Endometriosis

- It is the presence of ectopic endometrial tissue (glands & stroma) in extrauterine sites usually within the pelvis but very rarely at distant sites like lung ,vagina,bowel,bladder or ureter.
- It is common benign gynecological problem.

Pathogenesis

- Lesions may be very small of 2-3 mm size to extensive lesions obliterating the normal anatomy of the pelvis.
- The ectopic endometrial tissue respond to ovarian hormones & cyclical bleeding will occur & this cause local inflammatory reaction.
- With healing& subsequent fibrosis, peritoneal damage occurs leading to adhesions between organs with fixed retroverted uterus found on vaginal examination.

- Endometriotic lesions predominantly affect the uterosacral ligaments with marked fibrosis & scarring may develop with development of tender nodules that are easily palpable on vaginal examination.
- Dense adhesions may involve the rectum leading to partial or complete obliteration of the pouch of Douglas & this associate with bowel symptoms.

- Ovarian implants can lead to formation of what is called chocolate cyst or endometrioma which are retention cyst containing dark brown blood.
- Endometrioma may be multiple & they inevitably interfere with fertility in addition to adhesion & distortion of the Fallopian tubes.

Incidence

- The wide spread use of laparoscopy lead to increase detection of endometriosis some times in asymptomatic women.
- Reported incidence varies widely according to the indication of laparoscopy.
- It is found in 21% in women investigating for infertility & 15% in women investigating for pelvic pain & found in 6% of women undergoing sterilization.

Aetiology of Endometriosis

- It is not known why some women acquire the disease but there are theories explaining this which are:
- 1. Menstrual regurgitation :

It is retrograde menstrual blood flow through the Fallopian tubes & implantation of the viable endometrial glands on the peritoneal surfaces.

- Retrograde menstruation occurs in the majority of women but only minority develop endometriosis.
- Whether implantation is related to the volume of retrograde menstruation reaching the pelvis or defect in the local peritoneal defense system is not clear.

- This theory explain why endometriosis commonly occurs in female with genital tract abnormalities such as vaginal outflow obstruction but not explain the distant endometriosis.
- Factors that reduce menstruation such as pregnancy or oral contraceptive pills reduce the prevalence of the disease.

2. Coelomic epithelium transformation:

The lining of the Mullerian duct & the peritoneal cells & cells of the ovary are all of common origin. So, these can be transformed into endometrial tissue & this metaplasia may be due to hormonal stimuli.

3. Vascular & lymphatic spread:

Embolization of endometrial tissue into distant sites which explain the rare sites outside the peritoneal cavity such as kidney, lungs, joints, or skin.

4. Genetic & immunological factors:

It is supported by the finding of increased incidence in first degree relative of the patients. Also, increase incidence found in oriental women & decrease in Afro-Carribian origin.

- So, risk factors include:
- 1.Increase age (reproductive age).
- 2.Increase peripheral body fat.
- 3.Greater exposure to menstrual cycle i.e. short cycle, longer duration of blood flow & low parity.
- 4.Genetic predisposition in which it is 6-9 times more in first degree relatives.

• Smoking, exercises & oral contraceptive pills use may protect & decrease the incidence.

Histological subtypes

 Diagnosis usually made by laparoscopy which may show powder burn or burned match stick until vesicles
& polypoid lesions appear. Histological appearances are:

1.Free implant:

Polypoid cauliflower-like structure present on the surface epithelia. These lesions are highly responsive to oestrogen with cyclical bleeding & so, they are very sensitive to hormonal treatment.

2.Enclosed implants:

The next stage in the development of the lesions in that they become covered with layer of peritoneum. Only minority of these lesions respond to hormone during menstrual cycle & so, partial response to hormonal treatment.

3.Healed lesions:

Here dilated glands surrounded by connective scar tissue which is insensitive to hormonal stimuli.

4. Ovarian endometriosis:

These either superficial haemorrhagic lesions or enclosed cyst called endometrioma or chocolate cyst which contain dark brown fluid due to repeated menstrual bleeding.

