Dysmenorrhea, PMS & Endometriosis

429 OB/GYN Team Notes
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Sources: Sakala BRS & High-Yield, Essentials of Obstetrics & Gynaecology (Moore)

DYSMENORRHEA, PMS & ENDOMETRIOSIS

DYSMENORRHEA: INTRODUCTION

DEFINITION: Painful menstruation.

INCIDENCE:

80% of patients attend family planning clinic have dysmenorrhoea and was severe in 18% of them (Robinson et al., 1992)

EPIDEMIOLOGY:

1. Long time smoker six time more than non-smokers.
2. Age is inversely associated with dysmenorrhoea.
3. Less common in parous women.

CALSSIFICATION:

	Primary	Secondary
Onset	Within 2 years of menarche; just prior to or at menses, lasting 48–72 hours	20–30 years of age. May extend pre- or postmenstrually
Description	**Cramping** located in lower abdomen, radiating to lower back, inner thighs	Variable but often **dull, aching**
Associated symptoms	Nausea and vomiting Fatigue Diarrhea Headache	Dyspareunia (painful intercourse) Infertility Abnormal bleeding
Pelvic examination	Normal	Variable, depending on cause
Etiology	Excessive myometrial contractions Decreased uterine blood flow Uterine ischemia Excessive endometrial prostaglandin production ($PGF_{2\alpha}$, PGE_2)	Endometriosis Pelvic inflammation Adenomyosis Leiomyomata Pelvic congestion syndrome Ovarian cysts
Management	Reassurance, explanation NSAIDs Oral contraceptive agents Psychotherapy Surgical procedures (e.g., D&C presacral neurectomy, uterosacral ligament transection) should be avoided	Directed at primary cause

D&C = dilation and curretage; *NSAIDs* = nonsteroidal anti-inflammatory drugs.

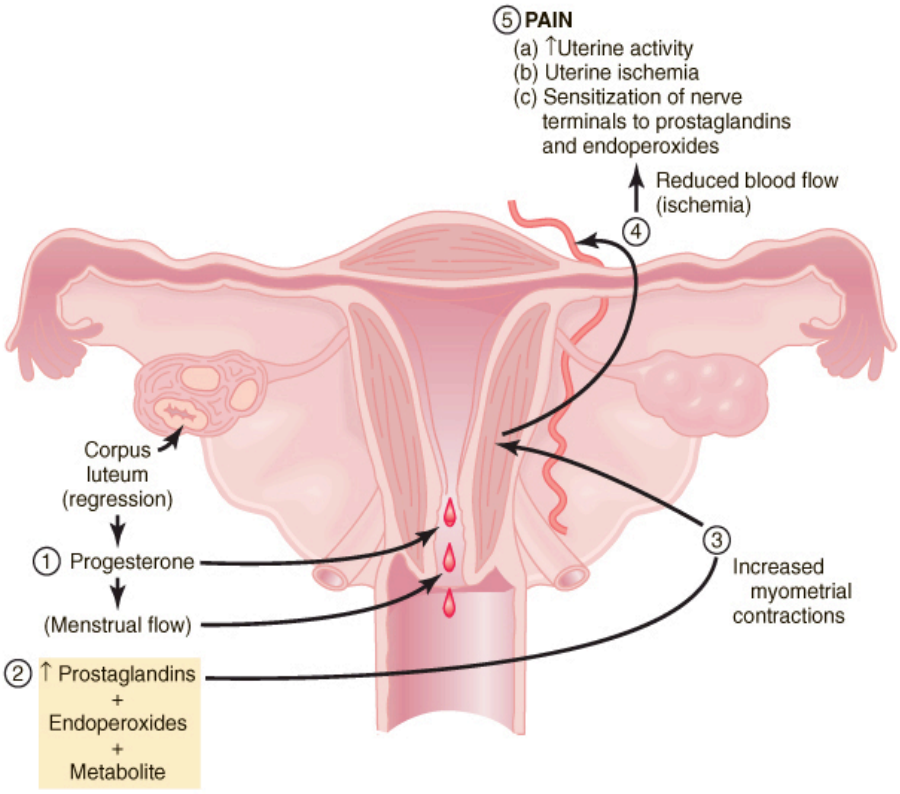
PRIMARY DYSMENORRHEA

- Pain and cramping arising at the onset of ovulatory cycles within 2 years of menarche.
- No pelvic pathology.
- **The pain is associated with bleeding in the first and second day**.

