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# FEMALE INFERTILITY W.S.R TO ENDOMETRIOSIS

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## ABSTRACT

Infertility varies across the regions of the world, and it has been estimated to affect 8 to 12% couples worldwide. It tends to be the highest in countries with high fertility rates. The WHO has estimated the overall prevalence of primary infertility in India to be between 3.9 and 16.8%. Endometriosis, a cause of female infertility, is a condition in which endometrial tissue, the tissue that lines the inside of the uterus, grows outside the uterus and attaches to other organs in the abdominal cavity, such as the ovaries and fallopian tubes. Endometriosis is a progressive disease that tends to get worse over time and can recur after treatment. Symptoms include painful menstrual periods, abnormal menstrual bleeding, and pain during or after sexual intercourse. Endometriosis causes infertility in different ways. If the endometriosis damages the tubes and the ovaries, then this will significantly reduce the woman's ability to conceive. This will significantly alter the movement of the egg and sperm. There is no single cause of infertility in endometriosis, but rather several factors that decrease the chances for conception. In advanced endometriosis (Stage III-IV), endometriomas (chocolate cysts) or pelvic adhesions interfere mechanically with ovulation and ovum/embryo transport. In early endometriosis (Stage I-II), the mechanism of infertility is less clear and more complex. Vandhyatva has been described by the Acharyas in an extensive sense, including nidana and chikitsa. In the curative aspect, numerous treatments have been mentioned. Still, it is unclear which type of infertility or specific factor, such as Ritu, Kshetra, Ambu, or Beeja, they will act upon. Nowadays, it is essential to evaluate everything separately. The anatomical descriptions in Ayurvedic literature differ from those in modern medical science. The manner in which bodily organs are defined is based more upon the principles than the structures.

**KEYWORDS:** Endometriosis, Ovary, Fallopian tubes, Endometrioma, Kshetra.

## INTRODUCTION

Women procreate children and propagate the human species. Dharma (righteousness), artha (wealth), lakshmi (auspiciousness), and loka (the entire universe) are represented in every woman.

Infertility varies across the regions of the world, and it has been estimated to affect 8 to 12% couples worldwide. It tends to be the highest in countries with high fertility rates. The WHO has estimated the overall prevalence of primary infertility in India to be between 3.9 and 16.8%.

One of the most common causes of infertility is endometriosis. It causes infertility in different ways and is a prevalent gynecological condition affecting women in their reproductive years. Though Endometriosis is not considered a life-threatening disease, it is a life-altering disease that requires timely diagnosis and treatment. The cause of endometriosis remains controversial, and the condition involves the endometrium (cells that make up the internal lining of the uterine cavity), for unknown reasons, growing outside the uterus, most commonly on the fallopian tubes, ovaries, bowel, and the pelvic tissue linings. If the endometriosis damages the tubes and the ovaries, then this will significantly reduce the woman's ability to conceive. It alters the movement of the egg and sperm, even if the tubes and ovaries are not damaged, then also endometriosis can also affect the movement of sperm, egg pick up by the tube, egg fertilization, embryo

growth, and implantation.

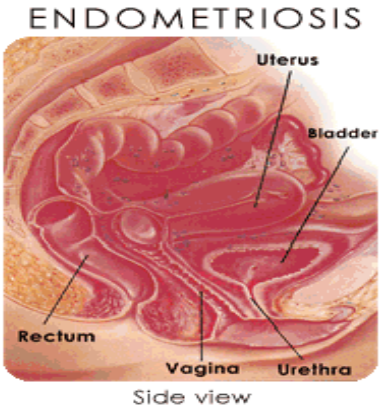
**INCIDENCE** - Globally, 90 million women are suffering from endometriosis. Prevalence of endometriosis is 3-10% of the reproductive age group & 25-35% of infertile women. Peak incidence occurs between 30-45 years of age.

