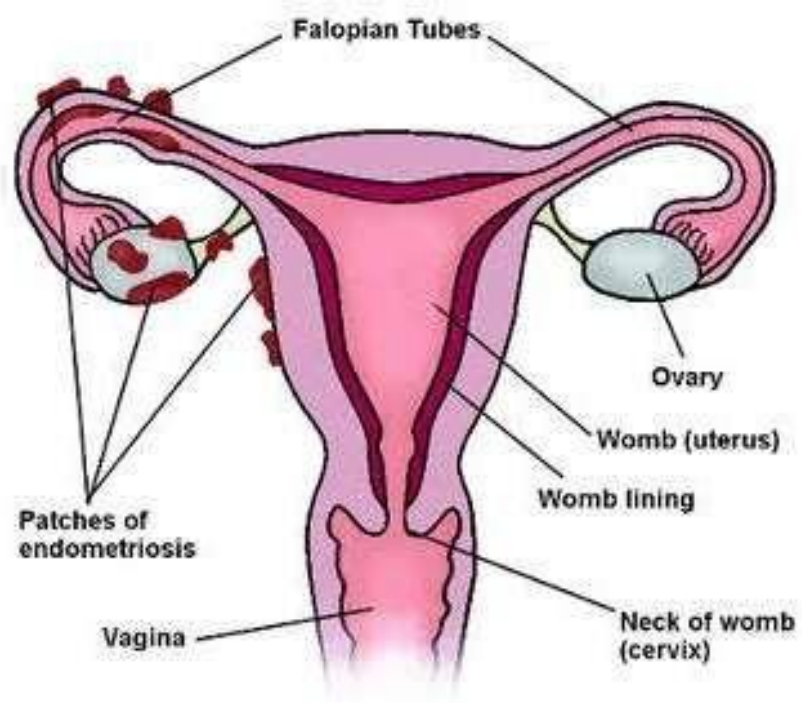
ENDOMETRIOSIS

KUMAR SACHIN
LA1 163(1)

DEFINITION

- Presence of endometrial tissue (both glands & stroma) outside the uterus.

- Tissue is morphologically and functionally similar to endometrial tissue responds to hormones in cyclical manners.



AETIOLOGY: theories

1. Sampson's theory of menstrual regurgitation and implantation (Metastatic theory)

- ✔ Retrograde menstruation

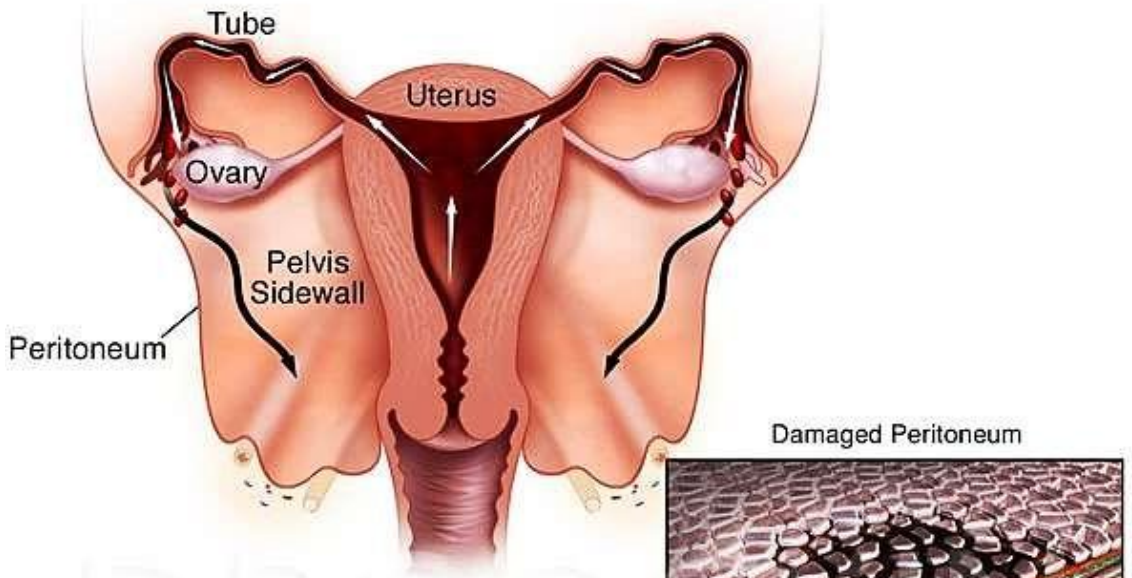
↓

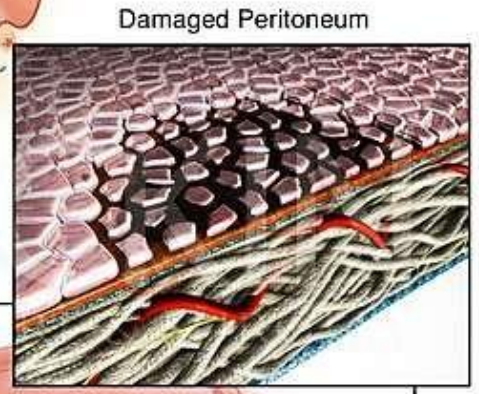
Endometrial fragments are transported to peritoneal cavity through tubes