- PG-related symptoms:
  - Nausea & vomiting
  - Diarrhea
  - Headache

AETIOLOGY

- *Uterine hyperactivity*: abnormal uterine hyperactivity leading to uterine ischemia
- *Hyperalgesic substances* e.g. prostaglandin E



PATHOPHYSIOLOGY: Progesterone withdrawal → excessive myometrial contractions (mediated by **prostaglandins**) → ischemia → PAIN

CAUSES

1. Increased uterotonic PROSTAGLANDINS PGF_{2A}
2. Leucotrines produced by endometrium stimulates myometrial activity.
3. Vasopressin is a vasoconstrictor substance that stimulates uterine contraction. (Circulating vasopressin levels was found to be higher on the first day of menstruation in women with dysmenorrhoea).

MANAGEMENT

MEDICAL TREATMENT

- If she is married & NSAIDs didn't work use OCP
- Why use NSAIDs?
  - To inhibit PG synthesis

1. Reassurance and simple analgesics.
2. **NSAIDs** are useful first line treatment with 80-90% improvement, particularly the **mefenamic acid** derivatives (e.g. Mafepain).
3. If contraception is also required OCP is appropriate.
4. Oxytocin antagonist for future.

SURGICAL TREATMENT

Only as last resort

1. Laparoscopic uterosacral nerve ablation (LUNA)
2. Hysterectomy.
3. Cervical dilatation has no beneficial effect.

SECONDARY DYSMENORRHEA

- Secondary to pelvic pathology e.g. endometrial polyps, endometriosis.
- **The pain starts few days before menstruation, continues for the duration of menses and may persist for days after.**

ETIOLOGY

- Endometriosis

  Pain extends to premenstrual or postmenstrual phase or may be continuous; may also have deep dyspareunia, premenstrual spotting, and tender pelvic nodules (especially on the uterosacral ligaments); onset is usually in the 20s and 30s but may start in teens.

- Congenital/acquired uterine abnormalities
- Chronic PID

  Initially pain may be menstrual, but often with each cycle it extends into the premenstrual phase; may have intermenstrual bleeding, dyspareunia, and pelvic tenderness.

- Fibroid tumors & adenomyosis:

  Dysmenorrhea is associated with a dull pelvic dragging sensation; uterus is generally clinically enlarged and may be mildly tender.

- Ovarian cysts (esp. endometriosis & luteal)

INVESTIGATIONS

1. USS IMP
2. Hysterosalpingogram (HSG): By using dye (injected through cervix) to visualize the uterus and the fallopian tubes from inside.
3. Hysteroscopy.
4. Laparoscopy. (To visualize the uterus from the outside)

MANAGEMENT

Treatment of secondary dysmenorrhoea is that of the cause e.g.

- Endometriosis.
- Adenomyosis.
- Uterine abnormalities.

PREMENSTRUAL TENSION SYNDROME

DEFINITION:

- Recurring cyclical disorder in the luteal phase of the menstrual cycle, involving behavioral, psychological and physical changes resulting in loss of work or social impairment.
- PMT may occur after hysterectomy with conservation of functioning ovaries.

- Physical features include breast tenderness and bloating.

- Psychological changes may include anger and depression

A more severe form of PMS, known as Premenstrual Dysphoric Disorder (PMDD), occurs in a smaller number of women and leads to significant loss of function because of unusually severe symptoms.

PREVALENCE

- Difficult to ascertain; 40% reported mild symptoms, of them 2-10% the symptoms interfere with their work or life style.

ETIOLOGY

- Several theories have been advanced to explain the cause of PMS. None of these theories have been proven; and specific treatment for PMS still largely lacks a solid scientific basis.

1. Estrogen excess.
2. Progesterone deficiency.
3. Hyperprolactinemia.
4. Hypoglycemia.
5. Vit. B deficiency.
6. Increased aldosteron activity.

7. Increased activity of rennin-angiotensin system; causing fluid retention.
8. Recently, alteration in or interactions between the levels of sex hormones and neurotransmitters particularly the serotoninergic and opioid pathways.

