surgery

Criteria of diagnosis known as MUSA features on USG.

A. Mirena
B. Endometrial biopsy
C. Hysterectomy
D. OCP's

Answer: B next step is EB in women over 45 years with AUB to rule out endometrial hyperplasia and cancer. This will be followed by Mirena insertion. First line management should be medical.

Malignant diseases of estrogen excess:

- Endometrial hyperplasia with or without atypia
- Endometrial cancer

Associations of adenomyosis:

- Endometriosis
- Endometrial hyperplasia
- Fibroid

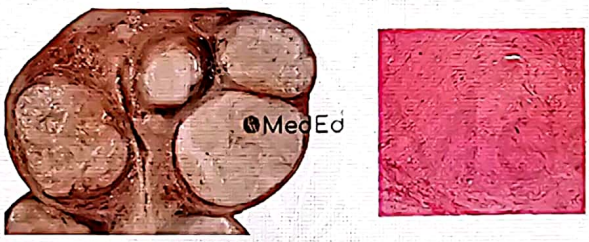
Fibroid Uterus

Personal Notes

- Fibroids are benign uterine tumors
- They are the most common benign tumors in the body.
- Also called leiomyoma
- A tumor of the smooth muscle of the uterus
- Well circumscribed, not encapsulated
- They have a pseudo capsule (surrounding myometrial fibres compress to give capsule like appearance)

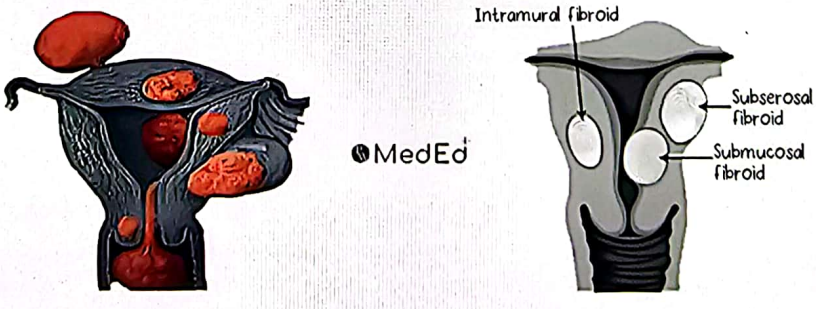
PATHOLOGY

Whorls seen on the cut section



TYPES OF FIBROIDS

1. Submucosal - most symptomatic
2. Intramural
3. Subserosal - least symptomatic



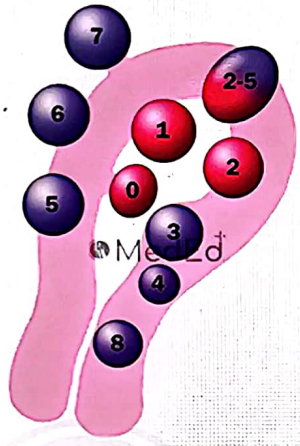
CLINICAL FEATURES

- most common – asymptomatic
- Heavy menstrual bleeding
- May or may not be associated with dysmenorrhea

- Poor reproductive outcome
- Hydroureteronephrosis
- Bowel-bladder symptoms
- Abdomino-pelvic mass
- Pain in abdomen

Personal Notes

FIGO CLASSIFICATION OF FIBROIDS



- 0 – pedunculated submucosal
- 1 – <50 % intramural
- 2 – > 50 % intramural
- 3 – just abutting the endometrium
- 4 – completely intramural
- 5 – intramural > 50%, with subserosal component +
- 6 – intramural is < 50% subserosal component +
- 7 – pedunculated subserosal
- 8 – cervical/wandering fibroid/parasitic fibroid

Secondary changes:

- Center is more prone to degenerative changes – necrosis/infection/myxoid degeneration.
- Least common – sarcomatous change (<0.1 %)
- Red degeneration – aka cavernous change.
- Seen in pregnancy
- Patient presents with pain, fever, elevated TLC. Treatment is conservative with analgesics. Antibiotics are NOT used.

MANAGEMENT OF RED DEGENERATION

- Conservative.
- No role of antibiotics.

Personal Notes

Examination:

- Pallor
- P/A – abdominopelvic mass
- P/V – irregular, non tender, enlarged uterus
- Free fornices.