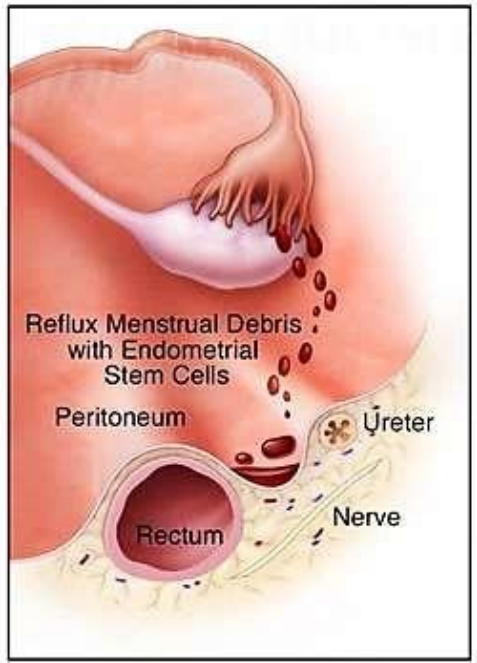
↓

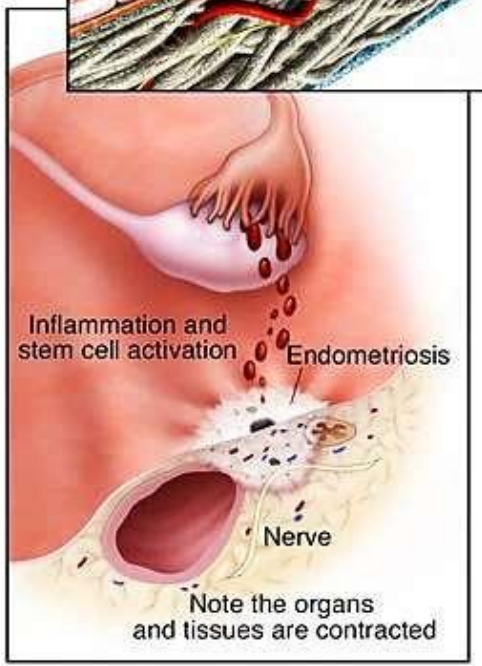
Viable cells implant & grow

- ✔ Young girls with obstructive anomalies of genital tract often develop endometriosis.


Tube
Uterus
Ovary
Pelvis
Sidewall
Peritoneum


Damaged Peritoneum


Reflux Menstrual Debris
with Endometrial
Stem Cells
Peritoneum
Ureter
Nerve
Rectum


Inflammation and
stem cell activation
Endometriosis
Nerve
Note the organs
and tissues are contracted

2. Coelomic metaplasia theory:
   - ✔ Original Coelomic membrane transforms into endometrial tissue.
   - ✔ Explains endometriosis in ectopic sites.

