ENDOMETRIOSIS

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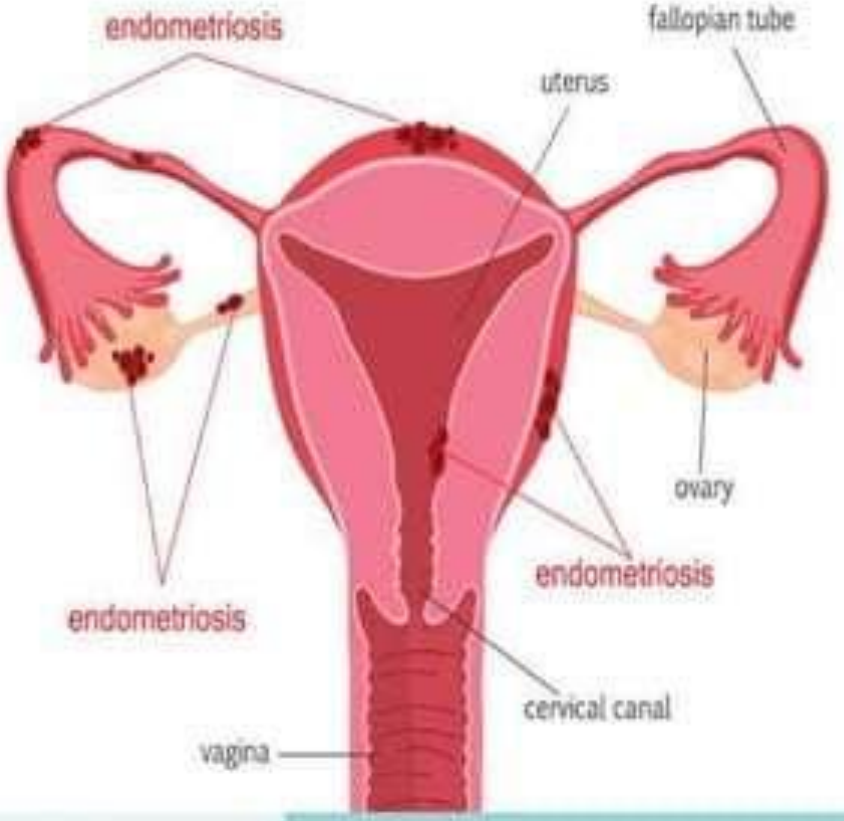

INTRODUCTION

Endometriosis is a condition in which cells similar to those in the endometrium, the layer of tissue that normally covers the inside of the uterus, **grows outside of it.**

Most often this is on the ovaries, fallopian tubes, and tissue around the uterus and ovaries; however, in rare cases it may also occur in other parts of the body.

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

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- It is a progressive debilitating disease affecting general physical, mental & social well being of women

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- Affects nearly 6 to10% of the women in reproductive age, 30% of those who are infertile or present with pain.

- The most frequent sites of implantation are pelvic viscera and the peritoneum

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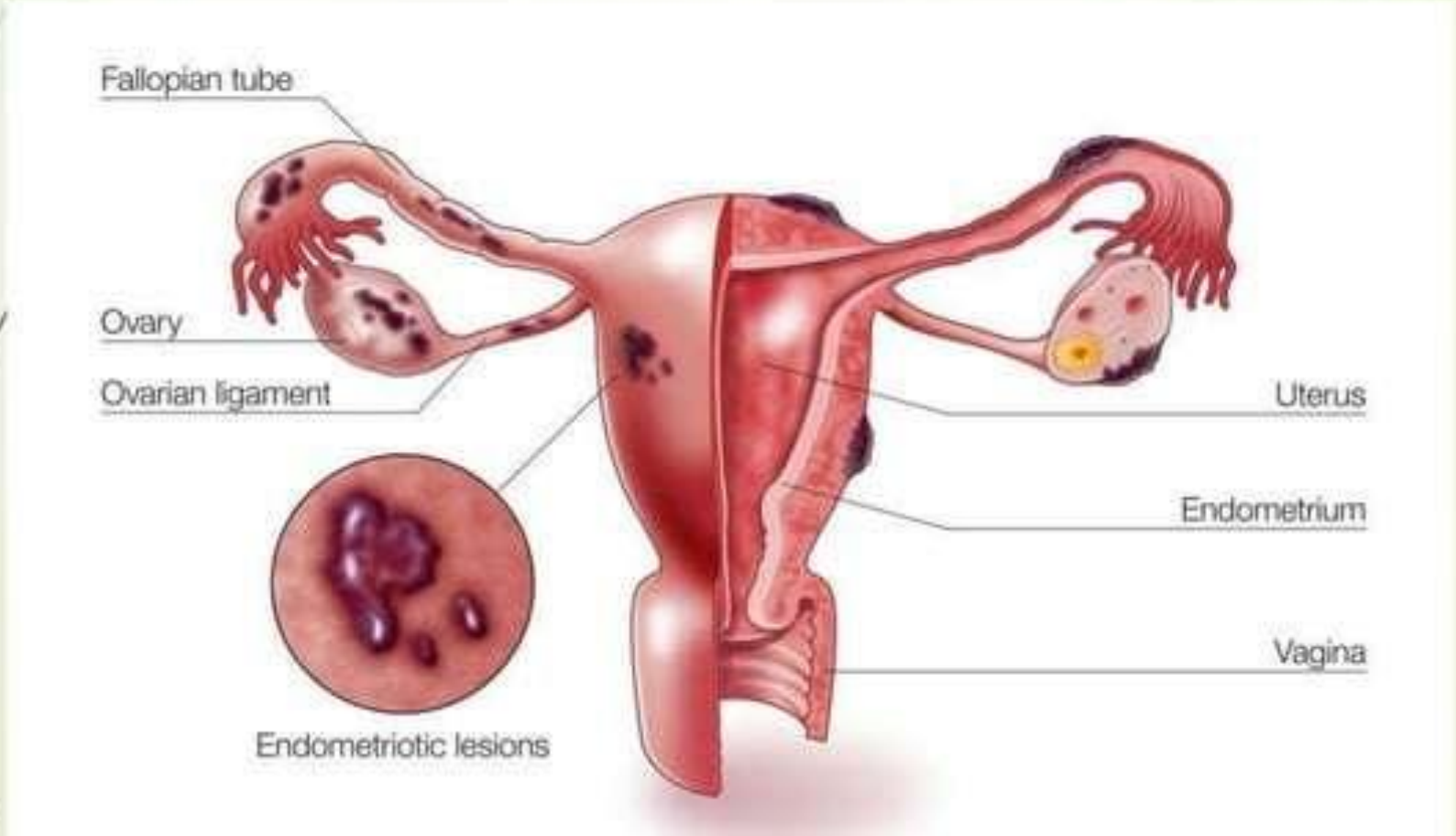
- Less commonly cervix, hernial sacs, the umbilicus, laparotomy or episiotomy scars may be involved.
- It is not a neo-plastic condition, though can transform to malignancy.

DEFINITION

The presence of functioning endometrium (glands & Stroma) in sites other than uterine mucosa is called endometriosis.



INCIDENCE

- Endometriosis is estimated to occur in roughly 6-10% of women .
- It is most common in those in their 30s and 40s however can begin in girls as early as 8 yrs old (in rare cases).
- During the last couples of decades, the prevalence of endometriosis has been increasing.
- The real cause of increasing incidence is due to delayed marriage, postponement of first conception and adoption of small family norm.
- It results in few deaths estimated being 200 globally in 2013.

1 in 10 women suffer from endometriosis in India.

RISK FACTORS

Genetics- Genetic predisposition plays arole.

- Daughters or sisters of women with endometriosis are at higher risk of developing endometriosis themselves.
- Low progesterone levels may contribute to a hormone imbalance.
- There is an about **six-fold increased incidence** in women with an affected first-degree relative.
- It has been proposed that endometriosis results from a series of multiple gene mutations, which is similar to the development of cancer.

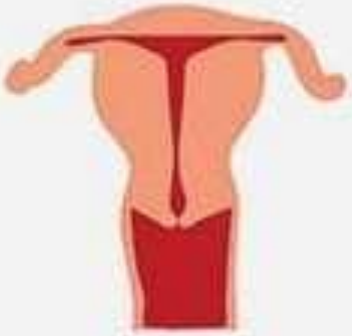
Environmental toxins- Some factors associated with endometriosis include:

- not given birth (nulliparity)
- prolonged exposure to estrogen; for example, in late menopause or early menarche.
- obstruction of menstrual outflow; for example, in Müllerian anomalies

- Infertility.
- Reproductive age (usually, late teens to 40s).
- Prolonged menses of 8 or more days.