Complications:

- Recurrent pregnancy loss due to defective implantation and placentation decrease in uterine cavity space.
- Preterm labor and malpresentations
- Fetal growth restriction
- Abruption

Diagnosis:

- USG
- Hysteroscopy and sonosalpingogram
- MRI – for fibroid mapping.

Management:

- Manage only symptomatic fibroids.
- Surgery is the mainstay of treatment.
- Medical management is used to buy some time till surgery or menopause.

Asymptomatic fibroids:

- Not treated.
- Needs treatment if:
- Moderate – severe hydroureteronephrosis
- Rapidly growing fibroid.
- Remove submucosal fibroids if the patient wants to conceive.

MEDICAL MANAGEMENT FOR HEAVY MENSTRUAL BLEEDING

- Tranexamic acid + NSAIDs
- OCP
- Progestin (oral or local).
- LNG IUD, GnRH analogues, mifepristone, ulipristal, GNRH antagonists.

Disadvantages:

- GnRH analogues destroy the surgical plane.
- Chance of missing or seedling fibroid that regress on therapy and after surgery increase in size.

Surgical management:

1. If family is complete:
   - Hysterectomy

- If pregnancy is desired:
  - Myomectomy,
  - Done if >/= 3 of 5 cm for a patient trying to conceive.
  - Myomectomy can be open or laparoscopic.
  - Submucosal fibroids (type 0, 1, 2) can be removed hysteroscopically. STEP W classification used to determine whether approach should be hysteroscopic or laparoscopic in submucosal fibroids.

2. Newer management:
   - Endometrial ablation
   - ND YAG laser for thermal ablation
   - UAE - uterine artery
   - Magnetic resonance guided focused ultrasound.

Dysmenorrhea

DEFINITION

Personal Notes

It refers to pain associated with the menstrual cycle that causes disturbance in/prevents the patient from carrying out their daily activities. There is discomfort, pain and can be associated with vomiting also.

TYPES

- **Primary** - Without any associated pelvic pathology. During menses prostaglandins are increased which causes vasospasm and pain.
  - This Prostaglandin level is lower in the proliferative period and high during menses.
- **Secondary** - Pain is due to pelvic pathology. On examination while doing bimanual palpitations there may be cervical motion tenderness, adnexal tenderness or uterine tenderness.
- On per speculum examination there may be some discharge or mass present in the adnexa.

  This can be secondary to:

  1. Endometriosis
  2. Adenomyosis
  3. Fibroid which undergoes degeneration
  4. Mullerian anomalies
  5. Pelvic Inflammatory disease
  6. Cervical stenosis
  7. Ovarian mass/cysts.

CHARACTER OF PAIN

Spasmodic dysmenorrhea:

- This occurs in the first 1-2 years following menarche.
- It is typically primary dysmenorrhea
- Pain starts either at onset of menses or a few hours prior and it lasts for around 48 hours.
- Seen in ovulatory cycles
- Intermittent and spasmodic pain

Personal Notes

Congestive dysmenorrhea:

- Secondary dysmenorrhea due to any pelvic pathology.
- The pain starts a few days before menses and is relieved by menses.
- Dull aching pain with pelvic discomfort, congestive dysmenorrhea

TREATMENT

Primary dysmenorrhea:

- NSAIDs like Ibuprofen, Aspirin and Mefenamic acid decrease the Prostaglandin synthesis.
- Combined OCP's which causes anovulation

Secondary dysmenorrhea:

- Cause specific for example if there is endometriosis or Adenomyosis then Dienogest can be given or LNG-IUD (mirena).
- In case of PID antibiotics can be given.
- Management will be guided by the pelvic pathology

Uterine Anomalies

CONGENITAL UTERINE ANOMALIES

Personal Notes

1. Formation Defects:
   - Unilateral development of para mesonephric duct which will lead to unicornuate uterus.
2. Unification Defects:
   - Non fusion of PMND gives rise to two separate uteruses with two separate cervix. This is known as uterus didelphys.
   - Incomplete fusion of the Müllerian ducts which leads to bicornuate uterus. There is a fundal dip/fundal indentation.
3. Canalization Defects:
   - Septal resorption or dissolution is incomplete which leads to septate uterus. There is no fundal dip.
   - In the Arcuate uterus there is minimal septum left, <1 cm which is usually harmless.