Clinical Presentation

- Patients have very variable symptoms depending on the site of endometriosis.
- The disease may be asymptomatic& found accidently for investigations for infertility for e.g.
- There is no relation between the extent of the disease as seen during laparoscopy & severity of the symptoms.

- Symptoms include:
- 1. Reproductive tract endometriosis (pelvis):

Cyclical pain i.e. secondary dysmenorrhoea, lower abdominal pain, chronic pelvic pain, deep dysparunia, acute pain in rupture or torsion of chocolate cyst, low backache & infertility.

2. Urinary tract:

Cyclical haematuria, dysuria & ureteric obstruction.

3.GIT:

Dyschezia(painful defecation), cyclical rectal bleeding & obstruction.

4. Surgical scar& umbilicus:

Cyclical pain & bleeding.

5.Lung: cyclical haemoptysis & haemopneumo-thorax.

 Many of these symptoms are shared with other diseases such PID or irritable bowel syndrome & no one symptom is predictive of endometriosis but one symptom is highly suggestive which is sever dysmenorrhoea unresponsive to usual analgesics if associate with pelvic pain throughout the cycle which raise the suspicion of endometriosis.

- On examination, the following signs can be found on vaginal examination:
- 1. Thickening or nodules at the uterosacral ligament.
- 2. Tenerness at the pouch of Douglas.
- 3. Ovarian mass may be felt on bimanual vaginal examination.
- 4. Fixed retroverted uterus.
- 5.Blue or red spots on the vagina in case of rare vaginal endometriosis.

Endometriosis & Subfertility

- 30-40% of patients with endometriosis have difficulty in conceiving.
- It is generally accepted that endometriosis causes infertility due to periadnexial adhesions which interfere with oocyte pick-up & destruction of ovarian tissue.
- However, many theories try to connect mild endometriosis with subfertility such luteinized unrupture follicle syndrome, recurrent early pregnancy failure which may be due to prostoglandins or luteal phase insufficiency & decreased sperm survival.

- As there is some time no explanation of how endometriosis may prevent pregnancy & this may question the benefit from medical or surgical treatment in these cases.
- However, endometriosis is progressive disease & some may argue that treatment in early stage may prevent further progression of the disease.

Diagnosis

A- Non invasive tests:

1. Ultrasound:

It is used to diagnose ovarian endometrioma but may be confused with hemorrhagic functional cyst.

Ultrasound is no value in diagnosis of peritoneal lesions. So, negative ultrasound finding does not exclude the disease.

2.MRI:

It is not superior to ultrasound in diagnosing endometrioma but may assist in the evaluation of deep lesions.

3.CA-125:

It is a glycoprotein which increase in patients with ovarian epithelial carcinoma & in sever endometriosis & it decrease with treatment but alone it is not of diagnostic value.

B- Laparoscopy:

It is the gold standard in the diagnosis of endometriosis. It allow direct visualization of the lesion& biopsy of suspicious areas & staging of the disease according to the number, size of the lesion & presence of adhesion & at the same time it allow treatment i.e. it is diagnostic & therapeutic.

- Laparoscopy must involve a two-port approach with careful inspection of pouch of Douglas, uterosacral ligagments, pelvic side wall & anterior surface of both ovaries.
- Presence of adhesion is strongly suggestive of endometriosis.
- When there is doubt about the nature of the lesion, biopsy should be taken to confirm the diagnosis. It is recommended that endometriomas greater than 3 cm in diameter are biopsied.

- Photographs or DVD recordings are helpful in the documentation of the disease extent & classification.
- As laparoscopy is invasive procedure, for some patients with pain symptoms suggestive of disease, it is preferable to undertake a therapeutic trial of hormonal suppression as initial management.
- The best practice is to carry out surgical ablative therapy at the initial laparoscopy.

Treatment

- Patients with endometriosis are often difficult to treat because the disease can recur during reproductive life.
- Treatment varies according to the age of the patient, her symptoms, extent of the disease & her future desire of pregnancy.
- Treatment could be medical or surgical.

