

Endometriosis & Adenomyosis

Endometriosis

- **Definition**

Presence of functioning endometrium (glands and stroma) in sites other than uterine mucosa.

It is not a neoplastic condition, although malignant transformation is possible.

It is a benign but it is locally invasive, disseminates widely.

Cyclic hormones stimulate growth but continuous hormones suppress it.

TABLE 21.1**SITES OF ENDOMETRIOSIS**

Common sites	Rare and remote sites
◆ Ovaries	● Umbilicus
◆ Pelvic peritoneum	● Abdominal scar
◆ Pouch of Douglas	● Episiotomy scar
◆ Uterosacral ligaments	● Lungs
◆ Rectovaginal septum	● Pleura
◆ Sigmoid colon	● Ureter
◆ Appendix	● Kidney
◆ Pelvic lymph nodes	● Arms ● Legs
◆ Fallopian tubes	● Nasal mucosa

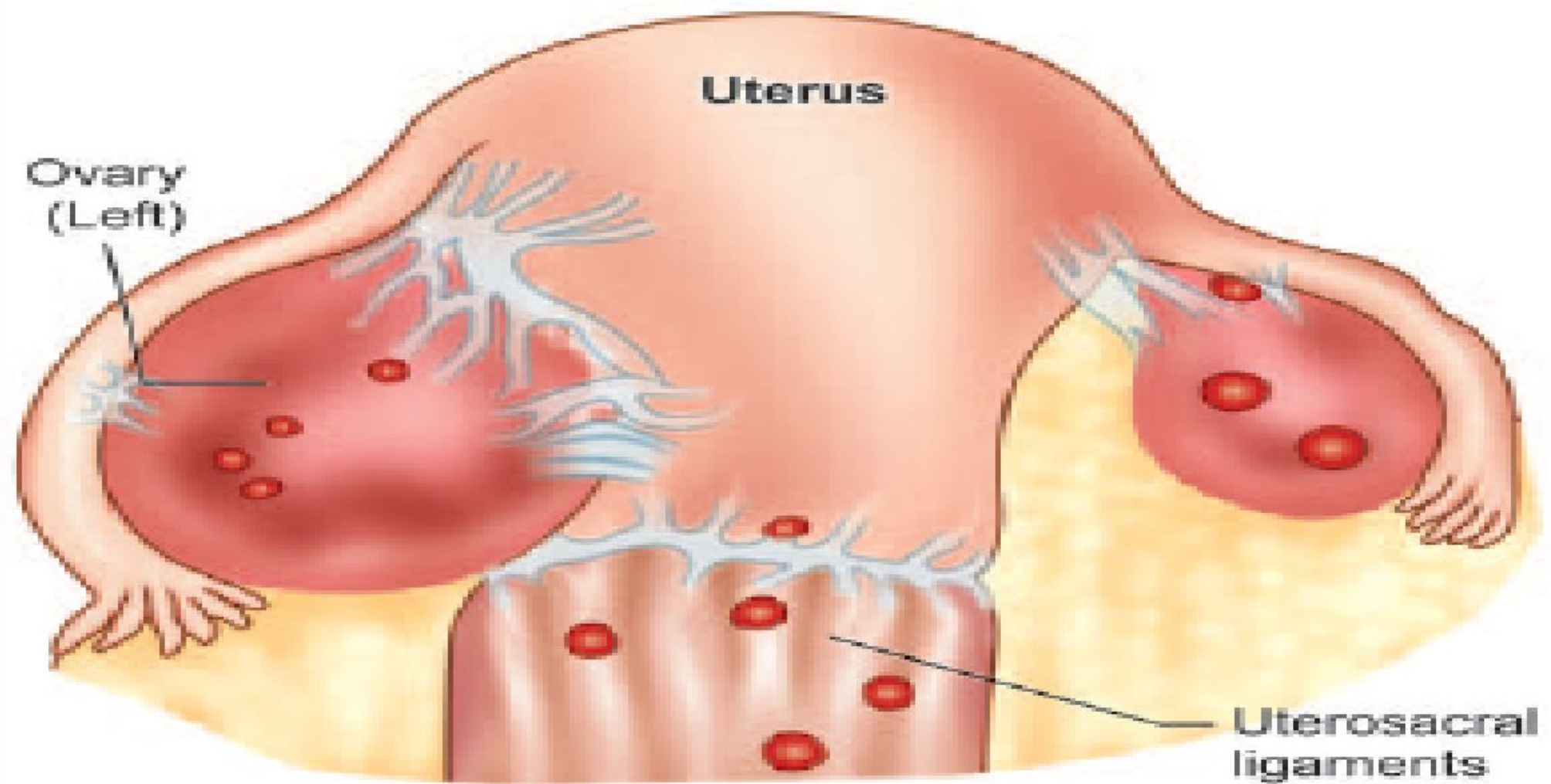


Fig. 21.2: The appearance of pelvic endometriosis. Note the black dots and puckered peritoneum. Sites of involvement are: ovaries, uterosacral ligaments and pelvic peritoneum



Figure 1 Umbilical nodule discharging serosanguinolent fluid



Figure 1 – Cutaneous endometriosis in the cesarean scar.