Congenital Mullerian Anommalies

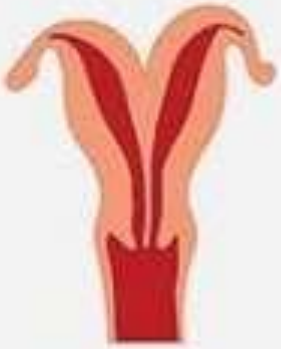
Normal Uterus



Class I: Uterine Hypopiasia and/Or agenesis

Class II: Unicornuate Uterus

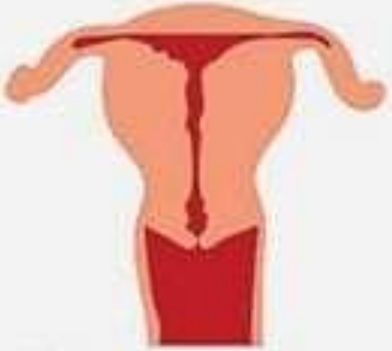
Class III: Uterus Didelphys



Class IV: Bicornuate Uterus

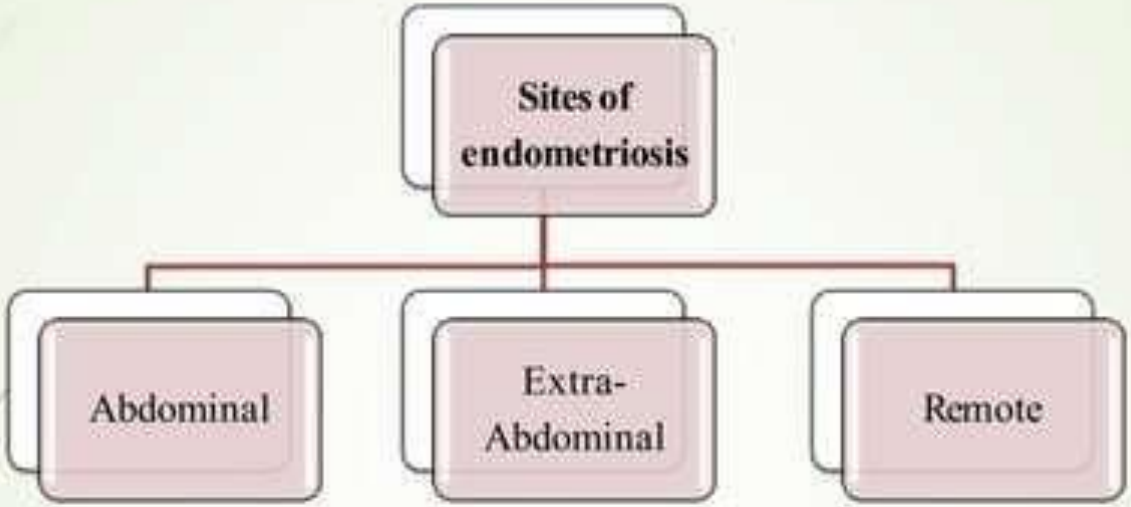
Class V: Septate uterus

Class VI: Arcuate uterus



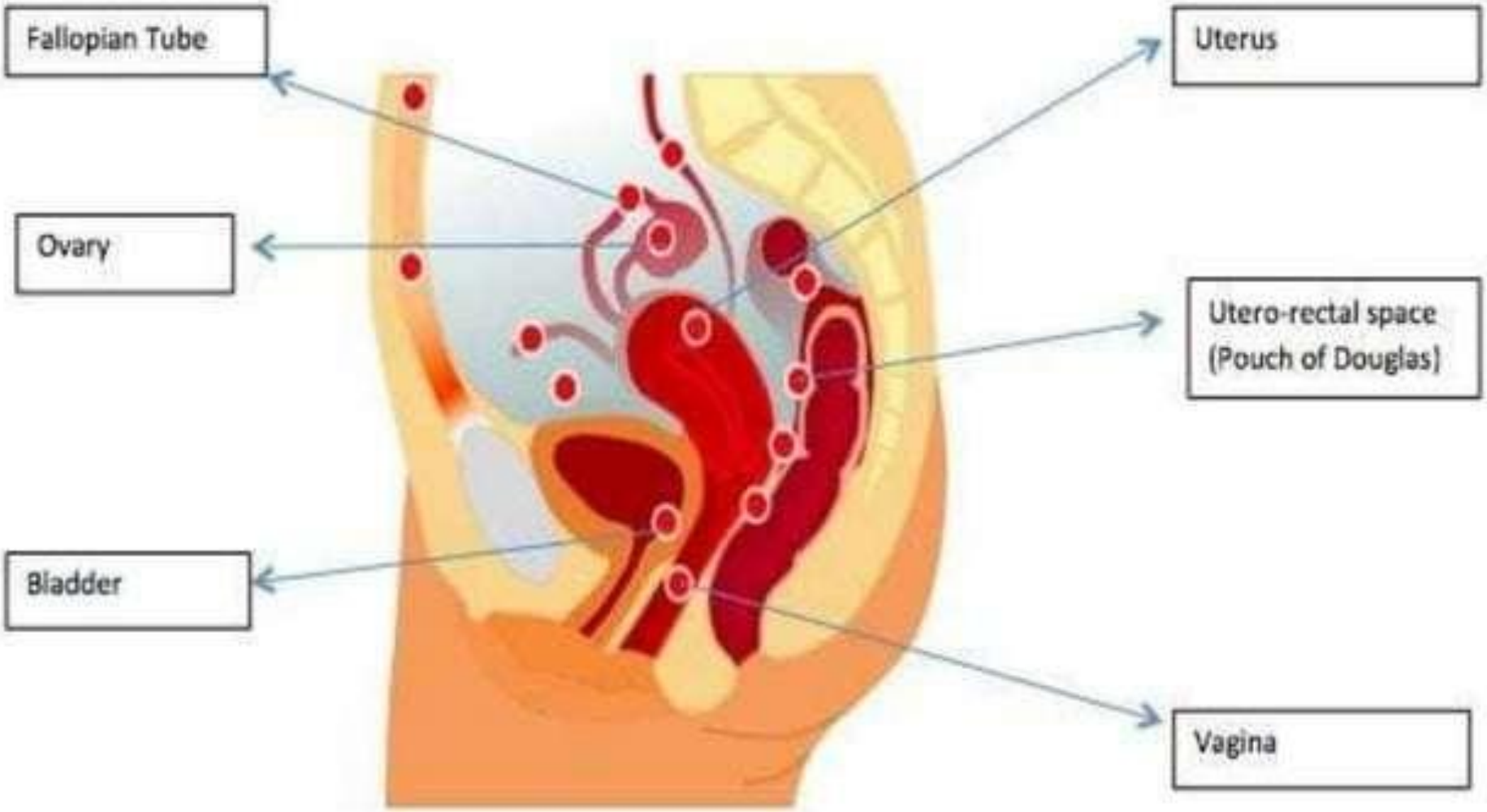
Class VII: Diethylstilbestrol (DES) Drug Related

SITES

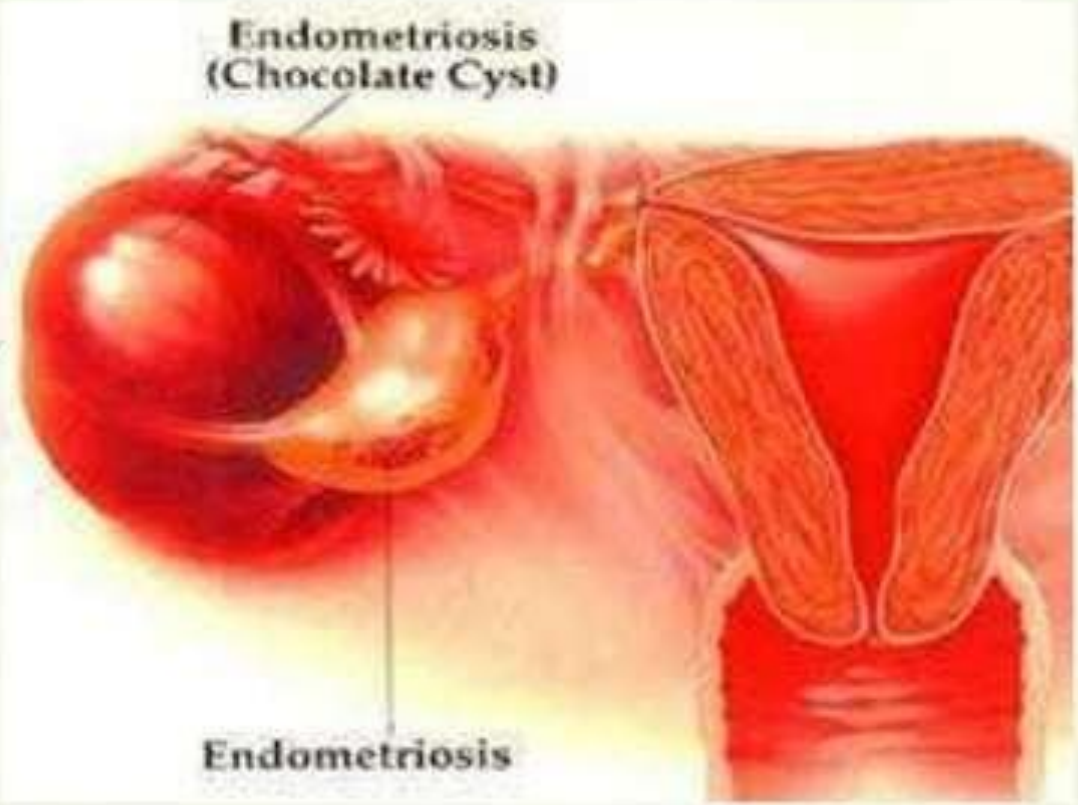


1. **Abdominal** -It can occur at any site but is usually confined to abdominal structures below the level of umbilicus, most commonly ovaries, fallopian tubes, cul –de-sacs, broad ligaments, uterosacral ligaments, round ligament, rectosigmoid colon, vagina, caecum etc..
2. **Extra- abdominal** -The common sites are abdominal scar of hysterectomy , caesarean section, tubectomy , myomectomy, umbilicus, episiotomy scar, vagina and cervix.
3. **Remote** - Lungs, Pleura, Ureter, Kidney, Arms, Legs, Nasal mucosa.

