

**Endometrium :** The lining inside uterus.

**Endometriosis :** When the lining inside uterus develops outside the uterine cavity, it is called Endometriosis.

Endometriosis is generally seen in women during reproductive age group. When the uterine lining develops outside uterine cavity, it can develop in umbilicus, intestine etc. it is called endometriosis. Endometriosis can occur as small spot or it can occur in form of big chocolate cyst in ovary.

Endometriosis does not spread but it can cause adhesions between pelvic organs. The adhesions can develop between uterus and ovaries, uterus & intestines, ovaries and tubes etc.

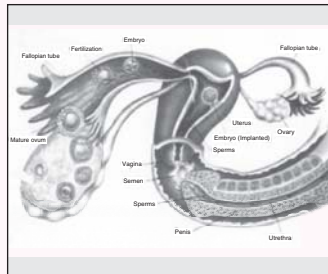
Sometimes endometriosis is asymptomatic. It can be visible during any pelvic surgery. Most of the patients develop pain during periods which is called dysmenorrhea and pain during sexual intercourse (dyspareunia).

There are different roots causes of endometriosis. It does not come all of a sudden, but it progressive with time. When we take treatment ,we can control the progress of the disease. After control of the disease ,we should do immediate treatment to achieve pregnancy. Since it has different roots ,even if the treatment is done properly, endometriosis can recur after sometimes.

To treat infertility in endometriosis patients, there are medications and operation. if the disease Progresses to severe extent, ultimately the uterus & ovaries might have

to be removed .But in modern era due to advance in technology & modern treatment, there is hardly any need of uterus removal. It is believed that endometriosis is usually seen in higher class of society. This is because the career women now as days delay child bearing and then they may develop endometriosis . But endometriosis is seen in women with children also.

Oestrogen & progesterone are two hormones produced from ovary This two hormones affect the progress of endometriosis. This hormones act on the endometrial lining even if it is outside uterus .



#### **Female Fertility Organs :**

The uterus is situated in the middle of pelvis The mouth of uterus opens in to vagina. The two fallopian tubes open into the upper part of inside of uterus .These two tubes open on the other side towards the ovary. That end is like a flower called fimbrial end. From there the egg released from ovary is taken up & then it pelvic through fallopian tube.

The ovaries are situated near fimbrial end of fallopian tube. There are 2 main function of ovary :

- 1) Production of eggs
- 2) The production of hormones

Estrogen, progesterone etc, every month during ovulation, mature egg is released from ovary.

The fimbria of fallopian tube pick up the egg and if sperms are there, fertilization occurs in fallopian tube .The fertilized egg is implanted later in the uterine lining. There are 2 stages of hormone production. In the first 14 days prior to ovulation estrogen is the main hormone. That is for the development of egg. At this stage, the egg is situated inside the follicle inside the ovary.

These follicle releases estrogen which causes development of uterine lining. After the follicle ruptures next phase starts, that is secretory phase. After ovulation follicle becomes corpus Luteum. This produces more of progesterone and little estrogen. The progesterone also causes changes in uterine lining which is already developed by the effect of estrogen. These changes make the uterine lining ready to receive the embryo. If there is no fertilization, 14 days after ovulation, the 2 hormones that is estrogen & progesterone drops to normal level The developed uterine lining is shed which is called menstruation. The shedding is due to withdrawal of both the hormones. The prostaglandin hormones cause contraction of uterus muscles which causes pain during menstruation. in case of endometriosis, there is no way to expel the lining. So there is bleeding inside the organs & cause damage to the adjacentorgans.

### **Why endometriosis occurs :**

The exact reason why it occurs is not known. Several explanations are there

1. 1920

According to Simpson, during menstruation the endometrial lining inside uterus is expelled through fallopian tube & to rest of pelvic organs and they develop outside on various pelvic organs.

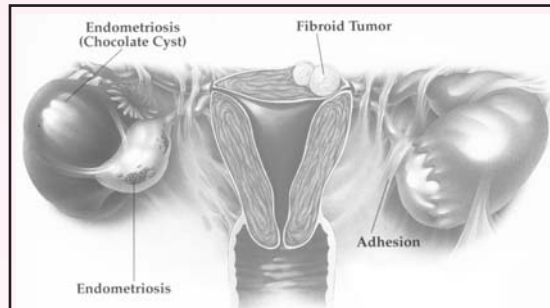
2 Endometriosis occur due to lymphatic spread also.

3 Coelomic metaplasia The endometrial lining is developed from coelomic epithelia if the coelomic epithelium develops in POD, it causes endometriosis. The epithelium can change in the fallopian tube, vagina etc. to endometriotic lesion. This theory explains the occurrence of endometriosis even after removal of uterus.

4. Sometimes endometriosis is seen as a familial condition . If mother or sisters suffers from endometriosis, the chance of endometriosis is 6.5 % which is 2 % more than normal female.

5. It can occur due to change in immune system of body.

Endometriosis can have various presentation like yellow spots, chocolate cyst, adhesions etc.



### **Symptoms of endometriosis -**

#### **Dysmenorrhea :**

Severe pain due up menstruation is a sign of endometriosis. In normal cases also there is pain due periods, but it slowly decreases after one or 2 days. The prostaglandin in the endometriotic tissue causes severe pain during periods. This pain can be decreased by medicines called prostaglandin inhibitors like ibuprofen, mefenamicacid etc.

#### **Dyspareunia**

Endometriosis can develops in uterosacral ligaments (behind uterus) ovaries etc . Thistype of endometriosis can cause pain durin gsexual intercourse. Shedding is due to withdrawal of both the hormones. The prostaglandin hormones cause contraction of uterus muscles which causes pain during menstruation.