DIAGNOSIS

The American psychiatric association (APA) criteria for diagnosis are:

a. Symptoms are temporarily related to menstruation.

b. The diagnosis requires at least 5 of the following symptoms, and one of the symptoms must be one of the first 4:

1- Affective labiality sudden onset of being sad, tearful, irritable or angry.
2- Anxiety or tension.
3- Depressed mode, feeling of hopelessness.
4- Decreased interest in usual activities.
5- Easy fatigability or marked lack of energy.
6- Difficulty in concentration.
7- Changes in appetite (food craving or over eating).
8- Insomnia.
9- Feeling of being overwhelmed or out of control.
10- Physical symptoms (bloating, breast tenderness, headache, edema, joint or muscular pain and weight gain).

The most helpful diagnostic tool is the menstrual diary, which documents physical and emotional symptoms over months. If the changes occur consistently around ovulation (mid-cycle, or days 7-10 into the menstrual cycle) and persist until the menstrual flow begins, then PMS is probably the accurate diagnosis.

c. The symptoms interfere with work, usual activities or relationship.

d. The symptoms are not an exacerbation of another psychiatric disorder.

The hallmark of the diagnosis of PMS is that symptom-free interval after the menstrual flow and prior to the next ovulation. If there is no such interval and the symptoms persist throughout the cycle, then PMS may not be the proper diagnosis.

TREATMENT

A. NON PHARMACOLOGICAL TREATMENT

- Reassurance and support.
- Relaxation and stress management.
- Reflexology therapy that reduce somatic and psychological PMS symptoms.
- Increase aerobic exercise; by altering endorphins.
- Well balanced diet with low sodium and fat contents.
- Restriction of alcohol, chocolate, caffeine and dairy products.
- Supplementation with vitamin B_6, E, magnesium and calcium.
- Evening primrose oil.

Women on estrogen replacement therapy do not develop symptoms of PMS unless progesterone is added.

B. MEDICAL TREATMENT

- Pharmacological suppression of the hypo-thalamo-pituitary ovarian axis should offer a logical approach to therapy (to stop cyclical ovarian activity).

✓ Oral Combined Contraceptive Pills (OCCP): is beneficial in some patients but cause exacerbation of symptoms in others
✓ Danazol (Ovarian suppressors): is for breast symptoms
✓ GnRH agonist: improves symptoms in some women & can be used as a treatment.
✓ Diuretics for bloating, edema and weight gain
✓ NSAIDs reduce many of the somatic symptoms
✓ Serotoninergic Antidepressents: these are widely used in treating the mood disturbances related to PMS. Fluoxetine (Prozac) 1st line approach
✓ Anoxiolytic as alprazola (Xanox) also offer some help.

The newer birth control pills, with their improved hormonal formulations, seem to be more beneficial.

GnRH agonists are not given long term (>6 months) because of an increased risk of Osteoporosis.

Antidepressants appear to work by increasing brain chemical (opioids, serotonin, and others) levels that are affected by the ovarian hormones. These opioids are important in the control of mood and emotions.

C. SURGICAL TREATMENT

- Reserved for patients with severe symptoms; not responding to medical treatment.
- Hysterectomy.
- Bilateral oophorectomy (balance between symptoms relief and hypoestrogenic state and complications and the coast of HRT)

ENDOMETRIOSIS

DEFINITION:

- Endometriosis is a benign condition in which endometrial glands and stroma are present outside the uterine cavity.
- This ectopic endometrium responds to the ovarian hormones as the normal endometrium.

PREVALENCE

- The prevalence is about 5-15% in adult women and 20-40% in the infertile women.

ETIOLOGY

- Endometriosis is explained by more than one theory because not all cases arise in same way. However, the true cause is unknown.

PATHOGENESIS THEORIES

1. The retrograde menstruation theory - most accepted explanation: proposes that endometrial fragments transported through the fallopian tubes at the time of menstruation implant and grow in various intra-abdominal sites.
2. The lymphatic theory: suggests that endometrial tissues are taken up into the lymphatics draining the uterus and are transported to the various pelvic sites.
3. The mullerian metaplasia theory: proposes that endometriosis results from the metaplastic transformation of peritoneal mesothelium into endometrium.