POSSIBLE LOCATIONS OF ENDOMETRIOSIS

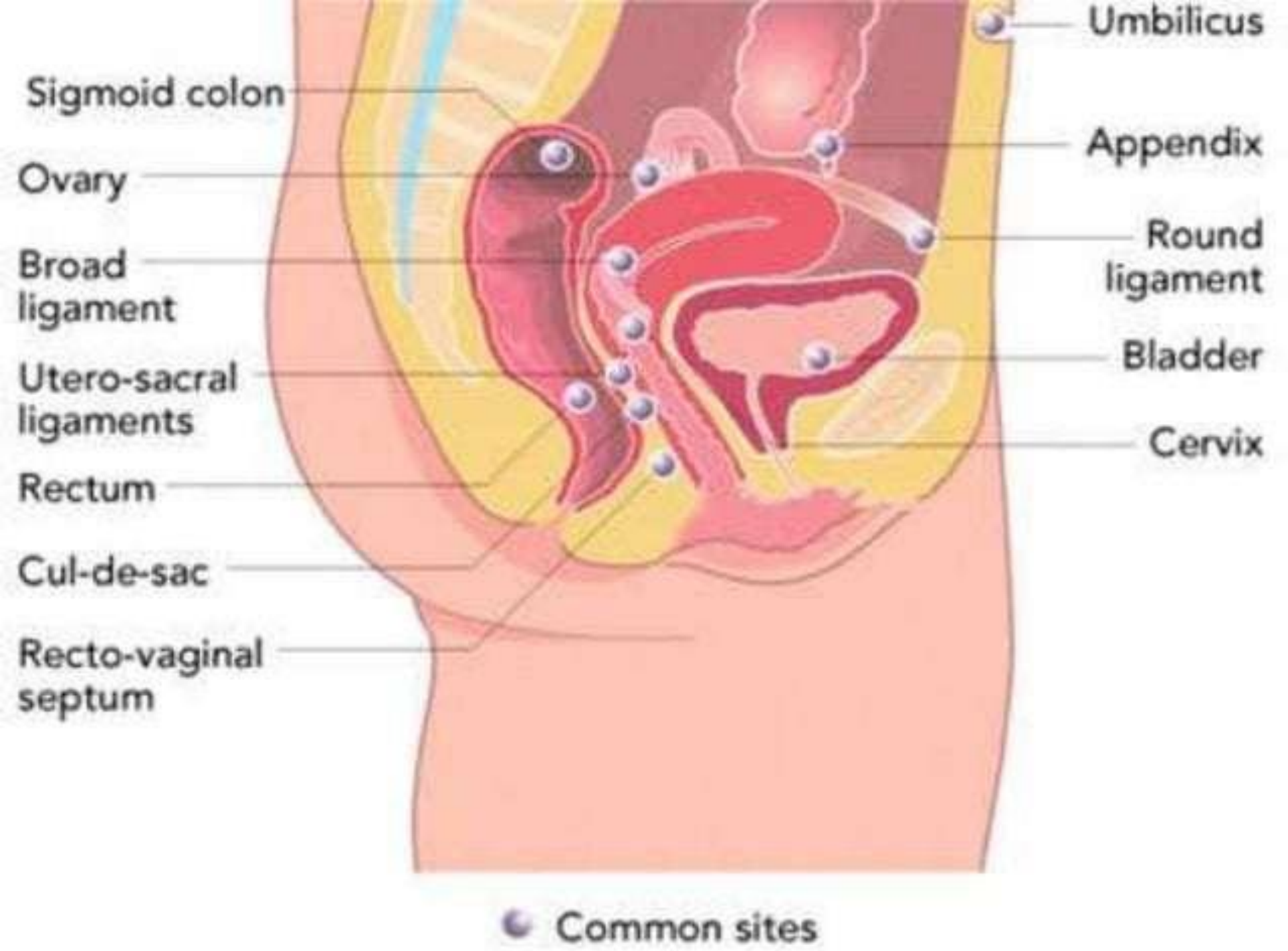


Ovarian endomeriosis

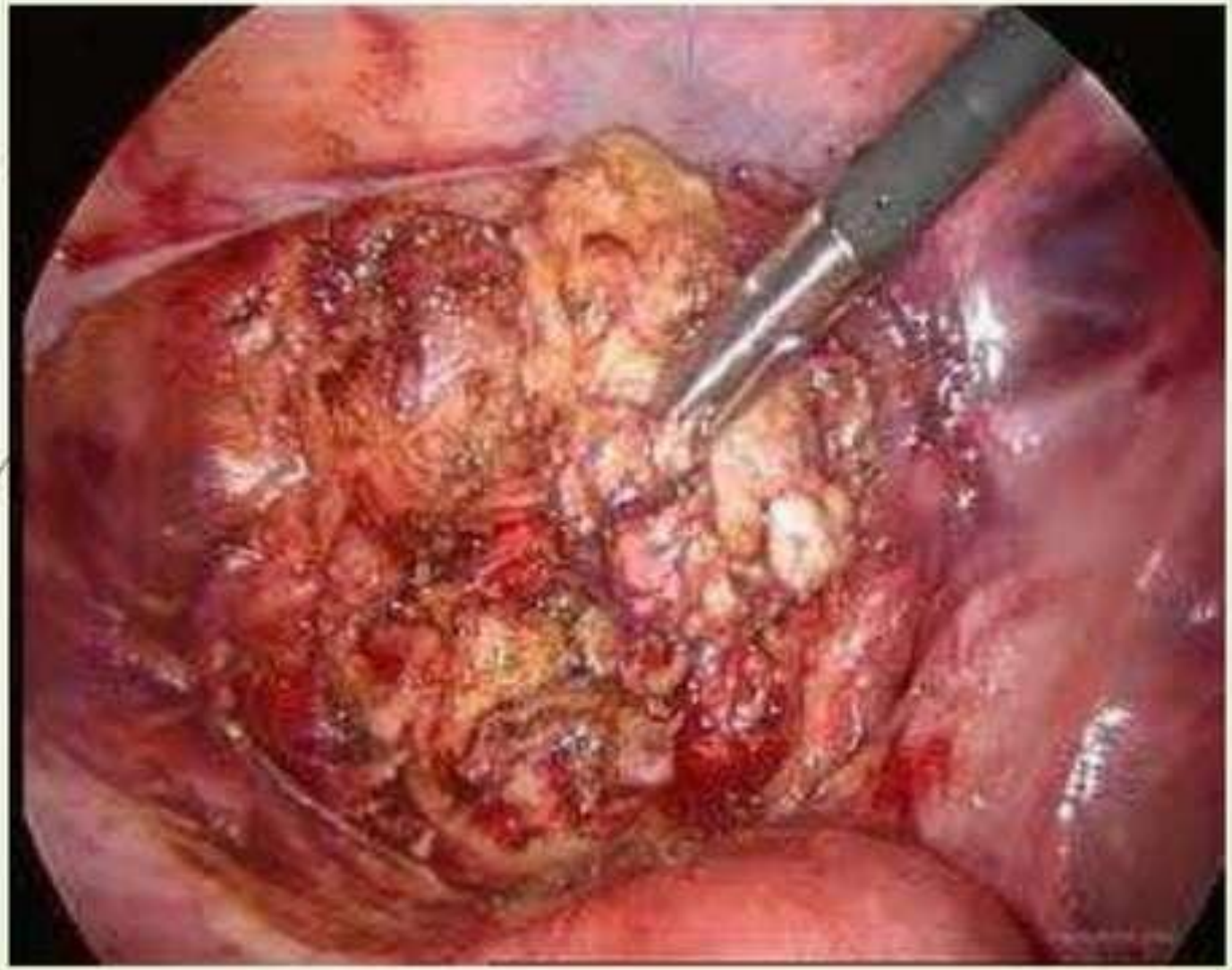


Sites of endometriosis

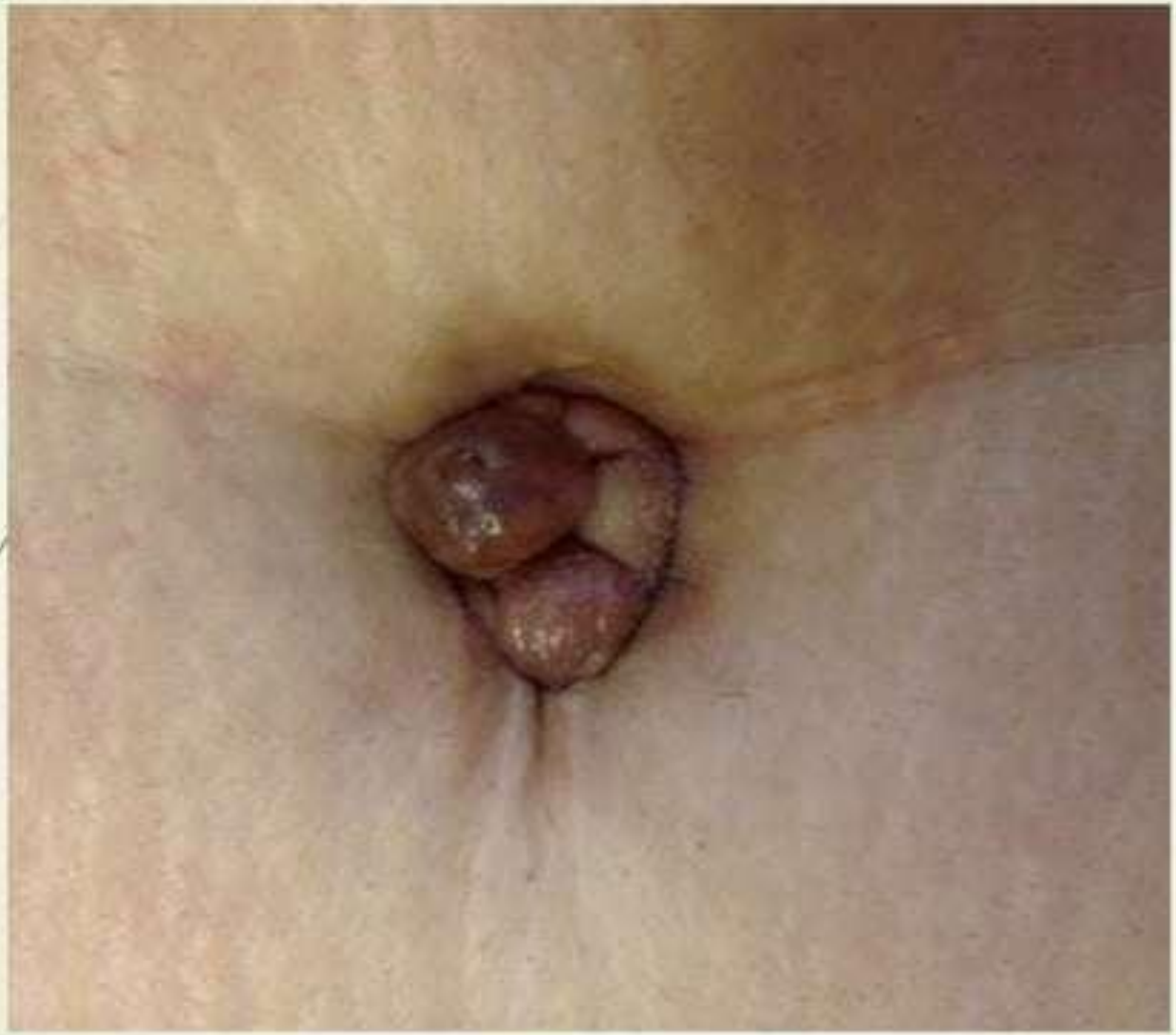
- *Pelvic*
  - Ovary
  - Cul de sac
  - Uterosacrals
  - Posterior surface of uterus
  - Posterior broad ligament
  - Rectovaginal septum
  - Tubes and round ligaments
- *Extrapelvic sites*
  - Intestines (rectosigmoid, cecum, terminal ileum, proximal colon, appendix)
  - Lungs & thorax
  - Urinary tract
- *Less common sites*
  - Cervix
  - Hernial sacs
  - Umblicus
  - Laparotomy/episiotomy sites
  - Tubal stumps after sterilization
- *Rarest*
  - Extremities


Umbilicus
Sigmoid colon
Appendix
Ovary
Round ligament
Broad ligament
Bladder
Utero-sacral ligaments
Cervix
Rectum
Cul-de-sac
Recto-vaginal septum
Common sites