**Excessive bleeding menstruation :**

Sometimes there will be excessive bleeding delay menstruation. Bleeding can occurs in urine & motion too.

**Infertility:**

Some women with endometriosis are infertile. Why endometriosis cause infertility on some women & does not cause infertility a other women is not Uterus.

Endometriosis can cause adhesions between ovaries & tube. Due to this the ovary pickup through from be is effected done to mechanical disruption.

**How to diagnose endometriosis :**

Per vaginal examination :

Examination can help sometime to diagnose endometriosis. Chocolate cyst can be felt through PV examination. Hardness in pouch of Douglas can also be noticed in endometriosis.

Laparoscopy :

It is the visualization of pelvic organ through an endoscope put in abdomen. The endoscope is put through a small incision near the navel (umbilicus). Through a camera attached to the laparoscope. We can visualize uterus, tubes, ovaries etc. We can take biopsy from these organs through laparoscopy.

Laparoscopy is not only for diagnosis but also for the treatment of disease. Based on severity & spread, endometriosis can be divided to 4 grades.

Minimal – very less

Mild - normal

Moderate – average

Severe – more than average

Endometriosis can be treated through laparoscopy. Two small incisions are made in the lower abdomen. We can destroy the endometriotic lesion by cauterization. (applying electric current).

We can remove the endometriotic lesion like chocolate cyst. The tubal patency is checked in the same operation by instilling methylene blue through the cervix (mouth of uterus). If the tubes are open, dye will come out from both tubes, which can be visualized. If the tubes are blocked, no dye will come out from the fimbrial end.

Other Diagnostic tools :

CT Scan, MRI etc. is useful sometimes.

**Treatment :**

The treatment of endometriosis depend on patients symptoms, severity etc. In case of minimal endometriosis, no treatment is required.

Pregnancy itself can reduce endometriosis.

The Treatment can be divided in 3 categories .

A) Medical

B) Surgical operation

C) Both medical & surgical (combined)

**A) Medical :**

In the beginning of 1990, new drugs were developed to treat endometriosis. Like GnRH analogies. The medications are luprolide acetate, Goserelin, Medroxy Progesterone Acetate etc.

These medications reduce the amount of estrogen in body and reduce its effect & brings artificial menopause. Sometimes these drugs can cause side effects. So in mild endometriosis if pain is only symptoms, NSAIDS like aspirin, Brufen are used.

Other medication :

Danazol :

Danazol is a synthetic androgen. This will decrease the gonad otrophin & there by effect the level of estrogen & androgen & arrests the growth of endometriosis and increase level of testosterone.

Danazol prevents ovulation. Danazol decrease the level of estrogen and causes artificial menopause. Danazol is administered at a dose of



400 to 800 mg and is given for 3 to 6 months.

But danazol has androgenic side effects like hoarseness of voice, decrease in breast size, water retention and weight gain.

**GnRH Analogues :**

GnRH analogues are a new set of hormones effective in the treatment of endometriosis. It will suppress the release of gonadotrophin which causes release of estrogen from the ovary. Like danazol, GnRH analogues will cause artificial menopause. Once you stop the medicine, menstruation will restore normally. These hormones are available in the form of daily injection or monthly injection.

GnRH analogues have unwanted side effects like hot flashes, dryness of vagina, weakening of bones. GnRH analogues will relieve pain like danazol. The side effects of this injection are completely reversible after stoppage of medicine.

**Progestin :**

There are synthetic progesterone which are available in the form of medicine or injections. They are less expensive compared to GnRH analogues and danazol.

**B) Operation / surgery :**

Patients with endometriosis benefit very little with only medicines. But if the severity of disease is less, medicines are effective. The

endometriotic deposits, adhesions and cysts can be removed through surgery. Laparoscopic surgery is done to diagnose the severity of disease and at the same time treat the disease. Now - a days laparoscopic surgery is very advanced & most of the endometriosis can be treated by surgery. Sometimes a second surgery has to be done in some patients.

With the help of laparoscopy the adhesions can be removed by using electronic current (cautery). Chocolate cysts in ovary can also be removed through laparoscopy .

If live patient has completed family & endometriosis is severe, then uterus and ovaries can also be removed as a part of treatment through laparoscopy.

### **C) Combined Medical and Surgical :**

In some cases, surgery is done to remove most of the endometriotic lesions & the remnant disease can be treated with medicines. This combined treatment is more effective.

Medicine are beneficial after surgery in the following ways :

1. Microscopic deposit in the peritoneum (layer covering abdominal organs) can be suppressed with medicine & hence prevent further spread.
2. The wound in the ovaries can be healed by medicines.

3. Very small deposit which are separated during surgery can be prevented by medicine

**Pregnancy :**

During pregnancy, 9 months of amenorrhea (not having menstruation) can prevent the growth of endometriosis . that is why doctors advise early pregnancy in case of endometriosis.

**Psychological support :**

Due to the pain during menstruation & sexual intercourse, the quality of life of women is effected by endometriosis. They can suffer from depression, lack of interest in sexual intercourses etc. So counseling & psychological support is important in the treatment of endometriosis.

**End :**

Endometriosis affects lakhs of women in the world. Sometimes this is asymptomatic. Sometimes it is revealed during investigation for infertility. So it has to be treated by efficient doctors & the doctors should be well versed in advanced technology like laparoscopy etc. Endometriosis is a lifelong & presents variably in different women .So it has to be tackled by expert doctor.

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