CLASSIFICATION

- Internal Endometriosis:
  - Known as adenomyosis, which is endometriosis of the myometrium.
- External Endometriosis:
  - The commonest site of extra-uterine endometriosis is the OVARY (75% of cases) and the next common site is in the peritoneum in the pouch of Douglas

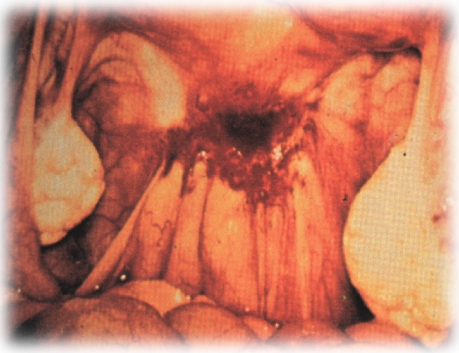
SITES OF OCCURRENCE

A. PELVIC ENDOMETRIOSIS

- ✓ Uterine body, in the myometrium or perimetrium;
- ✓ Cervix;
- ✓ Tubes;
- ✓ Ovaries;
- ✓ Pelvic peritoneum;
- ✓ The uterosacral and round ligaments;
- ✓ Rectovaginal septum;
- ✓ Urinary bladder and ureters;
- ✓ Rectum and sigmoid colon;
- ✓ Vagina;
- ✓ Vulva.

Common sites of Endometriosis in decreasing order of frequency:

1- Ovary.
2- Cul-de-sac.
3- Uterosacral ligaments.
4- Broad ligaments.
5- Fallopian tubes.



- ➢ Adhesions may obliterate the recto-vaginal pouch fixing the uterus in retroversion, or there may be adhesion of the pelvic colon to the posterior surface of the uterus and the Pouch of Douglas.

OVARIAN ENDOMETRIOSIS

- The ovary is a common site for endometriosis and may present either with superficial lesions or the more classic endometrioma or endometriotic cyst (chocolate cyst).

Endometriomas of the ovary are cysts filled with thick, chocolate-colored fluid that sometimes has the black color and tarry consistency of crankcase oil.

Usually endometrial glands and stroma are present in the cyst wall.

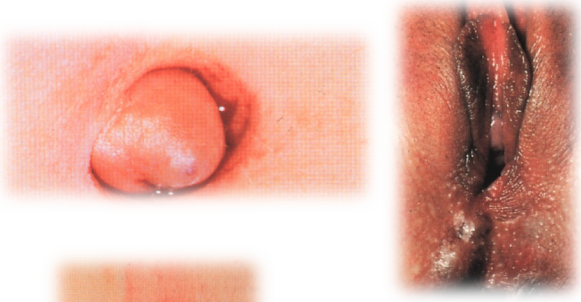
B. EXTRAPELVIC ENDOMETRIOSIS

- Umbilicus;
  - abdominal scar as after caesarean section;
  - abdominal viscera as gallbladder or appendix

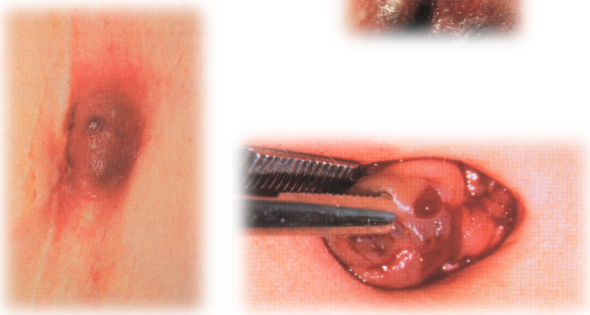
- ➢ Actually endometriosis can occur anywhere in the body even in the limbs.

endometriosis

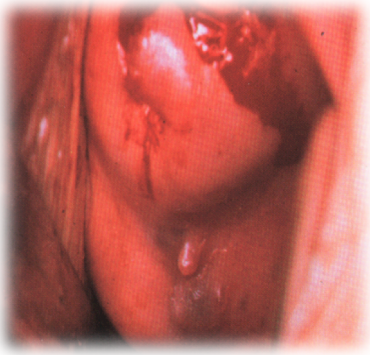
Endometriosis in episiotomy scar →



Superficial endometriotic deposition in Caesarean section scar →



Endometriosis involving the posterior fornix →



RISK FACTORS

1. Hyperoestrinism.
2. Delayed marriage and infertility.
3. Cervical obstruction.
4. Hysterosalpingography and curettage.