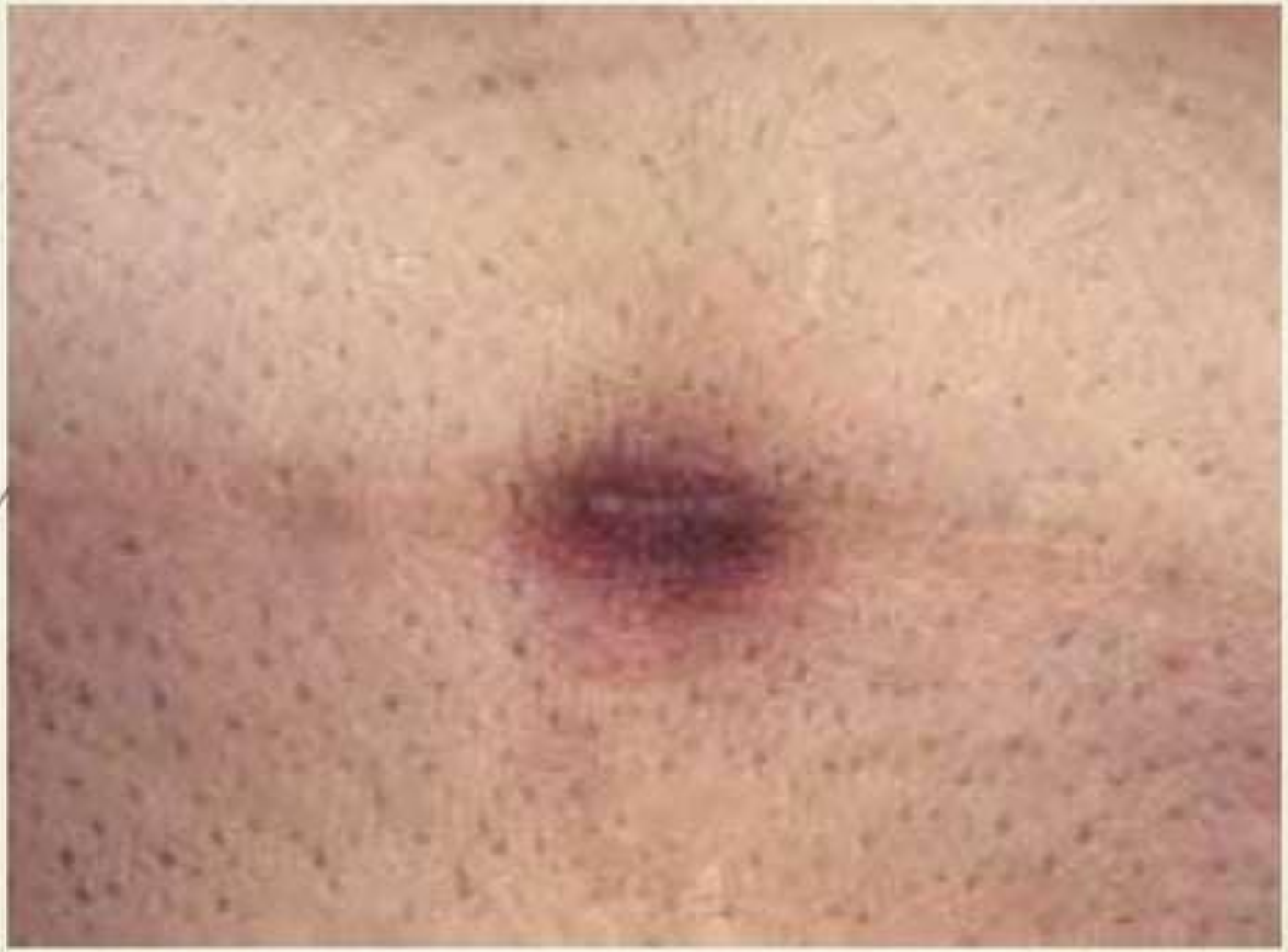
Bowel endometriosis



Umbilical endometriosis



Endometriosis in scars

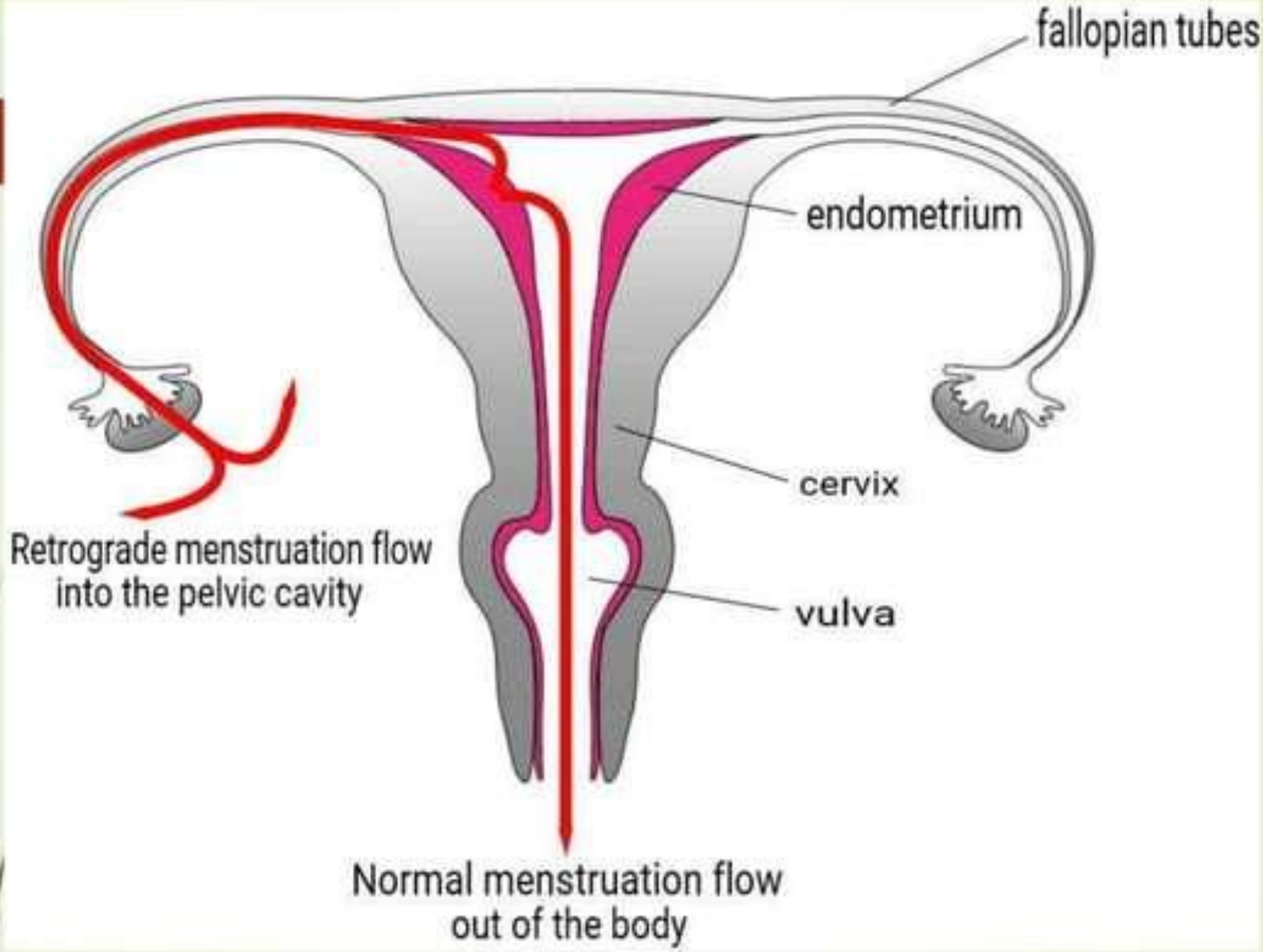


PATHOGENESIS

While the exact cause of endometriosis remain unknown. Many theories has been presented to better understand and explains its development .

The main theories are explained below:-

1. **Sampon's theory-** proposed by **John.A.Sampson**. Also known as Retrograde menstruation . According to this theory, there is retrograde flow of menstrual blood through the uterine tubes during menstruation. The endometrial fragments get implanted in the peritoneal surface of pelvic organs.
   - This theory explains only pelvic endometriosis, it fails to explain the endometriosis at distant sites.



Reterograde Menstruation Theory (Sampson's Theory)

2. **Meyer and Ivanoff Theory-** Also known as Coelomic Metaplasia.

- Chronic irritation of pelvic peritoneum by the menstrual blood may cause coelomic metaplasia which results in endometriosis.
- This theory can explain endometriosis of the abdominal viscera, the retrovaginal septum and the umbilicus.

3. Halban's Theory- Also known as Lymphatic Theory.

- It may be possible for normal endometrium to metastasise the pelvic lymph nodes through the draining lymphatic channels of uterus.

3. **Vascular theory-** It can explain endometriosis at distant sites as lungs, arms or thighs.

4. **Direct Implantation-** According to this theory, endometrial or decidual tissues start to grow in susceptible individual when implanted in the new sites.

- Such sites are the abdominal scar following hysterectomy, caesarean section, tubectomy, myomectomy.
- This theory explains endometriosis at episiotomy scar, vaginal or cervical site but fails to clarify endometriosis at sites other than mentioned.

PATHOPHYSIOLOGY

In endometriosis

Under the influence of hormones

Endometrial tissue that is located outside
The uterus, thickens, breaks down and bleeds
Each month.

This blood cannot exit the body

The blood becomes trapped

Form cysts

Scar tissue and adhesions

Infertility

irritate the surrounding
Tissue

Pain

- **Naked eye appearance:-**

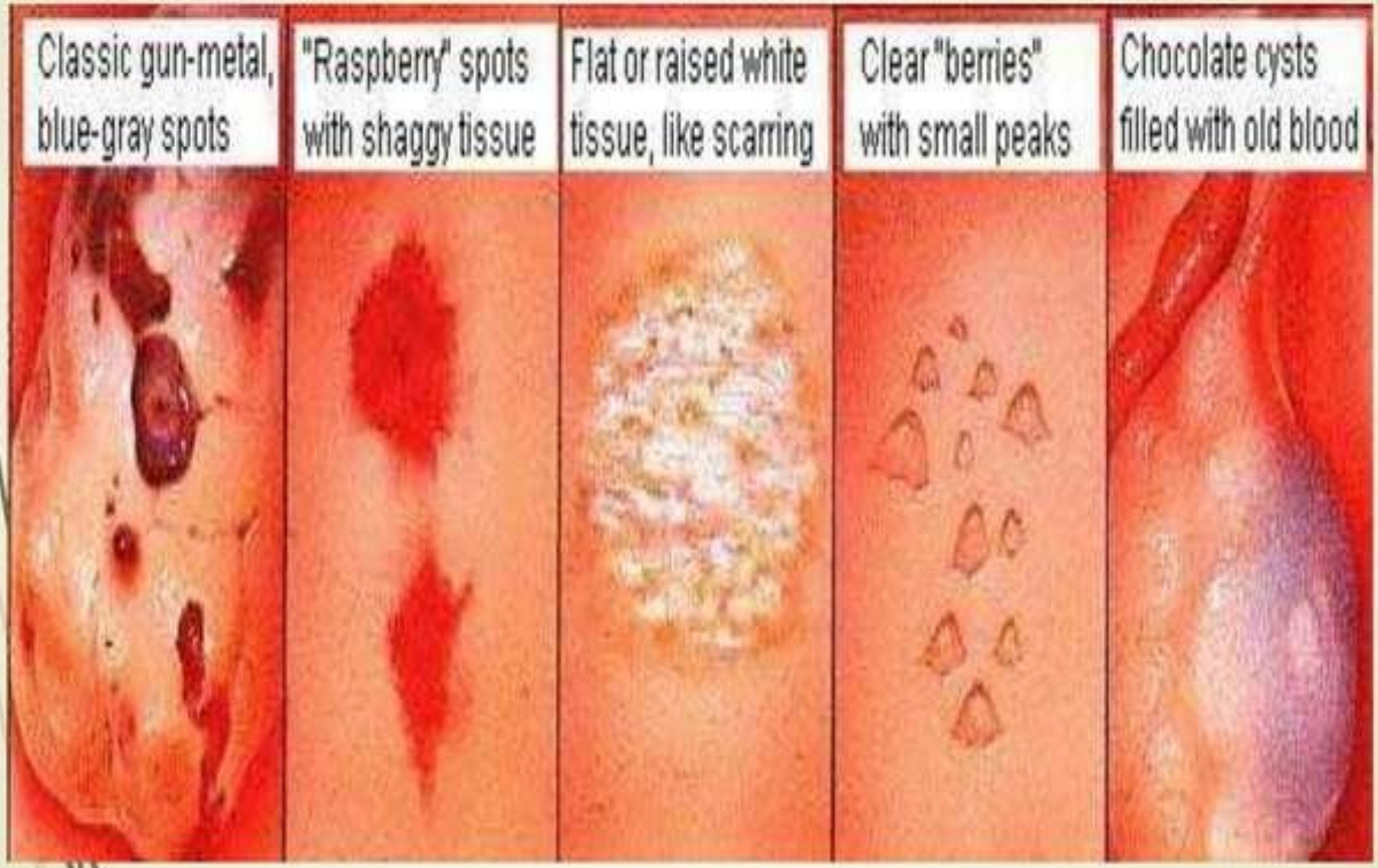
In the case of pelvic endometriosis , there are-

i. Small black dots called “powder burns” seen on uterosacral ligaments and pouch of douglas.
ii. Fibrosis and scarring in the peritoneum surrounding the implants is also has typical findings.
iii. Red flame shaped areas
iv. Red polyploid areas
v. Yellow brown patches
vi. White peritoneal areas
vii. Sub ovarian adhesions

- **Microscopic Appearance:-**

i. There is presence of endometrial tissue-both glands and stroma.