DES related changes (Diethylstilbestrol):

- The female children of mothers using DES had a very specific mullerian anomaly which was a T shaped uterus. Most common was hypoplastic.
- They also had vaginal adenosis and Clear cell Ca of vagina.
- DES is not used now

CLINICAL PRESENTATION

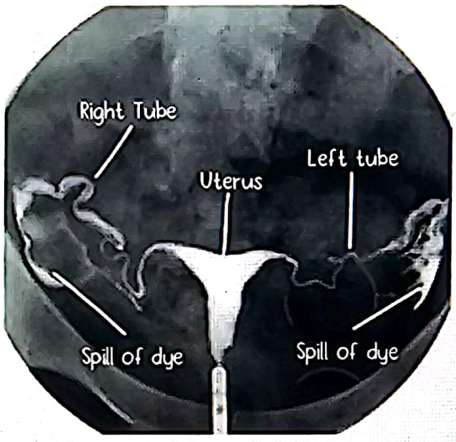
- If there is MRKH it will present as primary amenorrhea. On examination there will be blind ending vagina.
- In the rest of the anomalies, increased incidence of abortion in the second trimester.
- Increased incidence of preterm labor
- H/o recurrent pregnancy loss
- Increased incidence of malpresentation which is recurrent.
- Increased risk of Antepartum hemorrhage.
- Most of these do not cause infertility.
- The Septate uterus has the worst reproductive outcome.

DIAGNOSIS

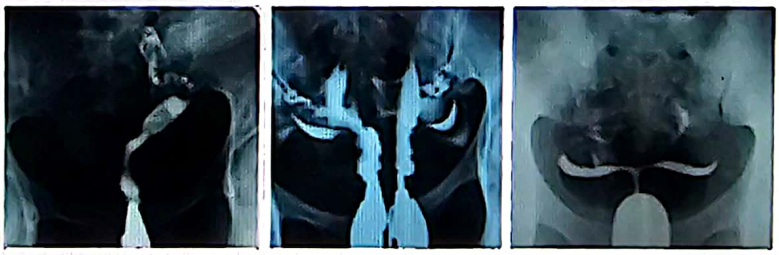
Personal Notes

Imaging Modalities:

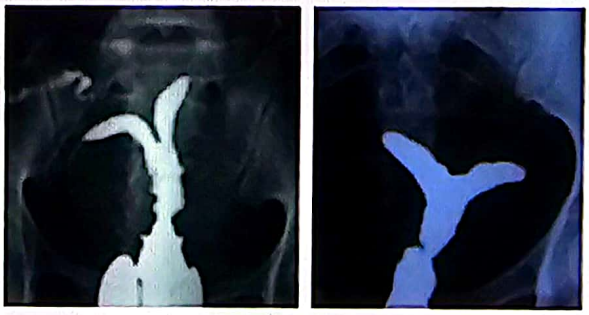
- 3-D Ultrasound (Investigation of Choice).
- MRI
- Saline infusion sonography - Done for tubal pregnancy test.
- HSG combined with imaging to assess outer fundal contour - It is never done to diagnose mullerian anomalies but for tubal latency and there is an incidental finding of mullerian anomaly.
- Gold standard: Hysteroscopy combined with laparoscopy.