PRESENTATION

- Dysmenorrhoea: crescendo dysmenorrhoea
- Chronic pelvic pain and backache.
- Dyspareunia: painful intercourse
- Infertility
- Acute abdominal pain
- Dysuria
- Dyschezia: painful defecation (rectal involvement)
- Cyclic haematuria and rectal-bleeding during menstruation

Crescendo Dysmenorrhoea: The pain usually begins before the onset of menstruation, increases with the flow of menses, and is relieved gradually toward the end of menstruation.

Could be asymptomatic and could be severe despise the extent of the disease.

Chronic pelvic pain and infertility are the most common symptoms of endometriosis.

Clinical findings:

Classic signs include retroverted uterus with uterosacral ligament nodularity and tenderness.

Ovarian endometriomas present as adnexal masses.

INVESTIGATIONS

- The gold standard for diagnosis of pelvic endometriosis is laparoscopy. IMP
- Visual inspection by laparoscopy has increased the awareness of the multiple, subtle and typical appearances of peritoneal endometriosis.
- Ultrasonography.
- Serum CA-125.
- Cystoscopy, proctoscopy or sigmoidoscopy may be needed to diagnose endometriosis of the bladder or bowel.
- Magnetic resonance imaging.

Pathological appearance: Vary from small, red petechial implants in the peritoneum to thickened, and scarred "powder burn", endmetriomas of the ovary (chocolate cysts).

Ultrasonography is not specific for endometriosis. The typical ultrasonographic characteristics of an endometrioma include a "ground glass" appearance, fluid levels, and the "kissing ovary" sign (which is correlated with ovaries fixed to adjacent structures).

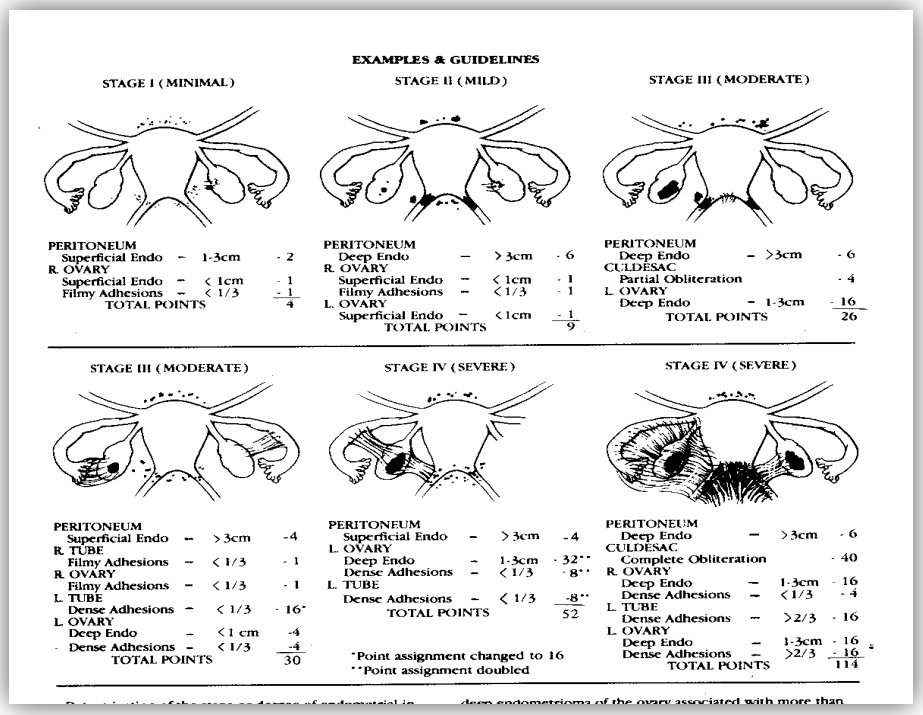
Despite its ability to delineate tissues, MRI should be reserved for exceptional cases.

Serum levels of cancer antigen 125 (CA-125) are often elevated in patients with endometriosis and are stage dependent. However, use of the CA-125 test as a diagnostic tool for endometriosis is disappointing because it lacks sensitivity and specificity.