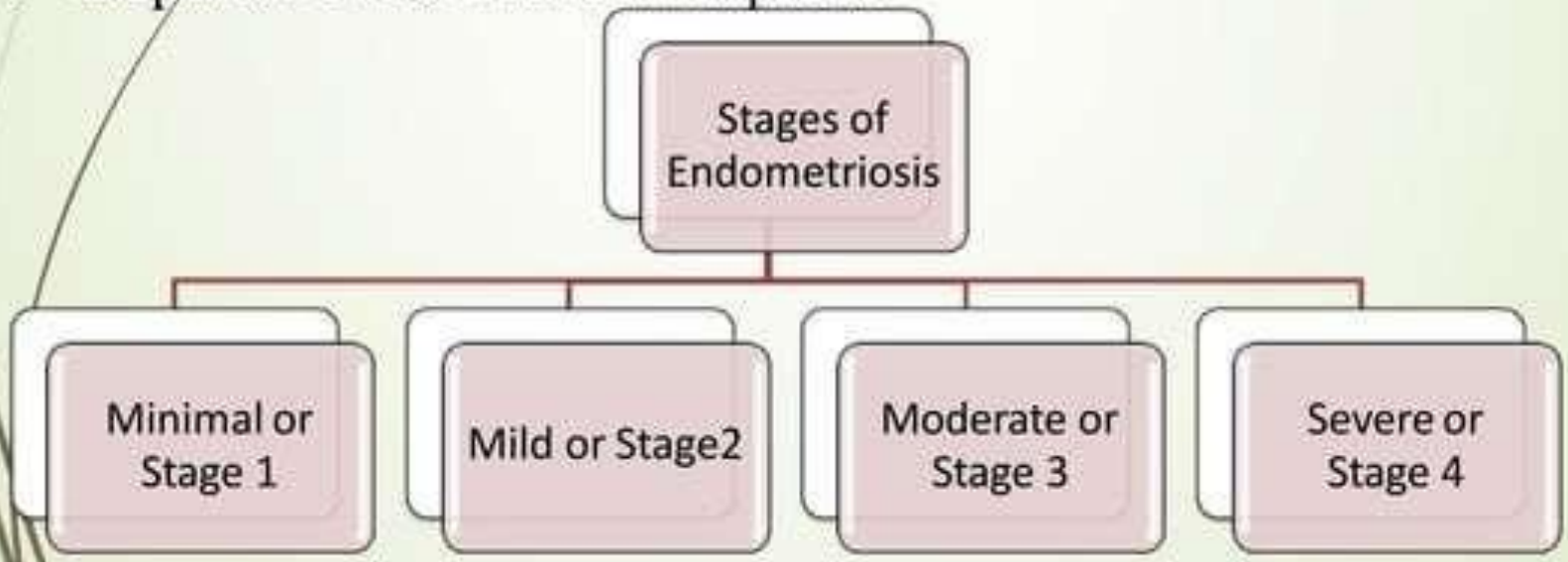
ii. The cyst wall is composed of fibrous tissue and compressed ovarian cortex.


Classic gun-metal, blue-gray spots
"Raspberry" spots with shaggy tissue
Flat or raised white tissue, like scarring
Clear "berries" with small peaks
Chocolate cysts filled with old blood

STAGES OF ENDOMETRIOSIS

- Different factors determine the stage of the disorder. The factor includes-

i. Location
ii. Number of lesions
iii. Size
iv. Depth of endometrium implant

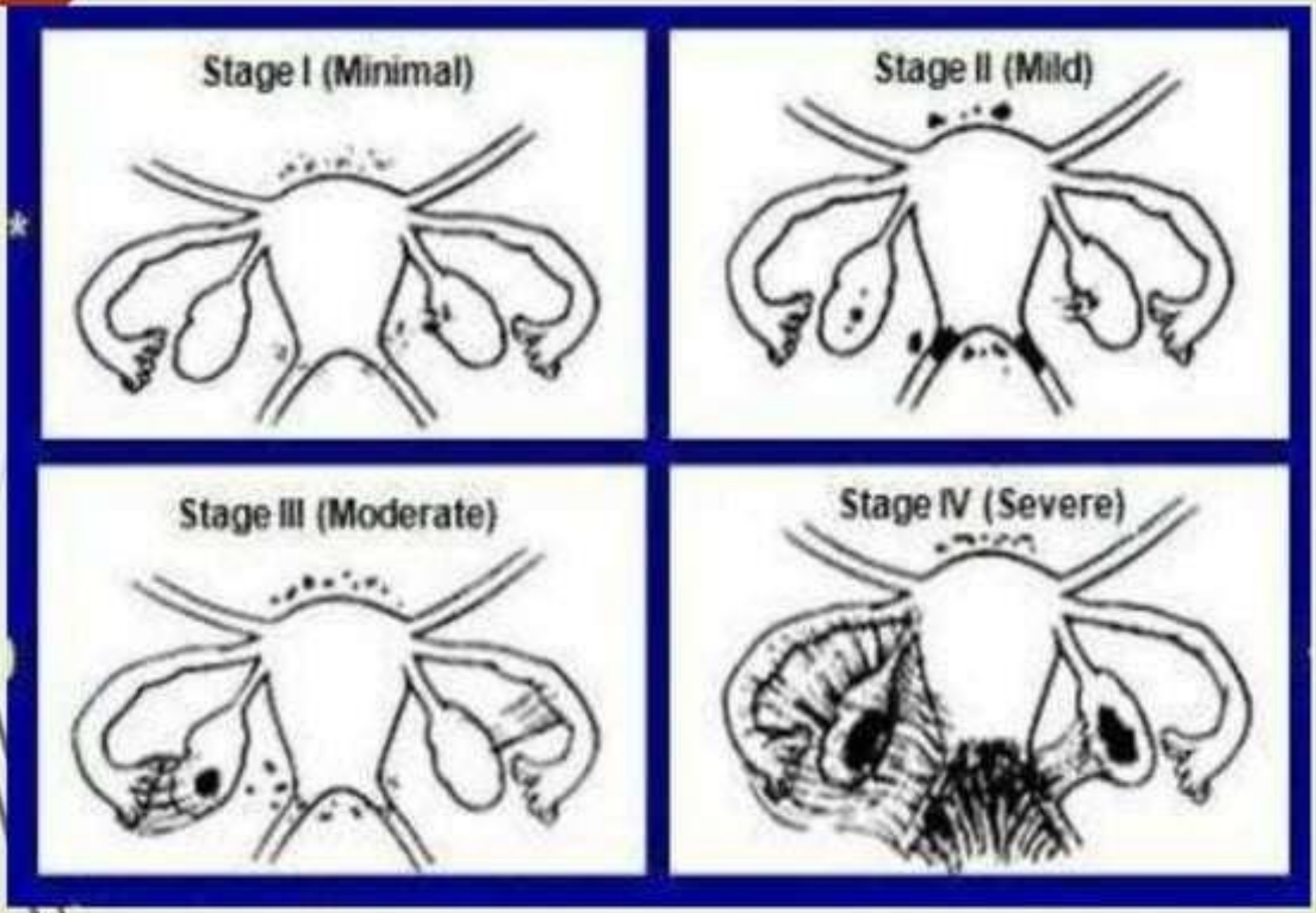


- **Stage 1 or Minimal endometriosis:-**In Stage 1, there are small lesions or wounds and shallow endometrial implants on ovary. There may be inflammation in or around pelvic cavity.

- **Stage 2 or Mild endometriosis:-**In Stage2 there is light lesions and shallow implants on an ovary and the pelvic lining.

- **Stage 3 or Moderate endometriosis:-**In Stage 3 there are deep implants on ovary and pelvic lining. There can also be more lesions.

- **Stage 4 or Severe endometriosis:-**The most severe stage of endometriosis involves deep implants on pelvic lining.


Stage I (Minimal)
Stage II (Mild)
Stage III (Moderate)
Stage IV (Severe)

Revised Staging-

- Surgically, endometriosis can be staged I–IV by the revised classification of the American Society of Reproductive Medicine from 1997.
- Stage I (Minimal) Findings restricted to only superficial lesions and possibly a few filmy adhesions
- Stage II (Mild) In addition, some deep lesions are present in the cul-de-sac.
- Stage III (Moderate) As above, plus the presence of endometriomas on the ovary and more adhesions.
- Stage IV (Severe) As above, plus large endometriomas, extensive adhesions.

Clinical features of endometriosis

Clinical findings:

Patient profile

- The age is between 30-45
- The patients are mostly nulliparous or had one or 2 children long years prior to appearance of symptoms.
- There is often family history Of endometriosis.

Symptoms

- About 25% of patients with endometriosis have no symptoms
- Symptoms are not related with the extension of lesion
- The symptoms are mostly related to the site of lesion and its ability to respond to hormones.

CLINICAL MANIFESTATIONS

- Dysmenorrhea (50%) – painful, sometimes disabling cramps during the menstrual period; pain may get worse over time (progressive pain), also lower back pain linked to the pelvis
- Chronic pelvic pain – typically accompanied by lower back pain or abdominal pain
- Dyspareunia – painful sex
- Dysuria – urinary urgency, frequency, and sometimes painful voiding

- Abnormal Menstruation (60%) – Menorrhagia is the predominant abnormality.

If the ovaries are also involved polymenorrhoea or epimenorrhagia may be pronounced.

There may be premenstrual spotting.

- Infertility (40-60%) -About one third of women with infertility have endometriosis.

Among women with endometriosis about 40% are infertile.

The pathogenesis of infertility is depending on the stage of disease: in early stage, it is hypothesised that this is secondary to an inflammatory response that impairs various aspects of conception, whereas in later stage, distorted pelvic anatomy and adhesions contribute to impaired fertilisation.