Prevalence & Risk factors

- occurs in approximately 5–10% of women of reproductive age.
- It is found in at least one third of women undergoing a diagnostic laparoscopy for pelvic pain (20%) or infertility (30-40%).
- Because surgical confirmation is necessary for the diagnosis of endometriosis, the true prevalence of the disease is unknown.

:Risk factors

- 1. Nulliparity
- Early menarche
- 3. Prolonged menses
- 4. Mullerian anomalies
- 5. Women with first-degree relatives (mother or sisters) 7% risk
- 6. Association with autoimmune disorders and epithelial ovarian cancers
- 7. endometriosis is identified less often in Black and Hispanic women.

Pathogenesis (Theories)

1. Sampson's implantation theory:

postulates that it is this retrograde menstrual regurgitation of viable endometrial glands and tissue along patent Fallopian tubes, and that subsequent implantation on the pelvic peritoneal surface causes endometriosis.

2. Meyer's 'coelomic metaplasia' theory:

Dedifferentiation of peritoneal cells lining the Müllerian duct back to their primitive origin, which then transform into endometrial cells. (due to hormonal or inflammatory stimuli)

3. Genetic and immunological factors:

Increased incidence in 1st-degree relatives of patients with the disorder and racial differ.

4. Vascular and lymphatic spread:

Embolization to distant sites has been demonstrated and explains the rare findings of endometriosis in sites outside the peritoneal cavity, such as the lung .

TABLE 21.2

THEORIES TO EXPLAIN ENDOMETRIOSIS AT DIFFERENT SITES

Sites	Theory
<ul style="list-style-type: none"> • Pelvic endometriosis • Pelvic peritoneum 	<ul style="list-style-type: none"> • Retrograde menstruation • Coelomic metaplasia
<ul style="list-style-type: none"> • Abdominal viscera • Rectovaginal septum • Umbilicus 	<ul style="list-style-type: none"> • Coelomic metaplasia
<ul style="list-style-type: none"> • Abdominal scar • Episiotomy scar • Vagina, cervix • Lymph nodes • Distant sites (Lungs, pleura, skin, lymph nodes, nerves) 	<ul style="list-style-type: none"> • Direct implantation • Lymphatic spread • Vascular spread • Genetic • Immunologic