STAGING

- The laparoscope is used to classify the disease into 4 stages:
  - Stage I (minimal); 1-5
  - Stage II (mild); 6-15
  - Stage III (moderate); 16-30
  - Stage IV (severe); 31-54
- This is the classification of the American Fertility Society and is done before starting therapy and to follow the response to treatment.

There is no clear relationship between the stage of endometriosis and the frequency and severity of pain symptoms.



EXAMPLES & GUIDELINES

STAGE I (MINIMAL)

PERITONEUM
Superficial Endo – 1-3cm · 2
R. OVARY
Superficial Endo – < 1cm · 1
Filmy Adhesions – < 1/3 · 1
TOTAL POINTS 4

STAGE II (MILD)

PERITONEUM
Deep Endo – > 3cm · 6
R. OVARY
Superficial Endo – < 1cm · 1
Filmy Adhesions – < 1/3 · 1
L. OVARY
Superficial Endo – < 1cm · 1
TOTAL POINTS 9

STAGE III (MODERATE)

PERITONEUM
Deep Endo – > 3cm · 6
CULDESAC
Partial Obliteration · 4
L. OVARY
Deep Endo – 1-3cm · 16
TOTAL POINTS 26

STAGE III (MODERATE)

PERITONEUM
Superficial Endo – > 3cm -4
R. TUBE
Filmy Adhesions – < 1/3 · 1
R. OVARY
Filmy Adhesions – < 1/3 · 1
L. TUBE
Dense Adhesions – < 1/3 · 16*
L. OVARY
Deep Endo – < 1 cm -4
Dense Adhesions – < 1/3 -4
TOTAL POINTS 30

STAGE IV (SEVERE)

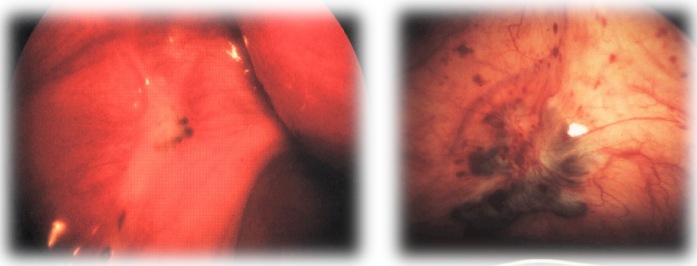
PERITONEUM
Superficial Endo – > 3cm -4
L. OVARY
Deep Endo – 1-3cm · 32**
Dense Adhesions – < 1/3 · 8**
L. TUBE
Dense Adhesions – < 1/3 -8**
TOTAL POINTS 52

*Point assignment changed to 16
**Point assignment doubled

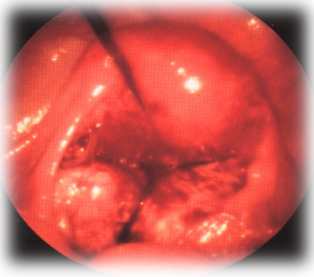
STAGE IV (SEVERE)

PERITONEUM
Deep Endo – > 3cm · 6
CULDESAC
Complete Obliteration · 40
R. OVARY
Deep Endo – 1-3cm · 16
Dense Adhesions – < 1/3 · 4
L. TUBE
Dense Adhesions – > 2/3 · 16
L. OVARY
Deep Endo – 1-3cm · 16
Dense Adhesions – > 2/3 · 16
TOTAL POINTS 114

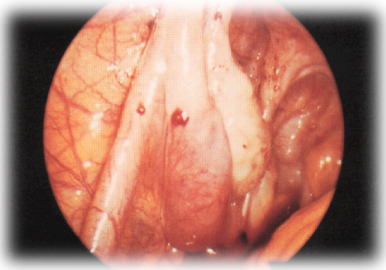
CLASSICAL LESIONS: "POWDER-BURN", PUCKERED BLACK.