Areas where I feel pain from Stage IV Endometriosis

Head
headaches start at base of skull and radiate

Under Ribcage
tight and pinching feeling under ribcage

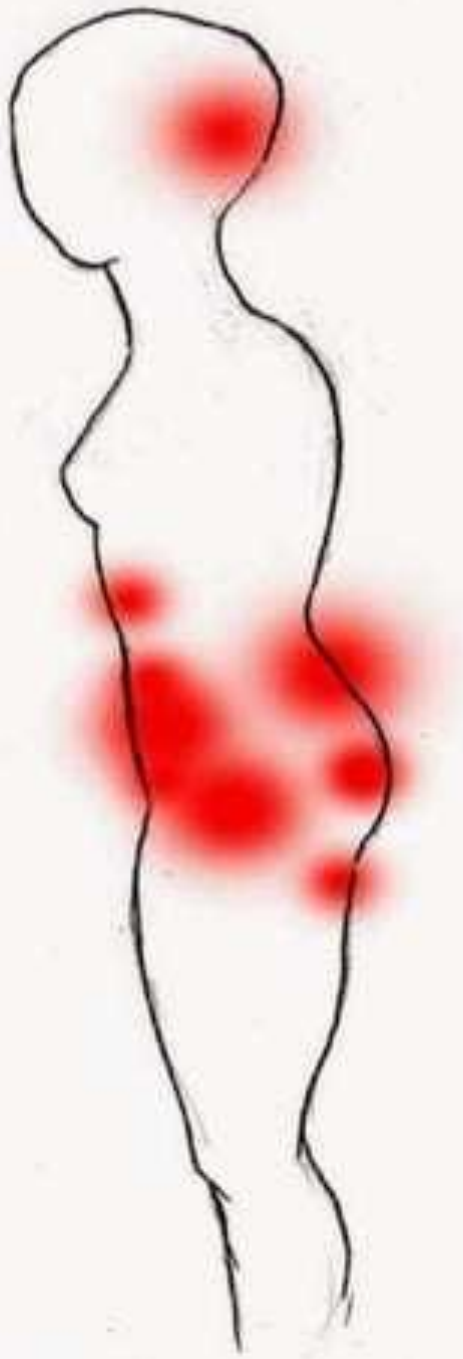
Abdomen
pain ranges from dull and achy to sharp,
discomfort also from bloating from endo toxins

Pelvic Cavity
pain ranges from achy to sharp,
sometimes with a pulling feeling

Lower Back
pain ranges from dull and pulsing to sharp

Bowels
adhesions connect my bowel to an ovary
so even passing gas can be painful

Sciatic Nerve
sharp pain that radiates from buttocks to the hamstring



Other Symptoms-

- diarrhea or constipation
- chronic fatigue
- nausea and vomiting
- Headaches
- low-grade fever
- hypoglycemia

SIGNS AND SYMPTOMS
that Mean You Could Have
ENDOMETRIOSIS

HEAVY OR IRREGULAR MENSTRUAL BLEEDING

PAIN DURING OR AFTER INTERCOURSE

PAIN IN OTHER BODY PARTS

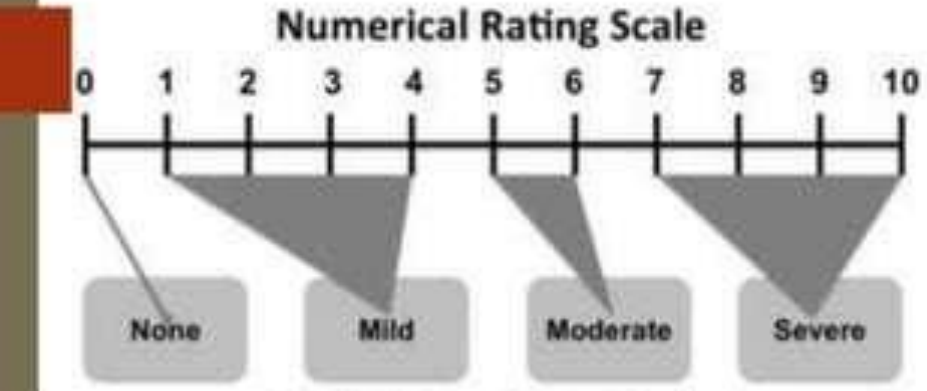
ABDOMINAL PAIN

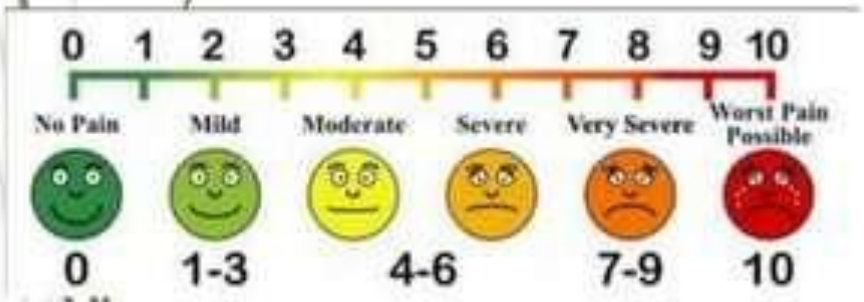
REDUCED FERTILITY

BOWEL PROBLEMS

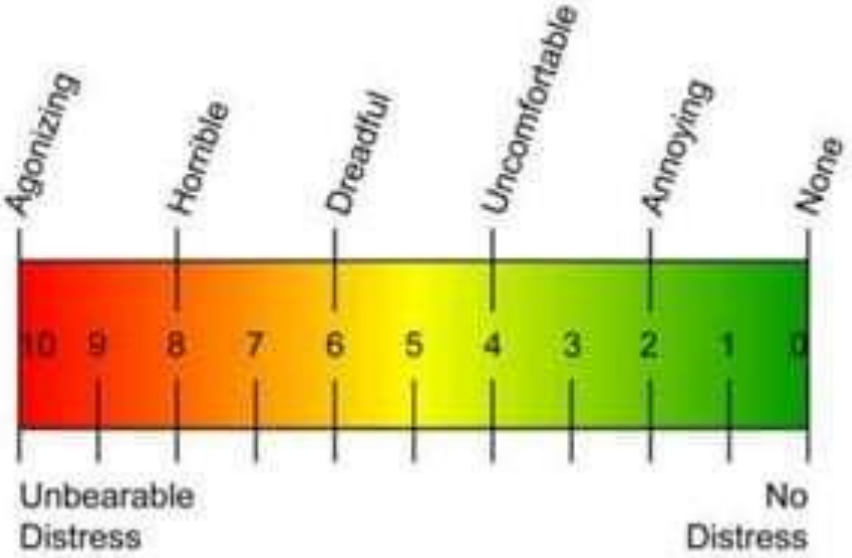
DIAGNOSTIC TESTS

- A health history and physical examination **(Clinical diagnosis)**
- Visual analogue scale (VAS); and numerical rating scale (NRS) were the best adapted pain scales for pain measurement in endometriosis.
- **Vaginal Ultrasound**
- **Laparoscopy**
- **Serum marker CA 125-** A moderate elevation of serum CA 125 is noticed in patients with severe endometriosis. It is not specific for endometriosis as it is significantly raised in epithelial ovarian carcinoma.





Verbal Descriptor Scale



DIAGNOSIS CONT..

Detailed history

Family history of endometriosis

Menstrual history -specifically the flow of blood, any sign of dysmenorrhoea.

Assess for any other signs and symptoms related to endometriosis.

Physical examination

- ***Abdominal examination-*** Abdominal palpation may not reveal any abnormality.
- A mass may be felt in lower abdomen arising from the pelvis, enlarged chocolate cyst or tubo-ovarian mass due to endometriotic adhesions
- The mass is tensed with restricted mobility.

- ***Pelvic examination-*** Bimanual examination may not reveal any pathology . The expected positive findings are pelvic tenderness, nodules in pouch of douglas, nodular feel at uterosacral ligaments, or bilateral adnexal mass of varying size.
  - Speculum examination may reveal **bluish spots** in posterior fornix.
  - Rectal or recto-vaginal examination is often helpful to confirm the findings.

Ultrasonography:-

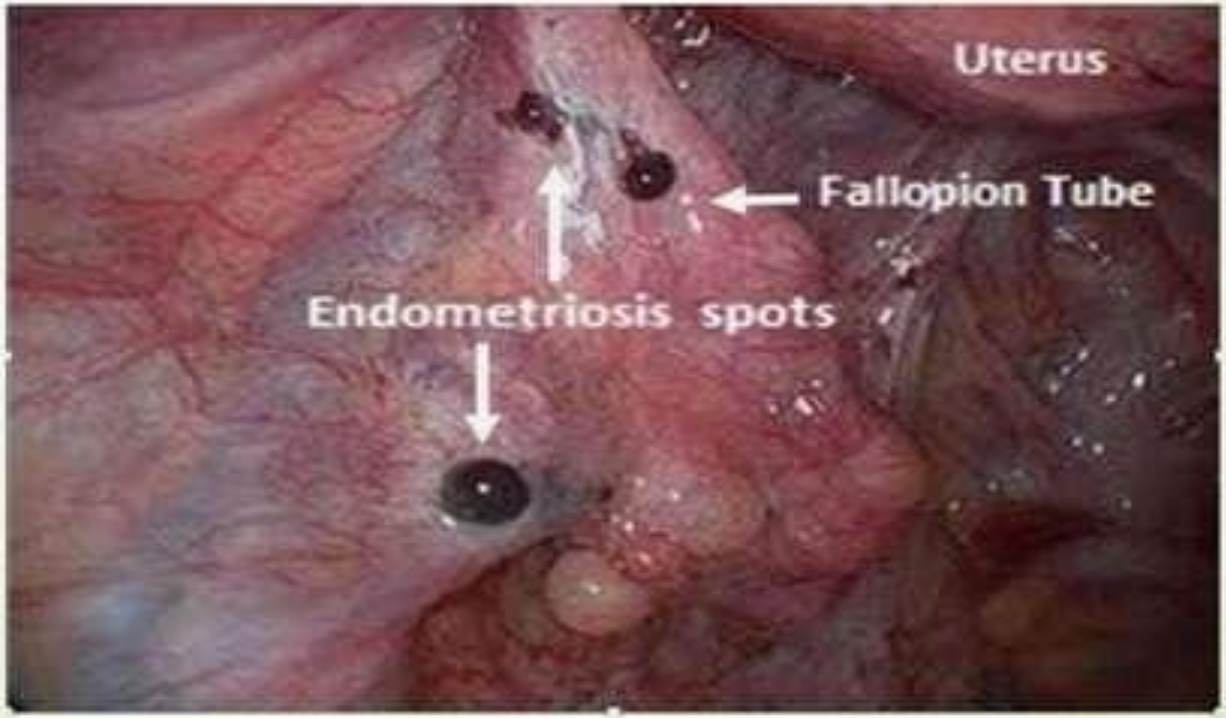
TVS can detect ovarian endometriomas. TVS and endorectal ultrasound are found better for rectosigmoid endometriosis.