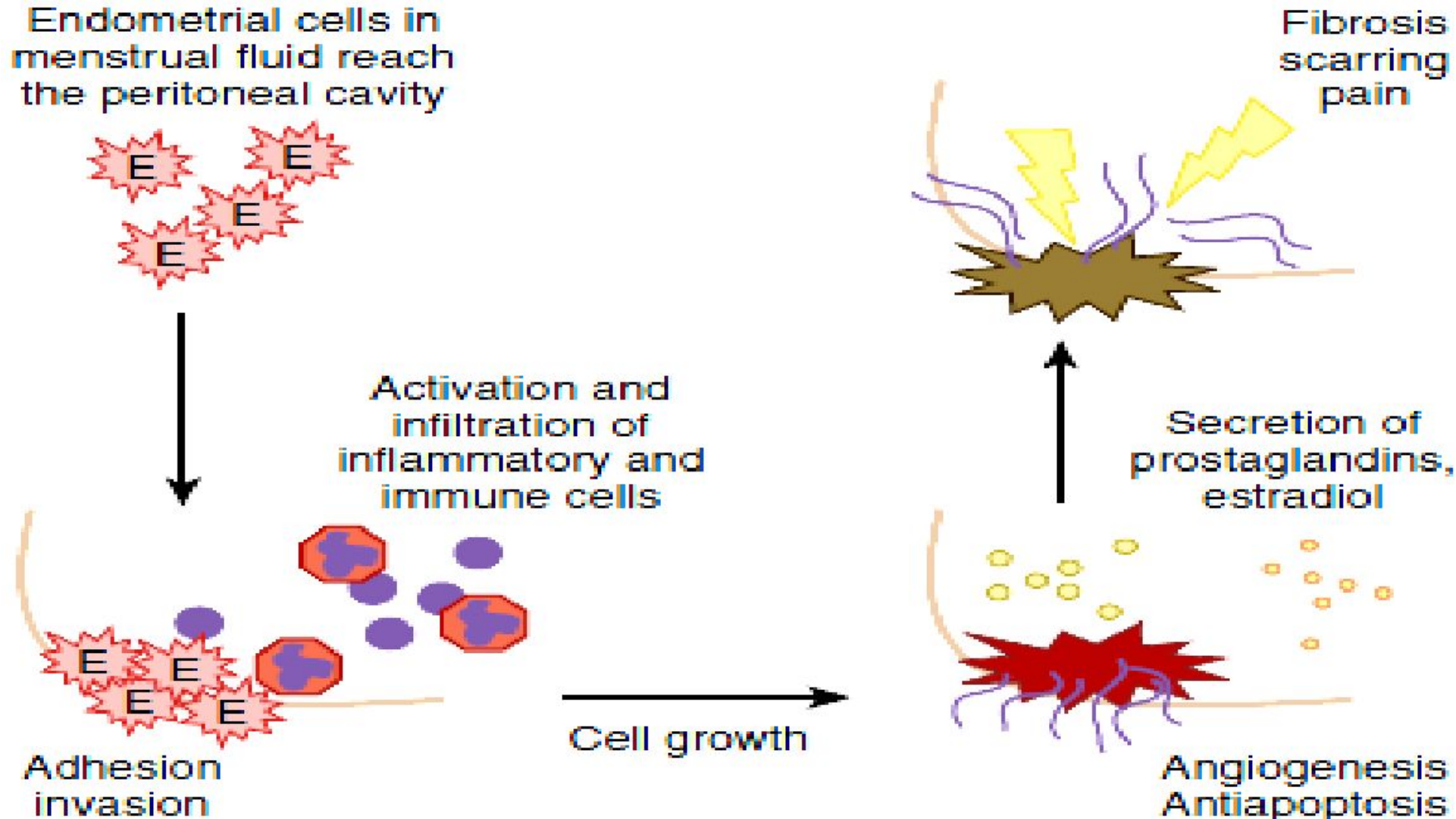


Figure 19.1 Proposed establishment of peritoneal endometriotic implants via retrograde menstruation, attachment, proliferation, migration, neovascularization, inflammation, and fibrosis. *E*, Endometrial cell. (From Flores I, Rivera E, Ruiz LA, et al. Molecular profiling of experimental endometriosis identified gene expression patterns in common with human disease. *Fertil Steril*. 2007;87[5]:1180-1199.)

Clinical features

● History:

- Classical clinical features are severe cyclical non-colicky pelvic pain restricted to around the time of menstruation, sometimes associated with heavy menstrual loss.
- Symptoms may begin a few days before menses starts until the end of menses.
- Secondary Dysmenorrhea in 75% of cases.
- Chronic non-cyclical pelvic pain and severe fatigue.
- Colicky pain throughout the menstrual cycle may be associated with irritable bowel syndrome symptoms. Deep pain with intercourse (deep dyspareunia in 20-40%) and on defaecation (dyschezia).
- Symptoms due to distant sites involvement.

There is a lack of correlation between the extent of the disease and the intensity of symptoms

- are Asymptomatic 25%

Symptoms of endometriosis vary depending on the anatomic structures involved

Physical examination:

Uterosacral nodularity and tenderness on rectovaginal examination or a fixed retroverted uterus, Pain with movement of the uterus can often be seen. When the ovary is involved, a tender, fixed adnexal mass (palpable or by ULS)

Site	Symptoms
Female reproductive tract	Dysmenorrhoea Lower abdominal and pelvic pain Dyspareunia Rupture/torsion endometrioma Low back pain Infertility
Urinary tract	Cyclical haematuria/dysuria Loin/flank pain (ureteric obstruction)
Gastrointestinal tract	Dyschezia (pain on defaecation) Cyclical rectal bleeding Obstruction
Surgical scars/umbilicus	Cyclical pain, swelling and bleeding
Lung	Cyclical haemoptysis Haemopneumothorax

SBA question

- A couple presents because they have been trying to conceive for 2 years. During the interview, you learn that the man has fathered a child from a previous marriage and is in good health. The woman is 28 years old and reports that she has had painful menses for the past 4 or 5 years.

You explain to your patient that you need to perform an examination before making any recommendations. You mention that there are certain findings that are associated with endometriosis. During your examination, which of the findings listed below would NOT increase your suspicion that she has endometriosis?

- A) A fixed deviated uterus
- B) Uterosacral nodularity on rectovaginal examination
- C) Tender adnexa
- D) A fixed adnexal mass
- E) An enlarged irregular uterus

Diagnosis

- **History and examination**
- **Serum markers:** CA125, in plasma, urine or serum. To date they are inaccurate for clinical practise
- **Imaging:**

1. Ultrasound

**Negative scan does
.not exclude the disease**

TVUSS can detect endometriosis involving the ovaries (endometriomas or chocolate cysts) but its use in diagnosing smaller lesions is limited. In women with symptoms and signs of rectal endometriosis, TVUSS may be useful for identifying rectal disease.