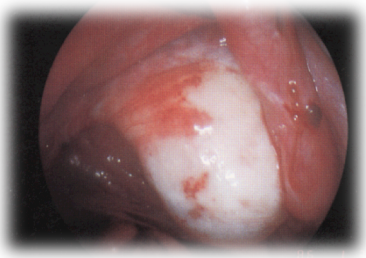


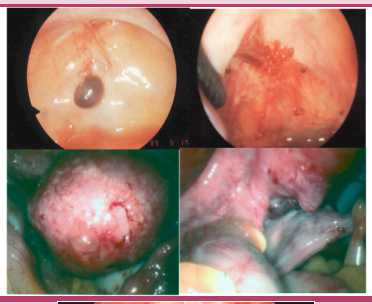
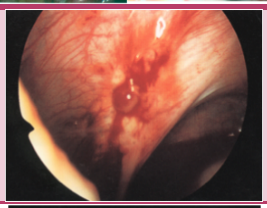
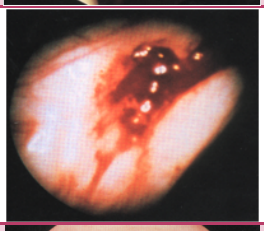
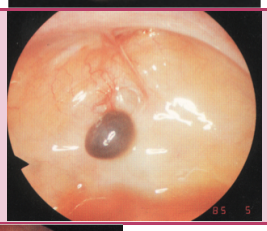
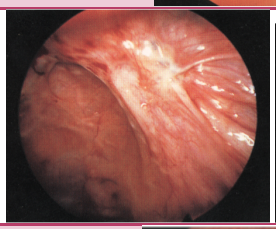
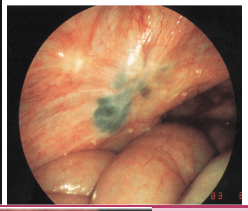
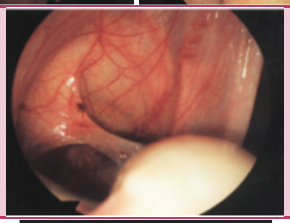
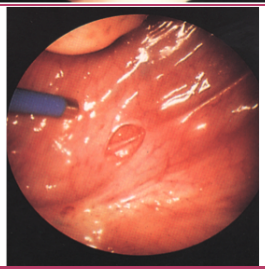
BILATERAL OVARIAN ENDOMETRIOSIS, ADHERENT TO EACH OTHER AND POSTERIOR UTERINE WALL "KISSING OVARIES"



TUBAL ENDOMETRIOSIS





SUBTLE LESIONS	
Vesicular **Almost blister like in appearance-hence the name Vesicular**	
Sacular	
Hemorrhagic	
Papular	
Discolored: White & Blue	 
Subovarian adhesion	
Peritoneal Defects **(Cribriform peritoneum)**	

MANAGEMENT

1- NO TREATMENT

- Small symptomless lesions require no treatment, but the patient is kept under observation and examined every 6 months. Sometimes, the lesions become inactive after a time.

2- NONHORMONAL TREATMENT

- Indicated for small lesions with mild symptoms.
- Analgesics are given, for pain.
- Prostaglandin inhibitors are given for pain and menorrhagia.
- Because the condition improves as a result of pregnancy, young women are encouraged to conceive.
  During pregnancy the ectopic endometrium is changed into decidua followed by atrophy of the glands.

3- HORMONAL TREATMENT

Indications:

a. Severe symptoms with small pelvic lesions, lesions more than 2 cm in diameter respond poorly to hormone therapy.
b. Recurrence of symptoms after conservative surgery.
c. May be given for a short time (6-12 weeks) before surgery to make dissection easier.
d. After conservative surgery to allow any residual lesion to regress.
e. When operation is contraindicated or refused by the patient.

A. PSEUDOPREGNANCY

"Putting the body in pregnancy state."

- *Aim of treatment*:
- Ovulation and menstruation are inhibited for 9 months (6-18 months).
  By Using:
  - Combined oral contraceptive; or
  - Progestogen alone to avoid the oestrogenic side effects.
- The endometrium will undergo atrophy during the pseudopregnancy state.

B. PSEUDOMENOPAUSE

"Putting the body in menopause state."

- *Aim of treatment:*
  The hormone cause amenorrhoea and endometrial atrophy. *It included:*
  - Danazol (Androgenic side effect is deepening in voice [MCQ]).
  - Gestrinone.
  - A gonadotrophin releasing hormone analogue.
  - Gossypole.