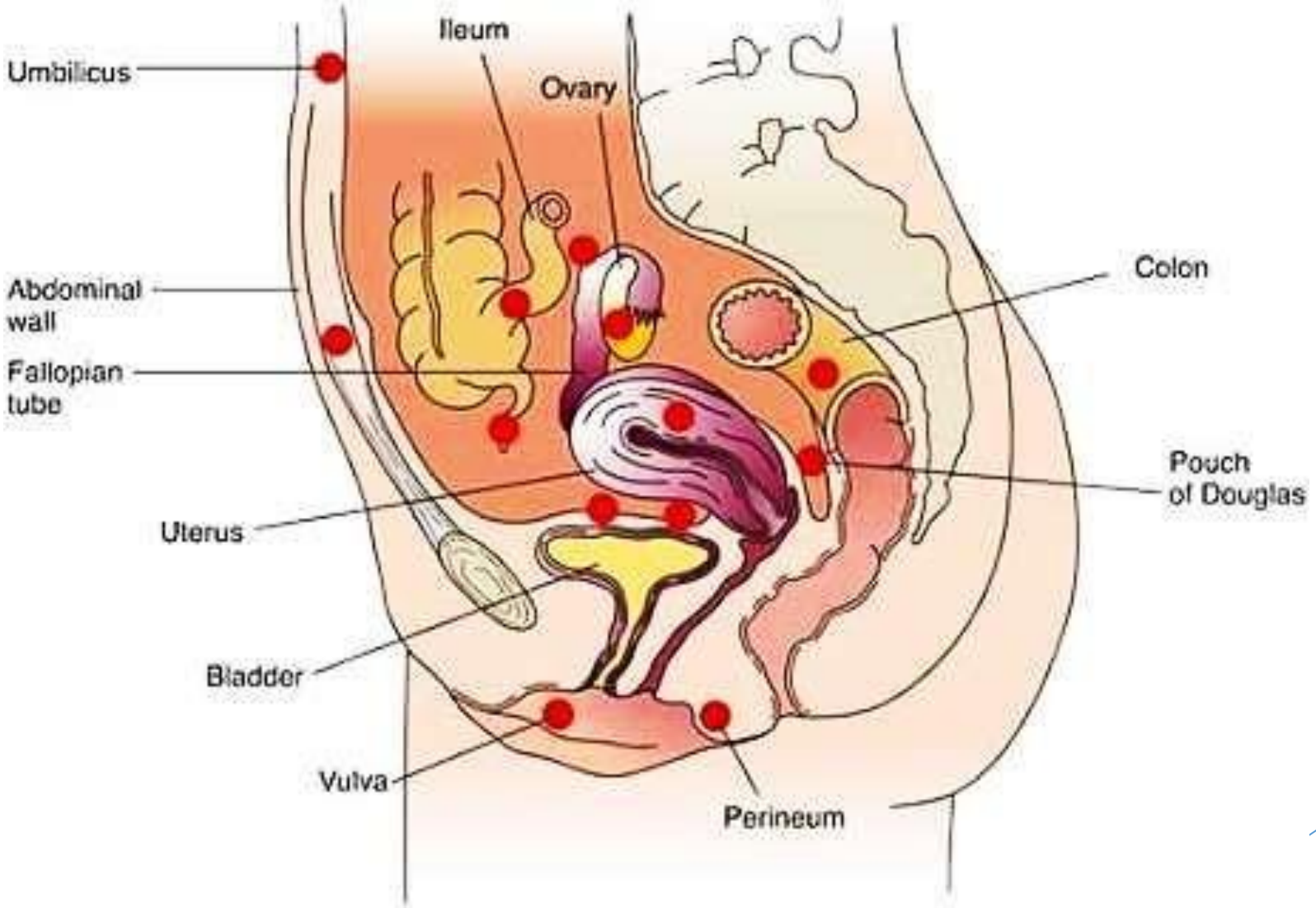
3. Lymphatic & vascular metastases theory:
   - ✔ Lymphatic & hematogenous spread of endometrial cells
   - ✔ Extensive communication of lymphatics between uterus, tubes, ovaries, pelvic & vaginal lymph nodes, kidneys & umbilicus.

4. Genetic factors: risk is 7 times more if first degree relative has endometriosis.

4. Immunological factors: reduced clearance of endometrial cells due to decreased natural killer cell activity or decreased macrophage activity.

5. Inflammation: endometriosis maybe associated with subclinical peritoneal inflammation

SITES


Umbilicus
Ileum
Ovary
Abdominal wall
Fallopian tube
Colon
Pouch of Douglas
Uterus
Bladder
Vulva
Perineum

TYPES OF ENDOMETRIOSIS

PELVIC ENDOMETRIOSIS	EXTRA PELVIC ENDOMETRIOSIS
• Peritoneal • Ovarian • Deep infiltrating	• Gastrointestinal tract • Urinary tract • Scar endometriosis • Vaginal endometriosis • Thoracic endometriosis

CLINICAL PRESENTATION

PAIN:

- Classical triad: dysmenorrhea, dyspareunia & deep seated pelvic pain.
- Commence before onset of menses & continue throughout the menstrual period. Also has a cyclical nature.
- Deep dyspareunia due to stretching of involved tissue during intercourse.
- Fixed retroverted uterus or involvement of uterosacrals and rectovaginal septum.
- Dysuria & dyschezia: in extragenital endometriosis

ABNORMAL BLEEDING:

- May include premenstrual spotting, polymenorrhoea & menometrorrhagia.