2. Magnetic resonance imaging:

Can detect lesions >5 mm in size, particularly in deep tissues

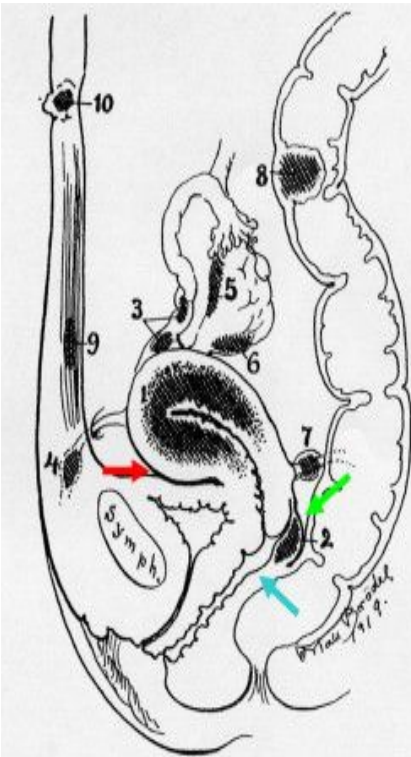
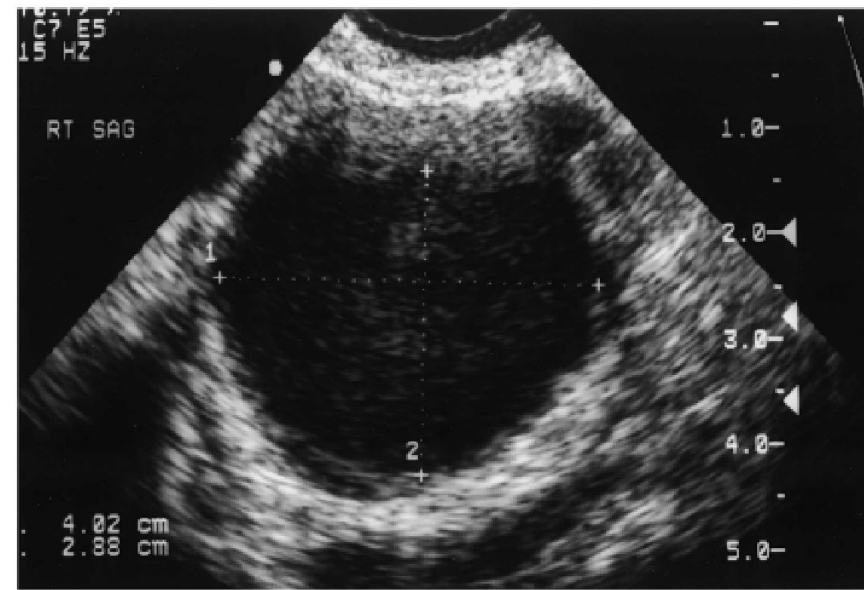
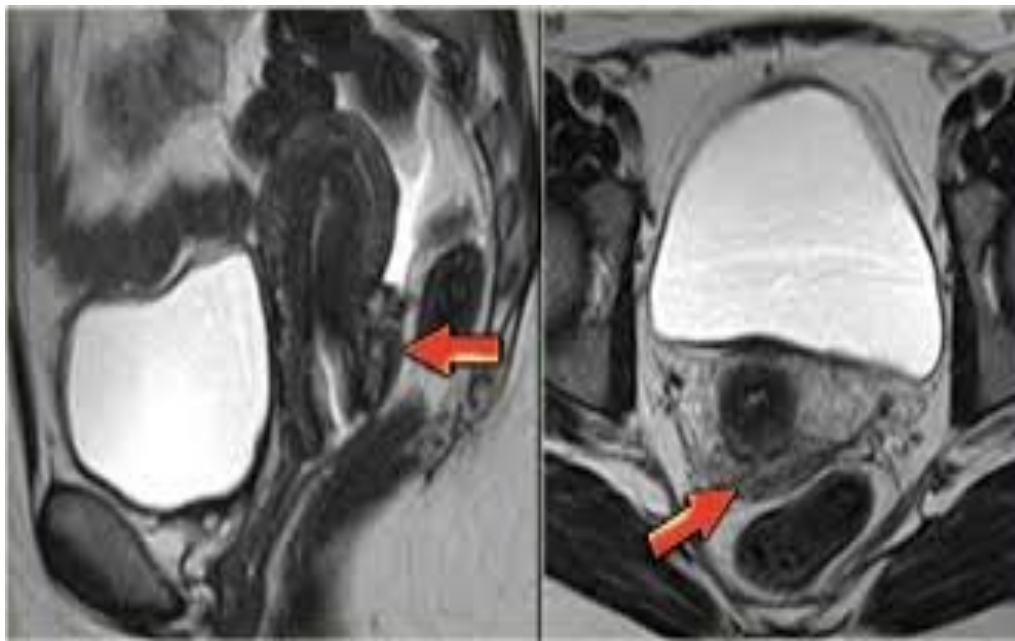