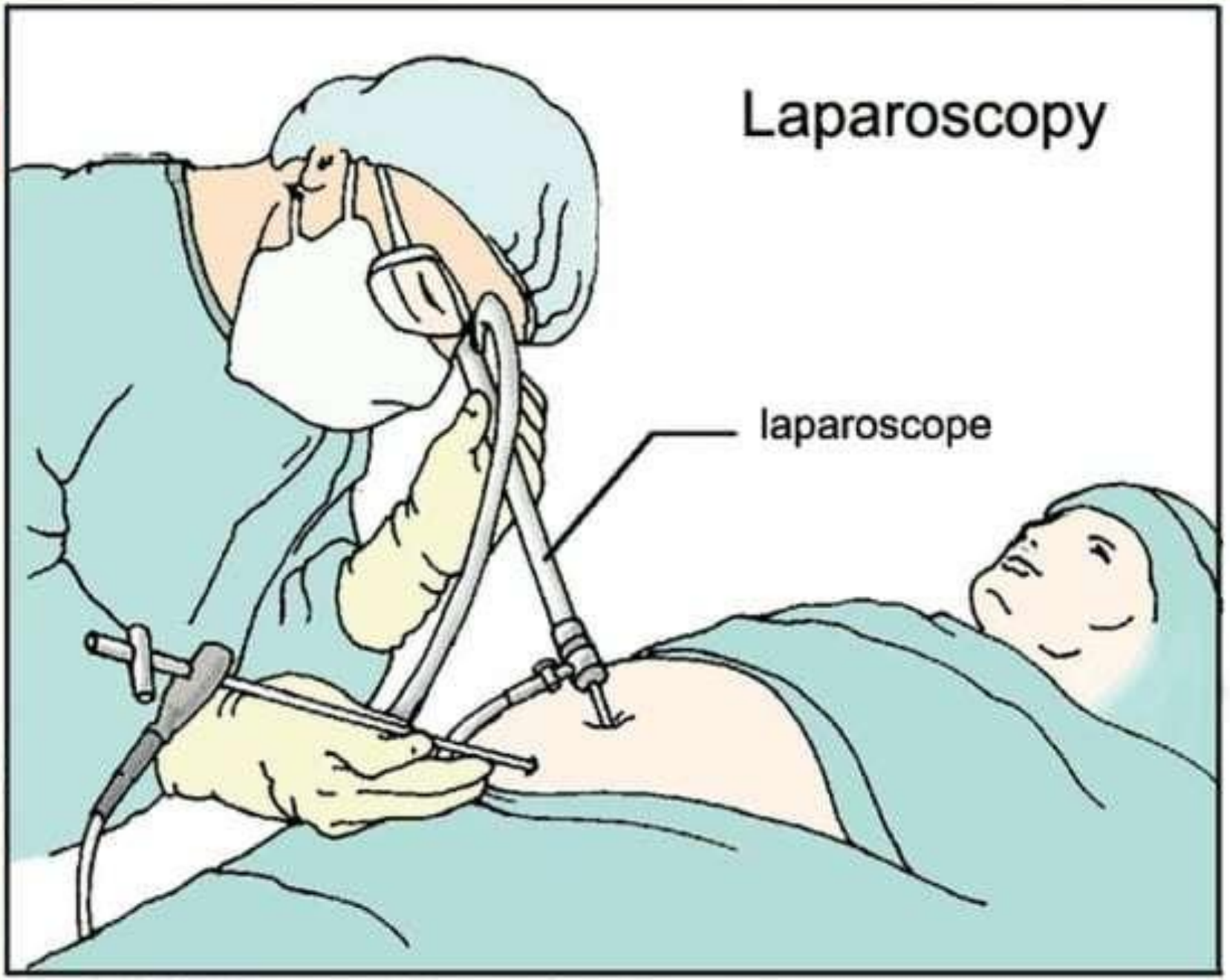
Biopsy:-

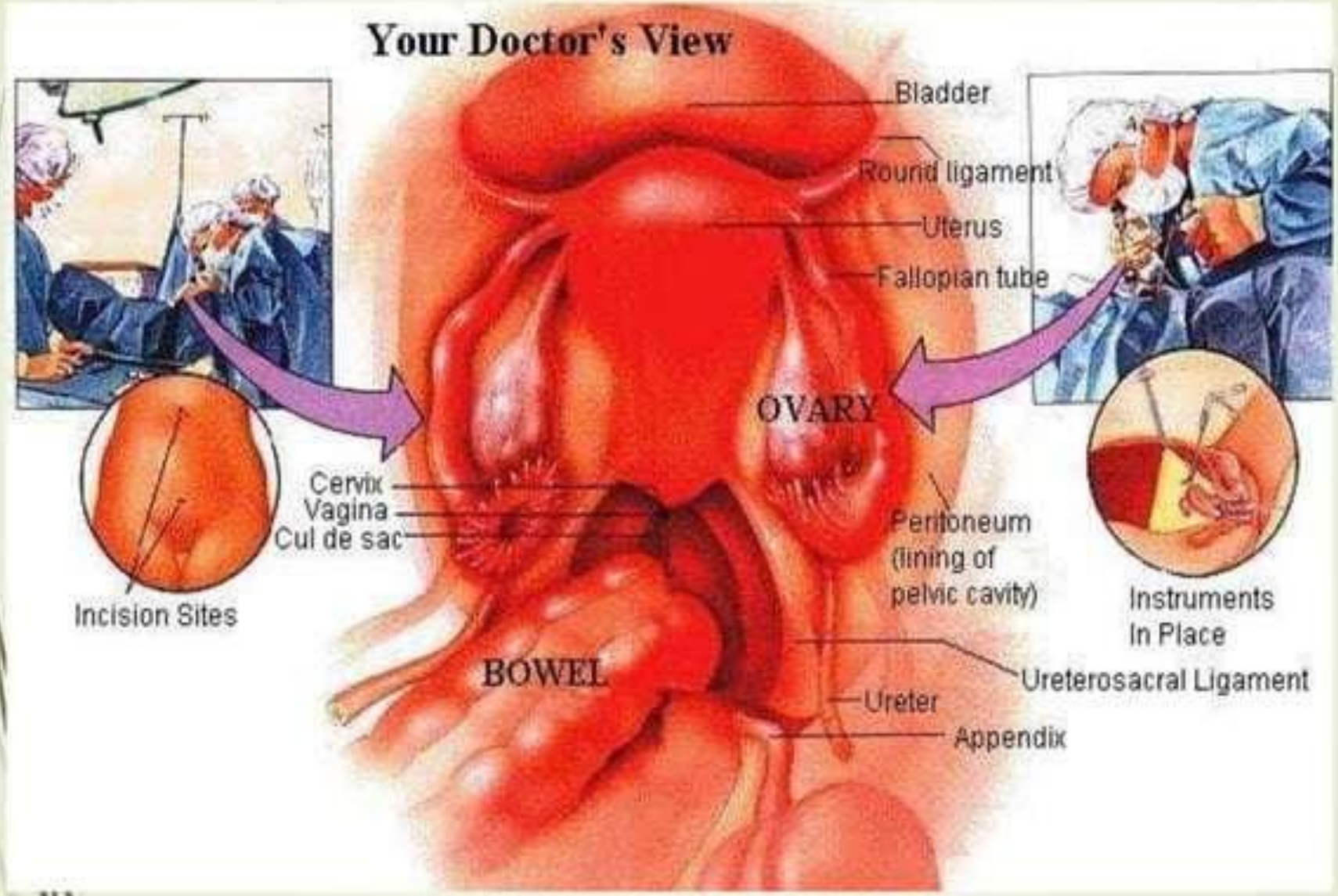
Biopsy confirmation of excised leison is ideal. It is done to-

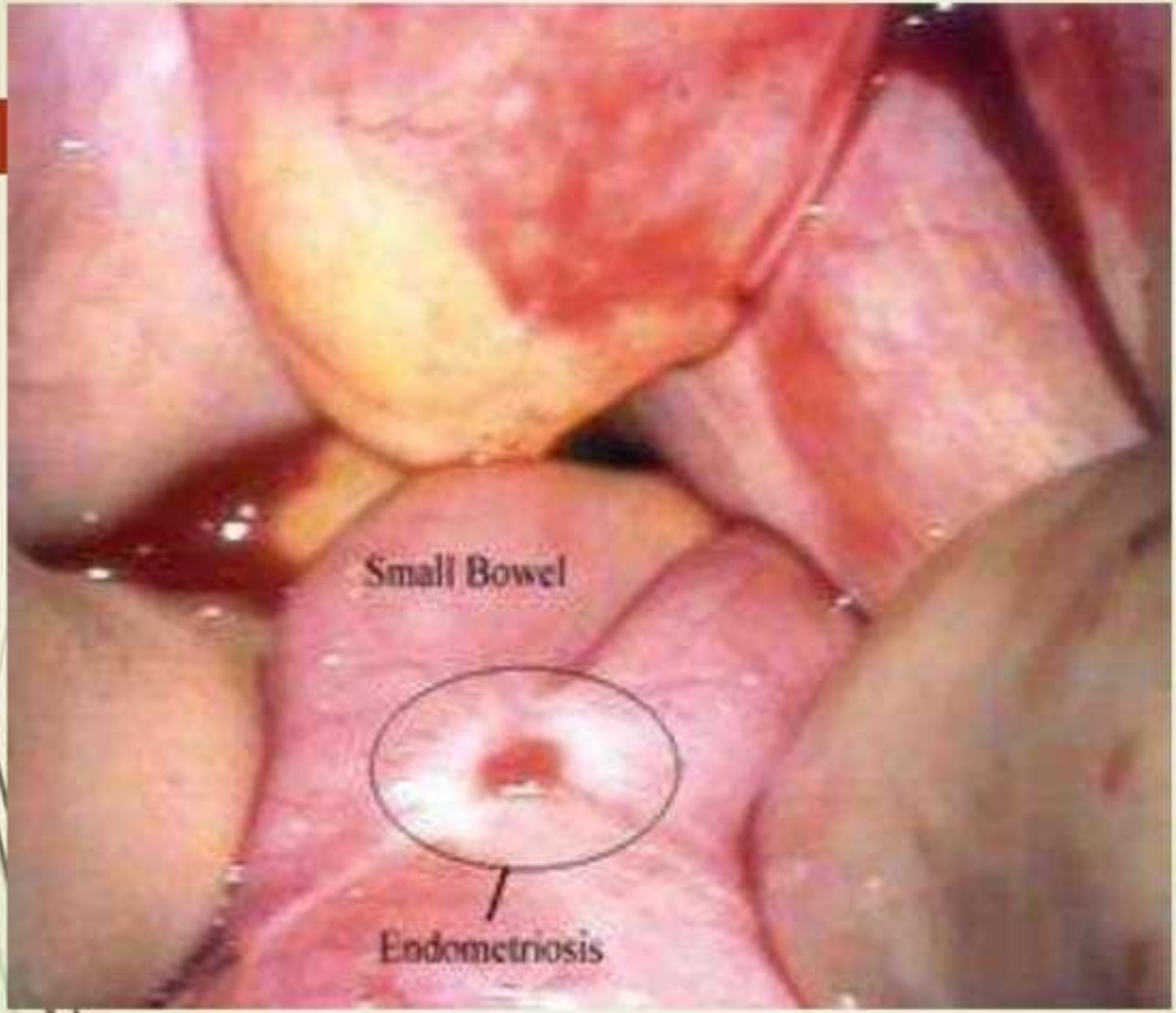
- Check for cancer of uterus
- Find the cause of heavy , prolonged, irregular uterine bleeding.