INFERTILITY:

- Present in majority of the women with endometriosis.
- Advanced disease, adhesions and fixity results in structural damage to tubes and ovaries impairs tubo-ovarian mobility.
- Ovarian problems: anovulation, luteinized unruptured follicle, oocyte maturation defects.
- Tubal problem: altered tubal motility or ovum pick up.
- Peritoneal factors: intraperitoneal inflammation
- Sperm problems: phagocytosis by macrophages, inactivation by antibodies.
- Endometrium: luteal phase defect, implantation defects

OTHER SYMPTOMS

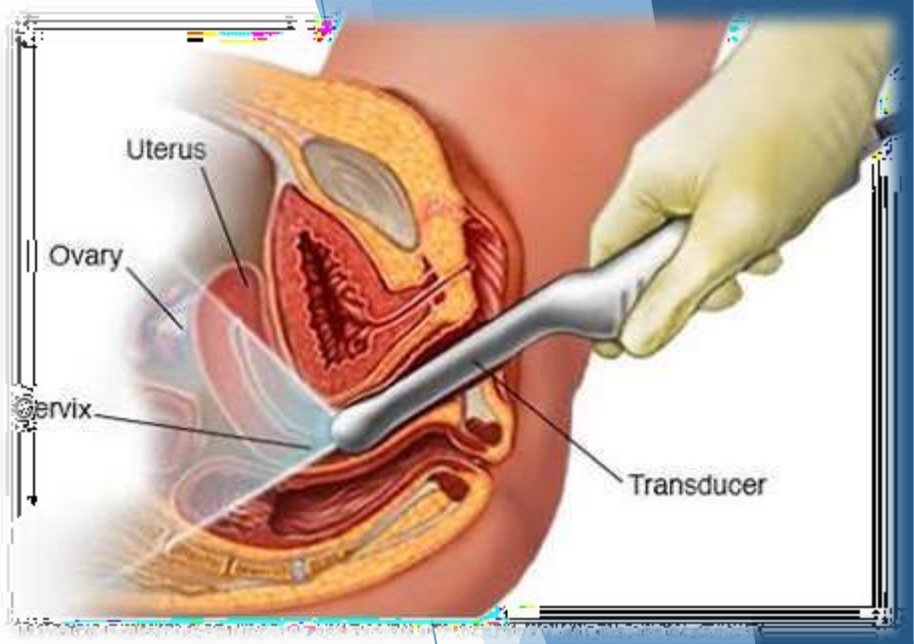
- Extrapelvic endometriosis: cyclical rectal bleeding or hematuria.
- Scar endometriosis: cyclical pain and bleeding at scar.
- Umbilical endometriosis: present as umbilical mass with cyclical pain.
- Pulmonary endometriosis: cyclical hemoptysis and hemothorax.

SIGNS & SYMPTOMS

SYMPTOMS	SIGNS
• Dysmenorrhoea • Dyspareunia • Deep seated pelvic pain • Dysuria • Dyschezia • Hematuria • Infertility	• Tenderness in cul-de-sac • Nodularity in cul-de-sac • Fixed retroverted uterus • Adnexal tenderness • Adnexal masses

INVESTIGATIONS

TRANSVAGINAL ULTRASOUND SCAN



- Retroverted uterus with obliteration of cul-de-sac & B\L complex adnexal masses maybe suggestive.

- Helps to differentiate endometrial cysts from other complex cysts like dermoids:
  - Endometrial cyst: low level internal echoes with posterior acoustic enhancement – Ground glass appearance.
  - Dermoid: posterior acoustic shadowing d/t presence of bone & teeth in cyst. Presence of mural nodule & “pins and needle”.

CA-125

- Increased in moderate to severe endometriosis

- Also increased in non-mucinous epithelial ovarian cancers.

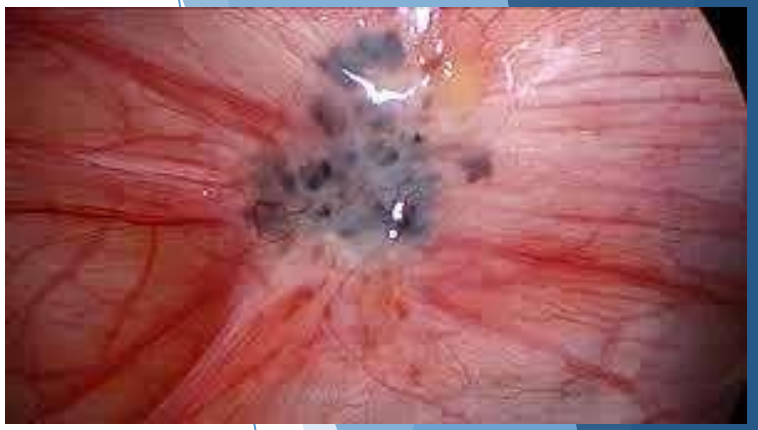
LAPAROSCOPY

- **Gold Standard**

- During laparoscopy, entire pelvis should be examined systematically in clockwise or counterclockwise direction.