4- SURGICAL TREATMENT

- It is indicated for large lesion when hormonal therapy fails.
- Surgery is conservative or radical.

A. CONSERVATIVE SURGERY

- In young patients below 40 year.
- Aim of operation: is to remove all areas of endometriosis leaving behind healthy ovarian tissue.

B. RADICAL SURGERY

- The patient is above 40 years.
- Total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAH+BSO).

5. RADIOLOGICAL TREATMENT

- Induction of artificial menopause by external pelvic radiation cures the condition by causing atrophy of endometrial tissue.

- It is applied only in patients above 40 in whom operation cannot be done as in case of wide spread pelvic endometriosis
  (Frozen excise surgically, or endometriosis of the recto-vaginal septum which is difficult to excise surgically).

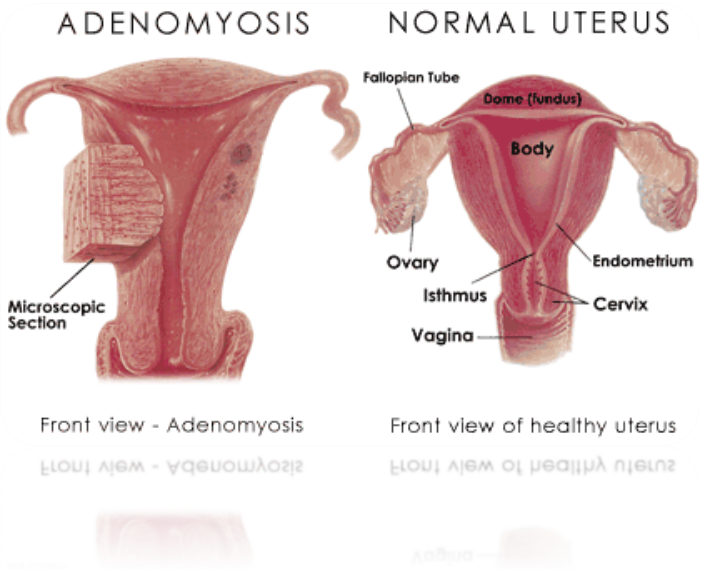
ADENOMYOSIS

DEFINITION:

- It is uterine endometriosis in which endometrial glands and stroma are found within the myometrium.

PATHOLOGY

- Adenomyosis may be diffuse or localized.
- In the diffuse type the uterus is slightly symmetrically enlarged and firm. It rarely exceeds the size of 12 weeks pregnancy.
- Occasionally, there is a localized area of endometriosis causing irregular enlargement of the uterus.
- On cut section the myometrium is thickened and shows a whorled appearance like that of a myoma but without a capsule.
- The presence of endometrial glands leads to proliferation of muscle and connective tissue fibres.



- Small darkbrown spots are seen between the muscle fibres which are endometrial glands distended with blood. Sometimes the endometrial glands do not contain blood as the lesion arises from the basal endometrium that does not always respond to ovarian hormones due to lack of progesterone receptors.
- The cavity of the uterus is enlarged and the endometrium is thick and hyperplastic.

SYMPTOMS

- Asymptomatic.
- Menorrhagia.
- Dysmenorrhoea. It is a special type of dysmenorrhoea that is progressive (crescend dysmenorrhoea).

PRESENTATION

- Age 40-50 years.

- Parity (80%) parous women.
- Social and economic state. More common among the lower classes.
- Associated lesions. Fibroids (in 50% of cases), endometriosis in other sites (10%) and endometrial hyperplasia.

INVESTIGATIONS

- Ultrasonography.
- Magnetic resonance imaging -give accurate diagnosis-
- Histological examination of the uterus after hysterectomy is the only sure diagnostic method.

Complications:

- Globular enlargement of the uterine fundus due to the myometrial hyperplasia and hypertrophy around it.

-Anemia from excessive bleeding.

TREATMENT

- Analgesics: Dysmenorrhoea.
- Antiprostaglandins: Dysmenorrhoea and menorrhagia.
- Dilatation and curettage (D&C): Severe menorrhagia.
- GnRH analogues lead to amenorrhoea and decrease in uterine size. However, the effect is temporary and the uterus returns to its original size with the same symptoms after cessation of therapy.
- Hysterectomy **is the definite treatment.**