- **Magnetic Resonance Imaging (MRI)**
- **CT SCAN**
- **Laproscopy:-** It is the gold standard for detection of the endometriosis.
- Confirmation is done by double puncture laproscopy or by laprotomy.
- Confirmation of leison with size, shape, site , extent.






Your Doctor's View
Bladder
Round ligament
Uterus
Fallopian tube
OVARY
Cervix
Vagina
Cul de sac
Peritoneum
(lining of
pelvic cavity)
Incision Sites
Instruments
In Place
BOWEL
Ureterosacral Ligament
Ureter
Appendix


Small Bowel
Endometriosis

Differential diagnosis

1. Chronic pelvic inflammatory disease or recurrent acute salpingitis.
2. Hemorrhagic corpus luteum.
3. Benign or malignant ovarian neoplasm.
4. Ectopic pregnancy.

MANAGEMENT

Preventive

The following guidelines may be prescribed to prevent or minimise endometriosis.

- To avoid tubal patency test immediately after curettage or around the time of menstruation
- Forcible pelvic examination should not be done during or shortly after menstruation.
- Married woman with family history of endometriosis are encouraged not to delay the first conception.

MANAGEMENT

Curative:

The objectives are:

- To abolish or minimise the symptoms – Pelvic pain & dysmenorrhoea
- To improve the fertility
- To prevent recurrence.

Treatment options for pelvic endometriosis:

- Expectant Management (Observation)
- Medical treatment (Hormonal & Others)
- Surgery (Conservative & Definitive)
- Combined Therapy (Medical & Surgical)

EXPECTANT TREATMENT

- Endometriosis is a progressive disease in about 30-60 percent of women.
- It is not possible to predict in which woman it will progress.
- Some form of treatment is needed to arrest the progress of the disease.
- However in women with minimal to mild endometriosis, role of any treatment is controversial.

MEDICAL MANAGEMENT

Hormonal therapy

- Progestogens
- Danazol(Danocrine) and Gestrinone (Dimetrose, Nemestran) , combined oestrogen & progesterone pills, suppressive steroids - inhibit the growth of endometriosis but their use remains limited as they may cause masculinizing side effects such as excessive hair growth and voicechanges.
- Gonadotropin-releasing hormone (GnRH) modulators

Hormonal treatment

Indications:

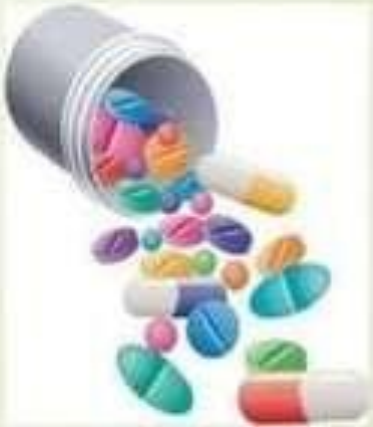
1. Severe symptoms with small pelvic lesions
2. Recurrence of symptoms after conservative surgery
3. May be given for a short time (6-12 weeks) before surgery to make dissection easier
4. After conservative surgery to allow any residual lesion to regress
5. When operation is contraindicated or refused by the patient

OTHER MEDICATIONS-

- NSAIDs (Anti-inflammatory)-They are commonly used in conjunction with other therapy. NSAID injections can be helpful for severe pain or if stomach pain prevents oral NSAID use.

Examples of NSAIDs include ibuprofen and naproxen.

- Opioids: Morphine sulphate
- Pentoxifylline, an immune modulating agent



Surgical management

Indications

- Endometriosis with severe symptoms - unresponsive to hormone therapy.
- Severe and deeply infiltrating endometriosis to correct the distortion of pelvic anatomy.
- Endometriomas of more than 1cm

SURGICAL MANAGEMENT

- Conservative treatment consists of the excision of the endometrium, adhesions, resection of endometriomas, and restoration of normal pelvic anatomy as much as possible.

- A hysterectomy (removal of the uterus) can be used to treat endometriosis in women who do not wish to conceive.

- For women with extreme pain, a presacral neurectomy may be very rarely performed where the nerves to the uterus are cut.

However, this technique is almost never used due to the high incidence of associated complications including presacral hematoma and irreversible problems with urination and constipation

Combined medical and surgical

Preoperative hormonal therapy aims at reduction of the size and vascularity of the lesion which facilitate surgery.

TREATMENT OF INFERTILITY

- Surgery is more effective than medicinal intervention for addressing infertility associated with endometriosis. Surgery attempts to remove endometrial tissue and preserve the ovaries without damaging normal tissue.
  - In-vitro fertilization (IVF) procedures are effective in improving fertility in many women with endometriosis.

- During fertility treatment, the ultra long pre treatment with GnRH-agonist has a higher chance of resulting in pregnancy for women with endometriosis, compared to the short pre treatment.

COMPLICATIONS

- Internal scarring,
- adhesions,
- pelvic cysts,
- chocolate cysts of ovaries,
- ruptured cysts, and
- bowel and ureter obstruction resulting from pelvic adhesions.
- Malignancy (Rare)

- Endometriosis-associated infertility can be related to scar formation and anatomical distortions.
- Ovarian endometriosis may complicate pregnancy by decidualization, abscess and/or rupture.
- Thoracic endometriosis is associated with recurrent pneumothorax at times of a menstrual period, termed as **catamenial pneumothorax.**

NURSING DIAGNOSIS

- Chronic pain related to endometrial pelvic implants
- Anxiety related to effect of endometriosis on fertility
- Deficient knowledge related to diagnosis and treatment options
- Ineffective sexuality patterns related to the manifestations of endometriosis

Recurrent endometriosis

- Spontaneous resolution occurs in about 20% of endometriosis stage I-II.
- **Residual disease-** persistence of symptoms or reappearance of symptoms within 3 months .
- **Recurrence** usually appears after 3 months .

Incidence-6-30% in various studies.

Depends on- age, stage of disease, prior treatment, completeness of surgery, extent of peritoneal disease.

Usually presents as chronic pelvic pain , dysmenorrhea

Recurrent endometriosis

- Diagnosis- rising CA-125,TVS, MRI, laparoscopy.

Treatment-

- Pain killers
- Hormones- progesterones, OCPs, GnRH analogues
- **Conservative surgery-**
  - Indicated if medical therapy fails or contraindicated or intolerable side effects.
  - Cystectomy/ adhesiolysis may be an option after IVF fails..
- Postoperative hormone therapy delays recurrence but does not reduce the recurrence.
- **Hysterectomy with bilateral salphigo oophorectomy**

Conclusions

Treatment must be individualized

- Multidisciplinary approach involving pain clinic & counseling should be considered

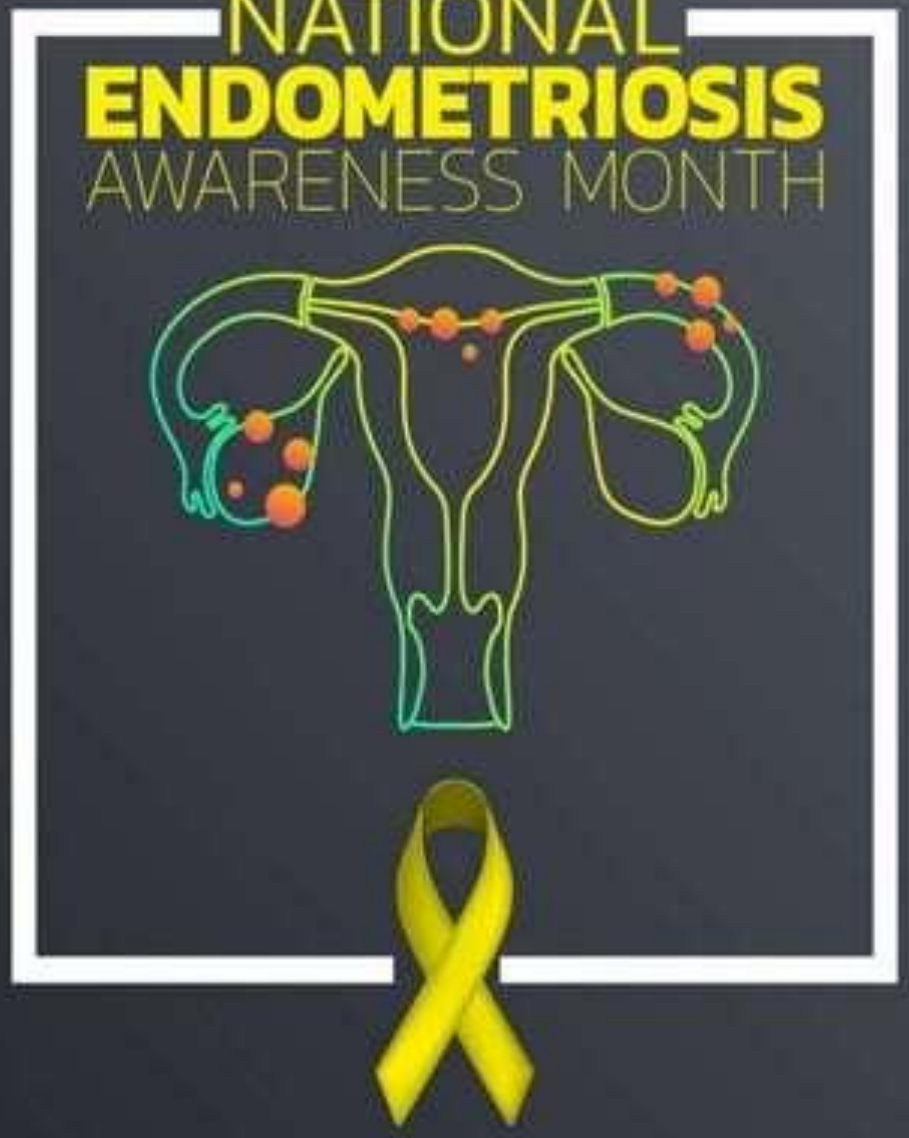
Endometriosis is an inflammatory and Oestrogen dependent condition

- Drugs targeting this are under trial.
- Laproscopy is the gold standard diagnostic tool

Drug therapy should be selected considering efficacy, cost and adverse effects

- Treat early and agressively by surgical destruction or excision preferably by laparoscope.

- **CASE SCENARIO**:
- Mrs. Lucy, is a 35-year-old lady, complaining of intermittent abdominal pain, bloating and severe dysmenorrhoea. She has a previous history of IBS, but recently noticed that her symptoms are all much worse in the week before her period.
- On examination she is slim, the abdomen was distended, non tender, and no masses were felt. The uterus was anteverted, mobile and no abnormalities were found in the adnexia.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THANK YOU