- Aims:
  - Detection and biopsy of lesions
  - Staging disease
  - Concomitant laparoscopic surgical treatment

1. PERITONEAL LESION



CLASSIC LESIONS:

- Powder burn or gunshot lesion: black to dark brown nodules consisting of old hemorrhages surrounded by fibrosis.
- Scarring
- Adhesions: b/w ovary & broad ligament and b/w posterior uterus or vagina & sigmoid colon.

SUBTLE LESIONS:

- Red lesions: flame like lesions and glandular excrescences.
- White lesion: white opacities, yellow peritoneal patches and circular peritoneal defects.

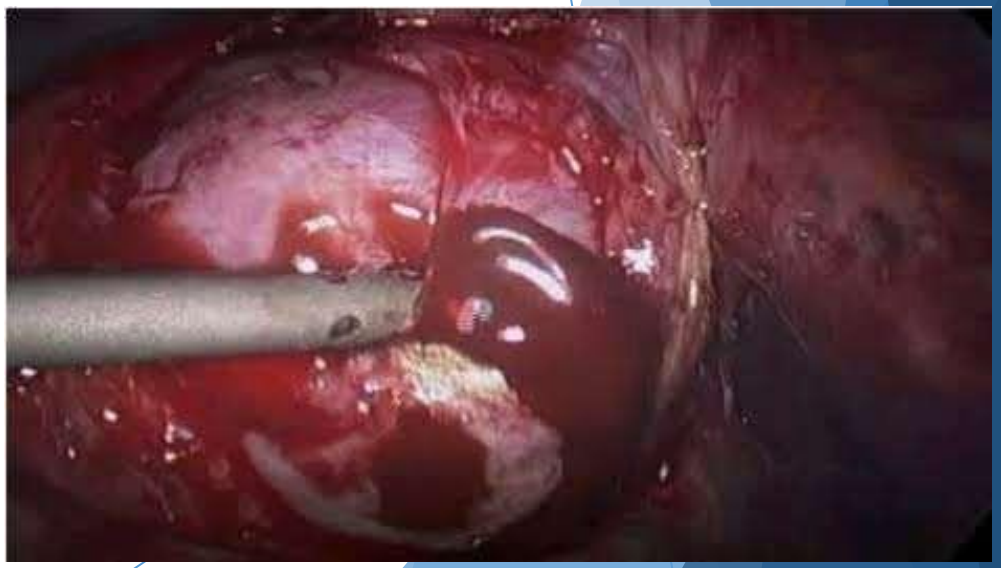
2. OVARIAN ENDOMETRIOSIS

ENDOMETRIOMA OE CHOCOLATE CYST:

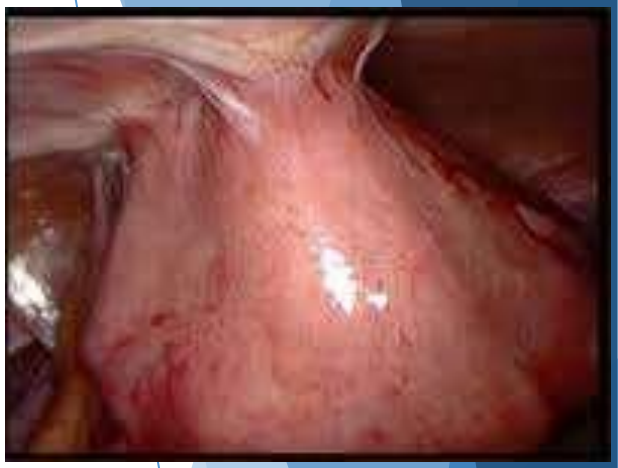
- Cyst contains thick tarry fluid- chocolate fluid – derived from previous ovarian hemorrhage.
- Adherent to broad ligament and pelvic side wall.

SUPERFICIAL OVARIAN ENDOMETROSIS:

- Superficial implants on ovary.
- There can be adhesions to ovarian bed: Sub-ovarian adhesions