Fig. 21.4: Color Doppler Scan (TV) of an ovarian endometrioma (chocolate cyst). Internal echoes are homogeneous. Increased vascularity is seen at the ovarian hilum

- Colonoscopy, rectosigmoidoscopy and cystoscopy are done when respective organs are involved.
- Laparoscopy is the gold standard.

Benefits of laparoscopy:

1. Allows lesions to be biopsied for histological confirmation of diagnosis.
2. It affords concurrent surgical diathermy and/or excision of the endometriotic lesions
3. Staging of the disease.
4. The patency of the Fallopian tubes can also be checked

‘matchstick’

.lesions; C: white fibrous lesion

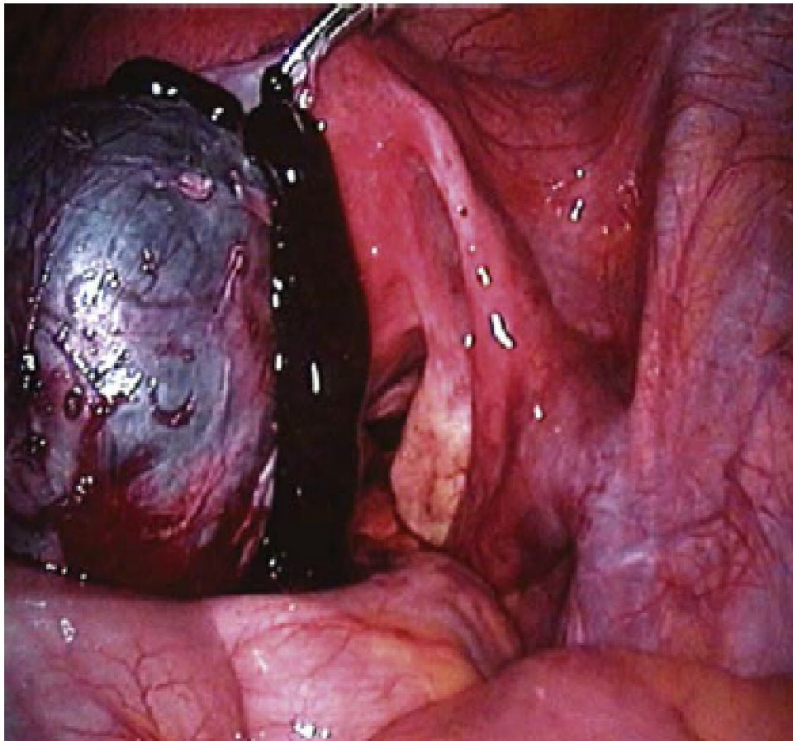
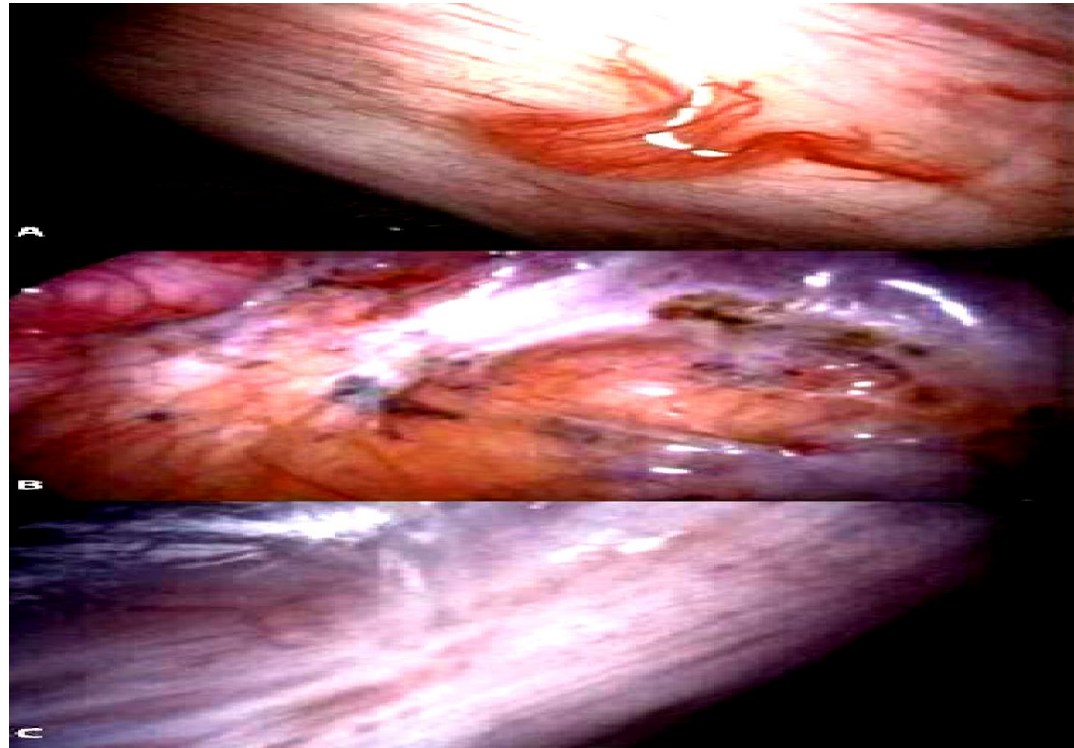