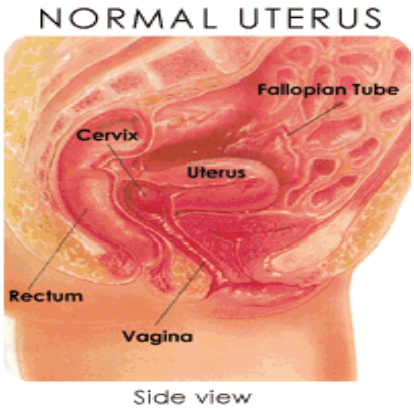
Women at risk
1. Familial risk – as endometriosis is a partially genetic disease, the risk of endometriosis is 7 times greater if a first-degree relative has been affected by endometriosis.
2. Women receiving high doses of oestrogen.
3. Lady with uninterrupted cycles with delayed childbearing
4. Lady with earlier menarche, shorter cycle, increased duration of bleeding
5. Infertility

**Aetiopathogenesis of Endometriosis** - The exact cause is still not clear; however, the following theories are explained
1. Retrograde menstruation
2. Coelomic Metaplasia
3. Lymphatic
4. Genetic & Immunological factors

One of the pathogeneses of **Yonivyapath** explains the theory of Retrograde menstruation.

**Pathology**




The endometrium stroma and glands in the ectopic site have the potential to undergo cyclical change.

Proliferative changes are constantly evidenced, and secretory changes are absent in the ectopic endometrium.

The periodical shed blood may remain encysted, the cyst becomes tense and ruptures.

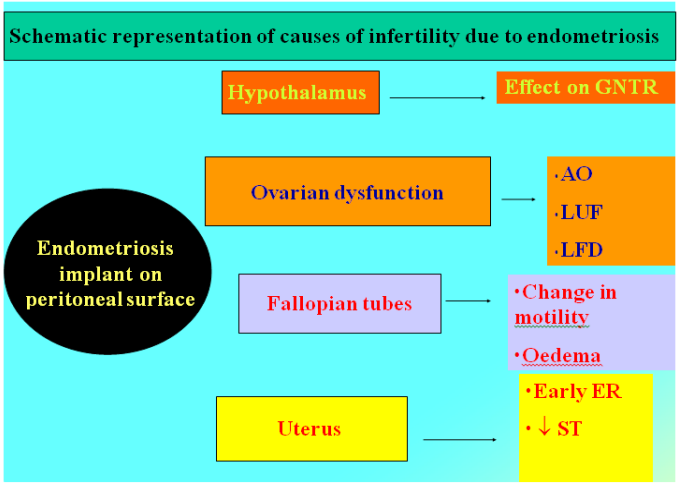
As the blood is irritant, there is a dense tissue reaction surrounding the lesion with fibrosis. It produces adhesions and puckering of the peritoneum.

Formation of Chocolate Cyst

In spite of dense adhesion amongst the pelvic structures, the fallopian tubes remain patent.

**Clinical features**
1. Nulliparous.
2. Early cases are asymptomatic.
3. Pain and infertility.
4. Accidentally discovered in laparoscopy or laparotomy.
5. Progressively increasing secondary dysmenorrhea.
6. Abnormal menstruation.
7. Dyspareunia.
8. Pelvic pain.
9. Painful defecation, diarrhea, and rectal bleeding may present when the sigmoid colon and rectum are involved.
10. Infertility is more often of the primary variety.

| Common sites of endometriosis | Remote sites |
|---|---|
| ✓ Ovary<br>✓ Pouch of Douglas<br>✓ Utero sacral ligament<br>✓ Recto vaginal septum<br>✓ Abd. Scar following hysterotomy | ✓ Pleura & lungs<br>✓ Deep tissues of arms & thighs |




**Mechanisms of infertility in endometriosis**

The subfertility associated with endometriosis has been attributed to mechanisms that may link endometriosis and infertility, as follows.

1. **Distorted pelvic anatomy** – major pelvic adhesion, including those that result from endometriosis, impair oocyte release ovary or inhibit ovum capture or transport
2. **Altered peritoneal function** –increased volume of peritoneal fluid, as well as peritoneal fluid concentration of prostaglandin, proteases, and cytokines, hurts oocyte, sperm, embryo, or fallopian tube function
3. **Altered Hormonal and Cell-mediated function-** IgG and IgA antibodies, lymphocytes may be increased in the endometrium may alter endometrial receptivity and embryo implantation.
4. **Endocrine and ovulatory abnormalities** - includes luteinized unruptured follicle syndrome, Luteal phase defect, Abnormal follicular growth, and premature as well as LH Surges
5. **Impaired implantation** –Reduced endometrial expression of a cell adhesion molecule during the time of implantation and very low levels of the enzyme involved in the synthesis of the endometrial ligand for L-selectin (a protein that coats the trophoblast on the surface of the blastocyst) have been observed in infertile women with endometriosis.
6. **Oocyte and embryo quality-** Alteration within the follicle, poor oocyte quality, and subsequent embryogenesis.
7. **Abnormal uterotransport** – Reduction in physiologic utero-tubal transport capacity compared to control subject.