3. DEEP INFILTRATING ENDOMETRIOSIS

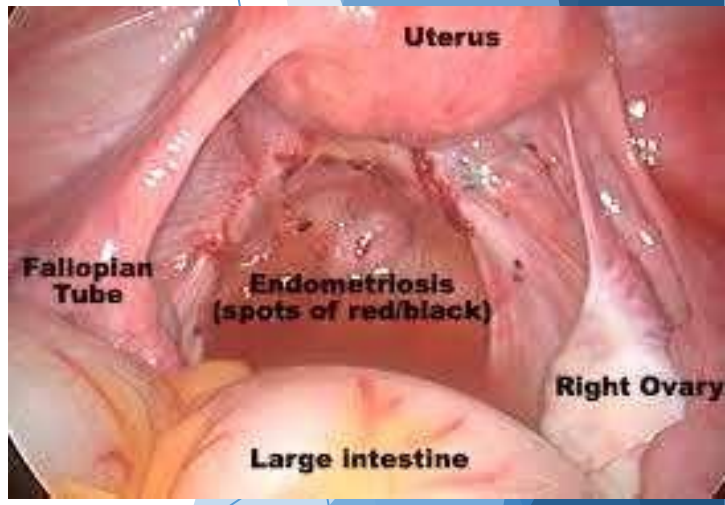


- Lesions are usually in rectovaginal space.
- May involve uterosacral ligaments, cervix, bowel or ureters.
- Lesions cause adhesion and scarring.
- Can be felt on pelvic and rectal examination as tender nodularity.

4. EXTRAPELVIC ENDOMETRIOSIS

GASTROINTESTINAL TRACT:

- Frequently involved: sigmoid, rectum, iliocaecum & appendix.
- Symptoms: abdominal pain, disturbed bowel function & cyclical rectal bleeding.
- There maybe pain on defecation.
- Superficial implants maybe seen on serosa.



URINARY TRACT:

- Common symptoms: cyclical hematuria, dysuria and frequency.
- Pelvic ureter & bladder shows implants obstruction and hydronephrosis.

Extrapelvic endometriosis cont.

SCAR ENDOMETRIOSIS:

- Seen at umbilicus, port sites following laparoscopy, abdominal incisions following cesarean section and episiotomy scars.
- Present as painful swelling more prominent at menstruation.
- Cyclical bleeding is rare.

VAGINAL ENDOMETRIOSIS: Occurs in posterior fornix as a continuation of endometriosis from cul-de-sac.

THORACIC ENDOMETRIOSIS: Lungs & thorax maybe involved leading to cyclical hemoptysis & hemothorax.

INVESTIGATIONS

CT & MRI: Identical picture as in USG

COLOUR DOPPLER FLOW: Increased vascularity

CYSTOSCOPY: Involvement of bladder

SIGMOIDOSCOPY: If the women develops bowel symptoms

ANTIENDOMETRIAL ANTIBODIES: In serum, peritoneal fluid
&
endometriotic fluid as well as in normal endometrial tissue

TNF: Raised proportionate to the disease

HISTOLOGY

- Histologic confirmation is essential.
- On microscopy, typical endometrial implant with endometrial glands & stroma