Figure 19.10 Rupture of large endometrioma “chocolate cyst.”



SBA question

- Best investigation to establish the diagnosis of endometriosis is:
- a. Laparoscopy
- b. USG
- c. X-ray pelvis
- d. CT Scan

Complications

- Endocrinopathy —This may be mostly responsible for infertility
- Rupture of chocolate cyst
- Infection of chocolate cyst
- Obstructive features:
 - Intestinal obstruction
 - –Ureteral obstruction → hydroureter → hydronephrosis → renal infection
- Malignancy is rare, the commonest one being adenoacanthoma.

DDX

- Pelvic inflammatory disease,
- Adenomyosis,
- Irritable bowel syndrome,
- Pelvic floor dysfunction,
- Interstitial cystitis,
- Pelvic adhesions,
- Functional ovarian cysts,
- Ectopic pregnancy,
- Ovarian neoplasms.

Endometriosis and infertility Management

- Between 30% and 40% of patients with endometriosis complain of difficulty in conceiving.
- Medical treatment of endometriosis does not improve fertility and should not be given to patients wishing to conceive.
- Surgical ablation/excision of minimal and mild endometriosis

does improve fertility chances.

- It is uncertain whether surgical treatment of endometriomas increase spontaneous or in-vitro fertilization (IVF) pregnancy rates (risk/ benefit balance)

Mechanisms of subfertility are shown in table

Ovarian
function

Luteolysis caused by
prostaglandin F2

Oocyte maturation defects

Endocrinopathies

Luteinized unruptured follicle
syndrome

Altered prolactin release

Anovulation

Tubal function

Impaired fimbrial oocyte pick-up

Altered tubal mobility

Coital function

Deep dyspareunia – reduced coital
frequency

Sperm function

Antibodies causing inactivation

Macrophage phagocytosis of
spermatozoa

Early pregnancy
failure

Prostaglandin induced

Immune reaction

Luteal phase deficiency

- **Infertility associated with endometriosis:**

When there is no improvement of infertility due to endometriosis with the usual treatment, couple should be counseled for ART, Controlled ovarian hyperstimulation with IUI, IVF, GIFT and ICSI are the different methods

- **Pregnancy rate is observed** in about 60% cases with moderate and 35% cases with severe disease after laparoscopic conservative surgery.

Restoration of normal pelvic anatomy improves fertility in cases with severe endometriosis.

High pregnancy rate is observed within first 6 months of conservative surgery

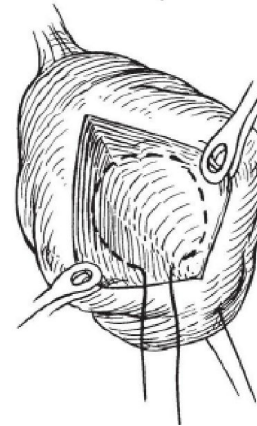
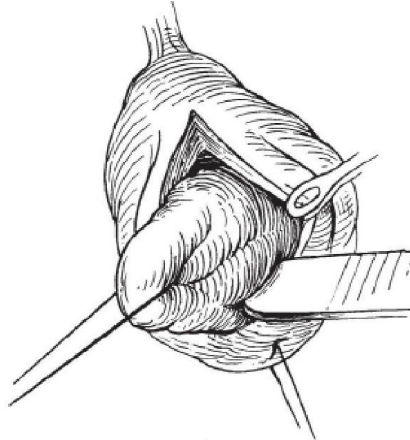
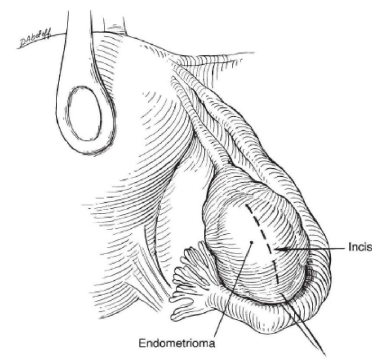