Medical Therapy

- Medical treatment could be hormonal or nonhormonal.
- Majority of treatments act by ovarian suppression & induction of amenorrhea.So, it merely inactivate & does not remove local disease & symptoms recur after cessation of treatment in a proportion of patients.
- Hormone therapy can decrease peritoneal lesions in size but reappear after stoppage of treatment & it has no effect on endometrioma nor on adhesions.

1.Analgesics:

NSAID are potent analgesics & help in the treatment of dysmenorrhea & pelvic pain but does not stop the progress the disease.

The analgesic effect of NSAID can be increase by combining them with paracetamol or codeine. Side effects of NSAID include GIT upset.

2. Combined oral contraceptive pills:

Continuous use of low dose COCP. It is used as 3-6 packs i.e. tricyclic or six monthly or continuous use causing pseudopregnancy state which help in treating dysmenorrhea.

3. Progesterone:

Synthetic progesterone given continuously at high dose have antiproliferative effect on the endometriotic spots & eventual atrophy of the endometrium & amenorrhea.

- Progesterone in particular long acting depot have important role in long management of endometriosis because of their low cost& good safety.
- Both high dose oral medroxyprogesterone acetate (100mg per day) & depot medroxyprogesterone acetate(Depoprovera 150mg three monthly) are effective.

• There are limited data about the effectiveness of levonorgesrel releasing intrauterine system in the treatment of endometriosis as they act locally but it seems to have role in treating pain associated with endometriosis.

• Side effects include breakthrough bleeding, weight gain, fluid retention, breast tenderness, bloating, nausea & headache.

4. Danazol/ Gestrinone:

Both hormones have androgenic effects usually given for 3-6 months.

Danazol induce endometrial atrophy & amenorrhea at a dose of 400-600mg/day but side effects limit it's long term use.

Androgenic & hypo-oestrogenic side effects are less frequent with gestrinone.

 Side effects include weight gain, greasy skin, acne, hirsutism& deepening of voice & long term use can affect lipid profile& liver function 5. Gonadotrophin releasing hormone agonists:

Continuous high GnRH cause down regulation of the pituitary gland causing decrease gonadotrophin or psedomenopause state with low oestrogen level.

- GnRH agonists available as nasal spray or as slow release monthly depot.
- Side effects include symptoms of menopause as hot flushes& night sweat & long term use cause decrease bone density(osteoporosis) which occurs if treatment continues for more than 6 months . So, some try use low dose hormone replacement therapy as continuous low dose oestrogen-progesterone with GnRH agonists to prevent osteoporosis.
- As other medical treatment, GnRH agonists does not produce permanent disease regression.

Surgical treatment

- It is divided into:
- 1. Conservative surgery:

Laparpscopic surgery become the standard therapy for endometriosis. It include the use of diathermy or laser to eradicate the endometriotic lesion. Endometrioma cyst can be drained &opened& the inner lining destroyed.

In many cases, sever adhesions may be found & so open surgery still needed.

 Surgical ablation of advanced disease with dense adhesions & deeply infiltrating lesions is technically difficult procedure involving high risk of bowel & ureteric damage that's why laparotomy still has a role in the conservative management of advanced disease both for pain management & for enhancement of fertility.

- Endometriomas do not resolve during medical suppression, although it may reduce in size. Simple drainage of endometrioma is followed by rapid recurrence. Laparoscopic or laparotomy excision is the surgical treatment of choice in endometrioma.
- Drugs which suppress ovarian activity are frequently used following conservative surgery of endometriosis.

2. Definitive surgery:

When the symptoms sever or progressive disease in a woman who complete her family, definitive surgery is necessary.

It includes hysterectomy & bilateral salpingooophorectomy. This can be followed by HRT but to decrease the risk of recurrence, HRT is given 6 months after surgery.

The risk of recurrence of symptoms is balanced against the complication of oestrogen deficiency in young women.