CLASSIFICATION OF ENDOMETRIOSIS

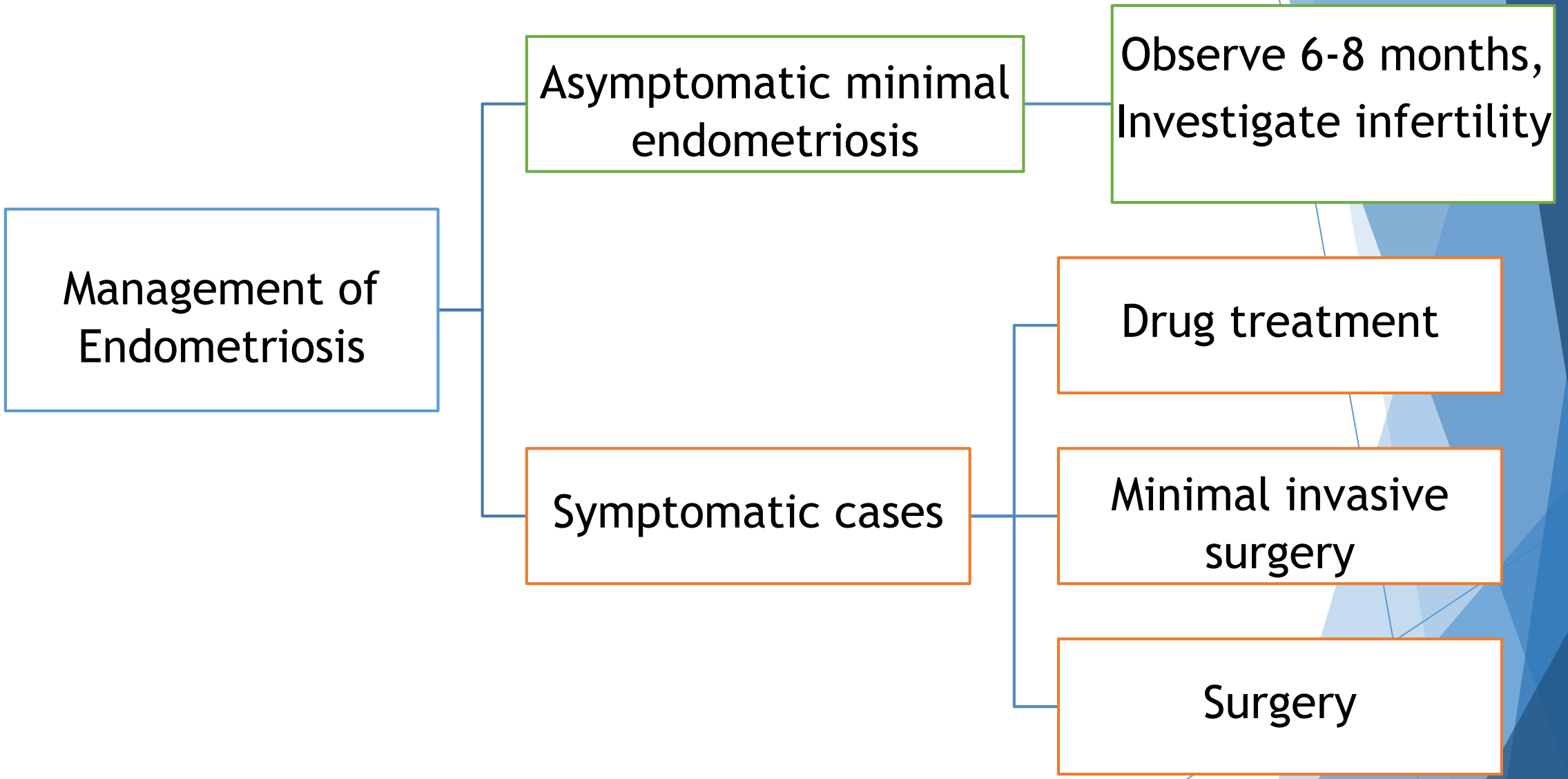
- Stage I: MINIMAL: Score 1-5
  - Small spots of endometriosis seen at laparoscopy, but no clinical symptoms.
- Stage II: MILD: Score 6-10
  - scattered fresh superficial lesions.
  - No scarring or retraction or adnexal adhesions.
- Stage III:MODERATE: Score 16-40
  - Contain endometriomas <2cm in size.
  - Minimal Peritubal and periovarian adhesion.

- Stage IV: SEVERE: Score >40
  - Endometriomas exceed 2cm.
  - Dense Peritubal & periovarian adhesions restrict motility.
  - Thickened uterosacral ligaments.
  - Involvement of bowel and bladder.

DIFFEERENTIAL DIAGNOSIS

- Chronic PID
- Postoperative adhesions
- Old ectopic gestation
- Pelvic congestion syndrome
- Irritable bowel syndrome
- Diverticulitis
- Ulcerative colitis
- Crohn’s disease

MANAGEMENT


Management of Endometriosis
Asymptomatic minimal endometriosis
Observe 6-8 months, Investigate infertility
Symptomatic cases
Drug treatment
Minimal invasive surgery
Surgery

DRUG TREATMENT

1. Combined oral contraceptives:
   - Administered intermittently or continuously.
   - High Incidence of side effects & risk of thrombus-embolism limit their prolonged use.
   - Seasonal OC for 84 days , with 6 days tablet free, reduce the menstrual periods to just four cycles in a year.

2. Oral progestogens:
   - Exert an anti-oestrogenic effect and their continuous administration causes decidualization and endometrial atrophy.
   - Norethisterone 5.0 – 20.0mg daily or Dydrogesterone 10 -30mg daily.
   - This hormone does not prevent ovulation and is suitable for a woman trying to conceive.

DRUG TREATMENT

3. Danazol
   - A synthetic derivative of ethinyl testosterone,
   - Mildly anabolic , anti-oestrogenic and anti-progestational
   - 200-800mg daily for 3-6 months starting on first day of menses.
   - S/E: wt. gain, hirsutism, excessive sweating, muscle cramps, depression, atrophy of breasts & vaginal epithelium.

4. Aromatase inhibitors:
   - Letrozole(2.5mg), anastrozole(1-2mg) daily for 6 months.
   - Anti-oestogenic & prevent conversion of androgen to oestrogen.
   - Should be given with Vitamin D and Calcium to prevent osteoporosis.
   - Nausea , vomiting and diarrhea are other side effects.