**DIAGNOSIS**

- Laparoscopy
- CA125: increased, which is also raised in abdominal TB, PID, Malignant epithelial tumor, and chronic liver disease.
- Glycol-protein
- Cell surface antigen > 35 ц/ml in 80%
- USG
- MRI

Staging system laparoscopic findings have been proposed to allow clinicians to communicate the extent of disease and permit standardization and comparison of outcomes for clinical trials.
It is as follows.

Ayurvedic concept of endometriosis in relation to Infertility

- In Ayurveda, the disorders of the female reproductive system are explained in the classics under the entities of yoni vyapad and arthava vyapad.
- The moola of arthavavaha srotas is garbhashaya and arthava vahini dhamani.

The injury or any pathology in the arthavavaha srotos causes dyspareunia (maidhunasahishnutha), infertility (vandhyatwa), and amenorrhoea or deficiency of gonadal hormones (arthava nasha).

- Among the vimshati yoni vyapad and Ashtarthava vyapad, any 1 condition cannot be equated with endometriosis.
- Due to non-acceptance of bija or garbha by a vitiated yoni in various yoni vyapad and destruction of bija in arthava dusti (menstrual disorders), the conception does not take place.
- Under the classification of Charaka, Sapraja and Apraja are the two conditions that are important regarding endometriosis.

Pathogenesis causing infertility

- The doshas, i.e, vata and pitta, vitiate the yoni, i.e, the garbhashaya (arthava vaha srotos) and produce the vyapads mentioned above. The arthava vaha srotos has also got the moola artava vahini dhamani.

In the pathogenesis of endometriosis, the fallopian tube also plays an important role in the retrograde menstrual flow and in causing infertility due to deficiency or alteration in tubal motility, leading to the development of endometrial tissue adhesions. With this explanation, it can be understood that endometriosis can be considered as vata pittaja arthava vaha sroto dushti, as the injury or the disease to artava vaha srotos leads to maidhunasahishnutha (dyspareunia) and vandhyathva (infertility).

The yoni vyapads like apraja, vandhya, vamini are related to the conditions of failure of conception as well as implantation defects, which are caused due to the anovulatory cycles, luteinized unruptured follicle, corpus luteum insufficiency, etc.

The conditions apraja and sapraja, i.e, primary & secondary infertility, respectively, pushpagnijataharani given by Kashyapa, and the conditions of Kakavandhya (one child sterility), anapathya (primary infertility), satisfy the condition of primary and secondary infertility caused by endometriosis. These conditions fall under the category of anovulatory cycles except sapraja vandhya and kakavandhya, which denote the conditions of secondary infertility caused by endometriosis, because of which tubal motility is altered, and the capacity of sperm transport is decreased because of the affected uterine endometrium.

The conditions of vamini and apraja or asraja denote the condition of luteal phase defect and early embryo reduction, which are the probable causes of infertility caused due to endometriosis.

## CONCLUSION

1) Women with endometriosis have been shown to have adverse obstetrical outcomes compared to those without endometriosis.
2) Women with endometriosis have higher incidences of preterm delivery, pre-eclampsia, APH, and Cesarean section when compared to women without endometriosis.
3) The prevalence of endometriosis is greater in infertile than in fertile women.
4) Pregnancy, it is said, protects the woman by periodically suppressing ovarian activity. Hence, it is likely that the incidence of endometriosis was either nil or a rare entity in the past.
5) It is seen that estrogen influence is essential to the development and continued activity of ectopic endometrium.
6) So, to summarise, we can say that the main culprits in the causation of endometriosis would be The late marriage, due to which prolonged ovarian stimulation is seen Estrogen stimulation.

**Genetic and immunological factors**

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