TABLE 15-2. Conception Rates After Ablation of Endometrial Implants

Extent of Disease	Stage of Disease	Conception Rates (%)
Mild	1 and 2	75
Moderate	3	50–60
Severe	4	30–40

Treatment of endometriosis

- **Goals:**

- ❖ To abolish or minimize the symptoms—pelvic pain and dyspareunia
- ❖ To improve the fertility
- ❖ To prevent recurrence.

- **Determinants of treatment options:**

- Age of the patient.
- Size and extent of lesions.
- Severity of symptoms.
- Location of disease.
- Desire for fertility.
- Results of previous therapy.

Treatment options for Pelvic Endometriosis :

- Expectant Management (observation only)
- Medical Therapy: • Hormones • Others
- Surgery: • Conservative • Definitive
- Combined Therapy: • Medical and Surgical

Endometriosis is a progressive disease in about 30–60 percent of women

Expectant and medical treatment

TABLE 21.5

CASE SELECTION FOR EXPECTANT TREATMENT

- ◆ Minimal endometriosis with no other abnormal pelvic finding
- ◆ Unmarried
- ◆ Young married who are ready to start family
- ◆ Approaching menopause

Medical therapy:

1. Analgesics (NSAID)
2. COCP
3. Progestins
4. GnRH agonist
5. Others as: danazol, gestrinone (less preferred)
6. Newer drugs like aromatase inhibitors

TABLE 21.6

HORMONES USED IN ENDOMETRIOSIS

Drugs	Dose	Mechanism	Side effects
Combined estrogen progestogen (oral pill)	1–2 tablets 6–9 months	Pseudopregnancy	Tolerated (see ch. 29)
Progestogens (p. 534) Oral <ul style="list-style-type: none"> • Medroxyprogesterone acetate • Dydrogesterone • Norethisterone IM <ul style="list-style-type: none"> • Medroxyprogesterone IUCD <ul style="list-style-type: none"> • Levonorgestrel-releasing-IUCD (p. 459) 	10 mg thrice daily × 6–9 months 10–20 mg daily × 6–9 months 10–30 mg daily × 6–9 months 150 mg 3 months interval × 2	Pseudopregnancy	Tolerated (see p. 537)
Danazol (p. 530)	400–800 mg orally in 4 divided doses × 6–9 months	Pseudomenopause	Less tolerated (see p. 531)
Gestrinone (p. 530)	1.25 or 2.5 mg twice a week × 6–9 months	Pseudomenopause	Well tolerated (see p. 531)
GnRH analogues (p. 525)	<ul style="list-style-type: none"> • Leuprolide 3.75 mg IM monthly × 6 months • Nafarelin 200 µg intranasally daily × 6 months • Goserelin 3.6 mg depot IM monthly × 6 months 	Medical oophorectomy	Well tolerated (see p. 526)

SBA question

- All are used in treatment of endometriosis except:
- a. Medroxyprogesterone acetate
- b. Tibolone
- c. OCP
- d. Danazol

b

Indications of surgery

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

Surgery may be conservative or definitive.

Surgical Mx

- Fertility-sparing surgery: By laparoscope either by excision &/or drainage of endometriotic chocolate cyst.

Deposits of superficial peritoneal endometriosis can be easily ablated or excised during laparoscopy using diathermy or laser energy.

Recurrence rate is about 30%.

- Laparoscopic uterosacral nerve ablation (LUNA) is done when pain is very severe.
- Hysterectomy and oophorectomy:

Women should be informed that hysterectomy will not necessarily cure the symptoms or the disease.

Oestrogen-only hormone replacement therapy (HRT) can be started immediately following surgery once the patient is mobile, but some surgeons prefer to defer commencing HRT for up to 6 months to prevent activation of any residual disease. Combined (oestrogen and progestogen) HRT can also be considered as a suppressive treatment, where reactivation of new or residual disease is suspected.

Adenomyosis

- Adenomyosis is a disorder in which endometrial glands and stroma are found deep within the myometrium.
- The incidence of adenomyosis is generally estimated to be about 20%.
- Adenomyosis can only be definitively diagnosed following histopathological examination of a hysterectomy specimen, where it is identified in 40% of uteri from a general female population of reproductive age.
- Another theory is that adenomyosis develops de novo from metaplastic transformation of müllerian rest cells located within the myometrium.