HSG

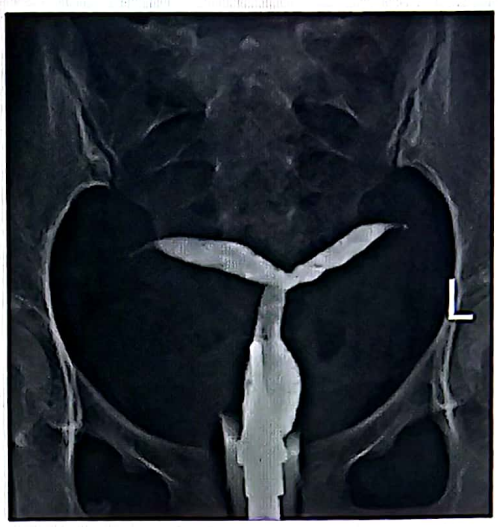


A. Banana shaped uterus (Unicornuate uterus) B. Bicornuate uterus



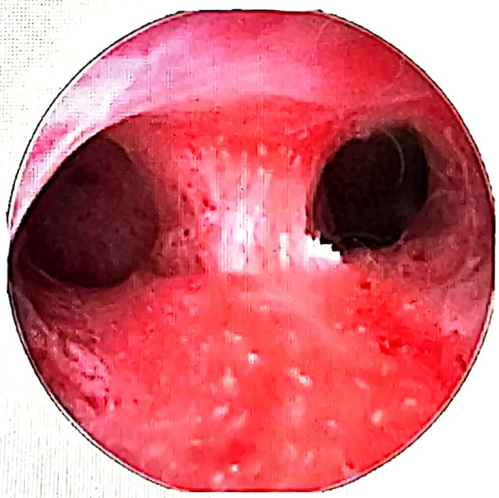
A. Septate uterus. B. Arcuate uterus

Personal Notes



Septate or bicornuate?

The Gold Standard:

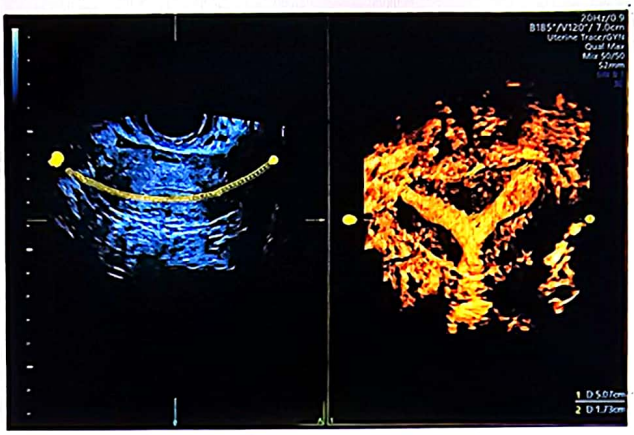


Hysteroscopy showing two uterine cavities: septate or bicornuate?

Laparoscopy confirming dip in fundus: Bicornuate uterus

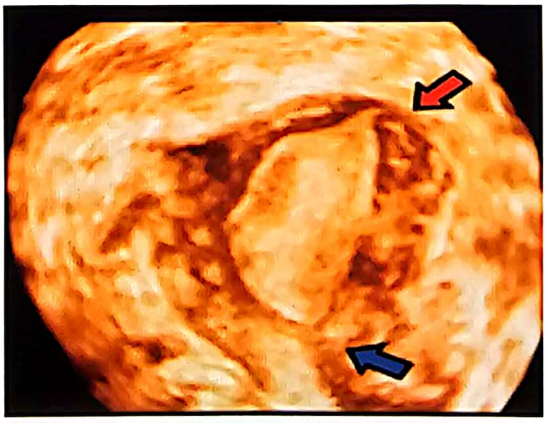
3D USG:

Personal Notes



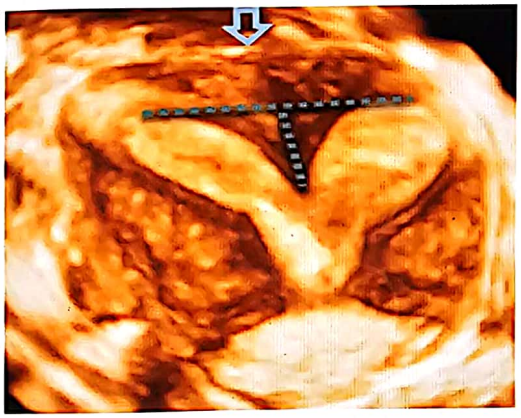
Septate Uterus

Bicornuate uterus



Unicornuate uterus

Bicornuate uterus



Septate uterus

1. Most common mullerian anomaly - Septate
2. Most symptomatic mullerian anomaly - Septate
3. Least symptomatic mullerian anomaly - Arcuate
4. Anomaly with the best reproductive outcome - Arcuate
5. Investigation of choice for suspected mullerian anomaly - 3-D USG
6. Confirmatory - Hystero laparoscopy
7. Anomaly M/c associated with renal Anomalies - Formation defects (MRKH + Unicornuate uterus).

TREATMENT

- Only for symptomatic patients especially for the women who are in pre IVF (Septate uterus).
- Symptoms may include recurrent pregnancy loss, dysmenorrhea or infertility.
- In septate uterus hysteroscopic septal resection.
- In bicornuate uterus Metroplasty: Strassman, Jones's or Tomkin's are done.