Drug treatment

5. Gonadotropin releasing hormone:
   - GnRH is administered continuously to down regulate and suppress pituitary gonadotropins .
   - It causes atrophy of endometriotic tissue.
   - The synthetic analogue of GnRH is given in doses of 10-20mg intravenously twice daily.
   - Prolonged GnRH therapy over 6months causes hypo-oestrogenism & menopausal symptoms such as hot flushes, dry vagina, urethral syndrome and osteoporosis.

6. RU-486:
   - Tried at a dose of 50mg daily for 3months.
   - Reduces pain and delay recurrences.

DRUG THERAPY

Failure of drug therapy is due to :

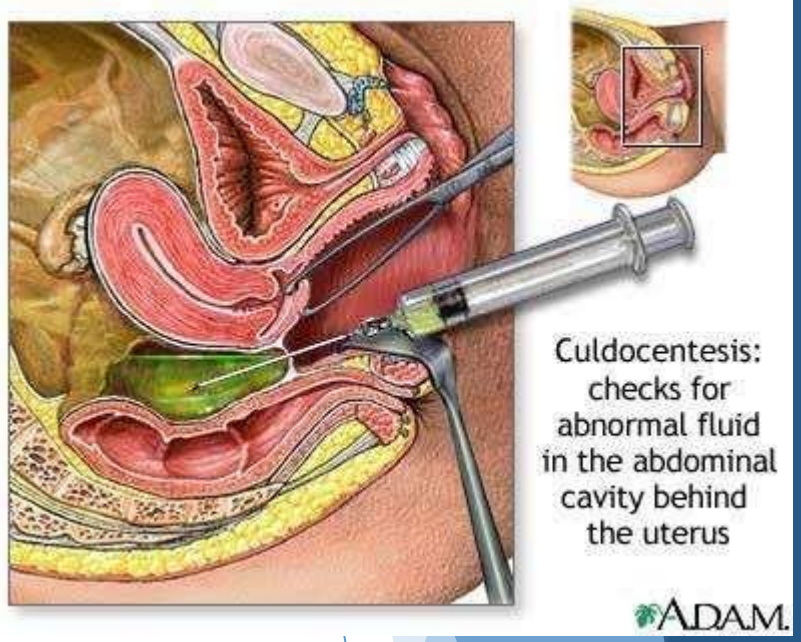
- Drug cannot penetrate fibrotic capsule.
- Ectopic endometrium responds less to hormones as compared to normal endometrium.
- S/E: prevent conception

MINIMAL INVASIVE SURGERY

1. Aspiration of peritoneal fluid in cul-de-sac.

2. Destruction of endometriotic implants <3cm by diathermy cauterization or vaporization by CO2 or Nd:YAG laser.

3. Larger lesions and chocolate cyst can be excised. Residual lesion can be dealt with by hormonal therapy. Cauterization of cyst wall – young females.



MINIMAL INVASIVE SURGERY

4. Role of surgery:
   - Failed Medical therapy
   - Infertility
   - Recurrence
   - Chocolate cyst ovary

5. Laparoscopic breaking of adhesions in pelvis relieves dysmenorrhea and pelvic pain.

6. LUNA (Laser uterosacral nerve ablation) for midline pain.

7. Prolapse of genital tract & bladder dysfunction is noted with LUNA.

SURGERY

Indications for surgery:

- Advanced stage of disease detected
- Large lesion
- Medical therapy fails or intolerable
- Recurrence occurs
- In elderly parous women

Aim:

- Coagulation of peritoneal endometrial lesions
- Adhesiolysis
- Fenestration & drainage of small ovarian endometriomas <3cm diameter. Cystectomy- >3cm.

SURGERY

Laparotomy:

- In advanced & larger lesions if medical therapy fails.
- Dissection and excision of a chocolate cyst.
- Salpingo-oophorectomy
- Abdominal hysterectomy and bilateral salpingo-oophorectomy.
- Premenopausal woman may need HRT after radical surgery.
- HRT following bilateral ovarian removal in young women may be prescribed under strict monitoring, as a risk for recurrence remains.

Total hysterectomy & B/L oophorectomy- women with severe symptoms & those with fertility is not a problem.

COMBINED THERAPY

- Preoperative GnRH:
  - monthly for 3 months
  - reduces size & extend of lesions,
  - softens adhesions
  - makes subsequent surgery more easier & complete.

- Postoperative hormonal therapy:
  - When surgery is incomplete or some residual lesion is left behind.

PROPHYLAXIS

- Low-dose OCP reduce the menstrual flow & protect against endometriosis. 3 monthly OCP's are convenient to take & effective.

- Tubal patency tests should be avoided in immediate premenstrual phase to avoid spill.

- Operations on genital tract should be scheduled in postmenstrual period.

THANK YOU