This ectopic endometrium is responsive to cyclical hormonal changes that result in bleeding within the myometrium.

The pathogenesis is uncertain, but adenomyosis is closely associated with endometriosis (15-20)% and leiomyomas (50-60%).

Cause unknown. One theory proposes that the endometrium directly invades the myometrium.

This may be related to weakness in the myometrium and excess estrogen.

The myometrium may be weakened by placental invasion during pregnancy or secondary to uterine surgery.

Another theory is that adenomyosis develops de novo from metaplastic transformation of müllerian rest cells located within the myometrium.

Clinical manifestations

- 30% are asymptomatic (mild symptoms)
- Usually occurs in multiparous and diagnosed in their late 30s or early 40s
- Most common are secondary dysmenorrhea (30%), heavy or prolonged menstrual bleeding (50%), or both (20%).
- Other patients may only experience pressure on the bladder or rectum because of an enlarged uterus.
- **The pelvic examination** may reveal a diffusely enlarged globular uterus.

The uterus is typically soft and boggy with mild tenderness, normal mobility and no adnexal pathology.

- Either localized or diffused

Imaging

- **Pelvic USS:** is the most common imaging modality. may be helpful for diagnosis when adenomyosis is particularly localized
- **MRI** is the investigation of choice although expensive, as it provides excellent images of the myometrium, endometrium and areas of adenomyosis.

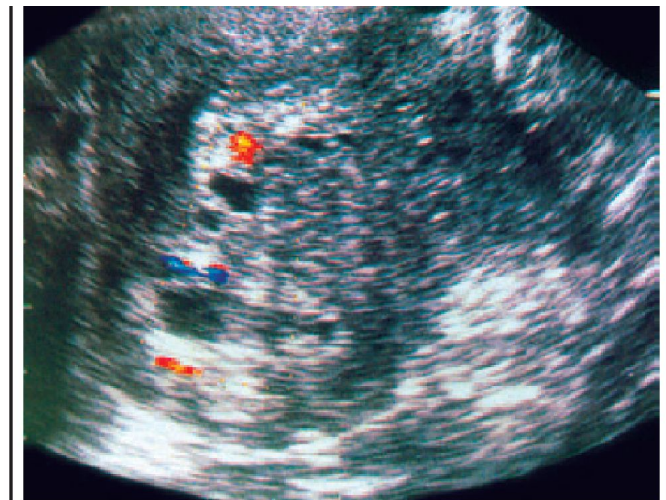
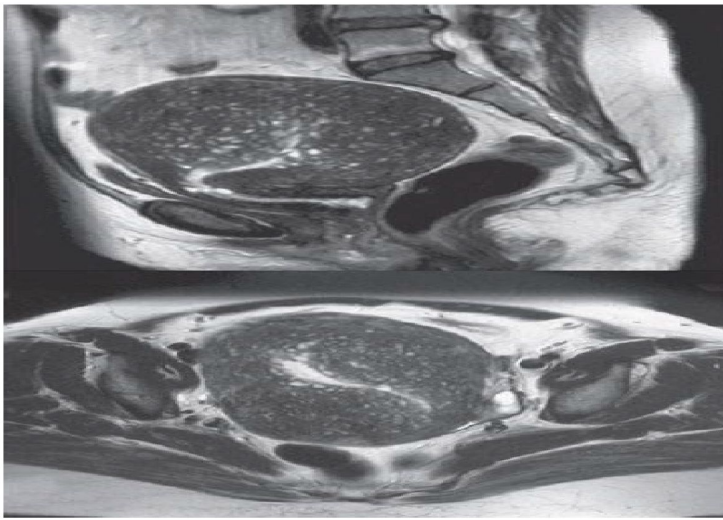


Fig. 21.9: Transvaginal Color Doppler Scan showing diffusely enlarged uterus with anechoic cysts. 'Swiss cheese' pattern with increased vascularity is suggestive of adenomyosis.

Treatment

- Pt with mild symptoms or those near menopause: expectant Mx, or analgesics.
- NSAIDs, cyclic or continuous estrogen–progestin contraceptives (pills, patches, rings), and menstrual suppression with progestins (oral, injectable, or intrauterine) have also been found to be temporarily helpful.
- The levonorgestrel-containing intrauterine device (IUD) has been found to be the most effective temporary means of managing the symptoms of adenomyosis.
- Short term GnRH agonists.
- Hysterectomy is the only definitive treatment.
- Endometrial biopsy should be performed to rule out concomitant EIN and cancer in women aged >45 years before a hysterectomy is performed for adenomyosis.