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ENDOMETRIOSIS: A LEADING CAUSE OF FEMALE INFERTILITY

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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 reoccur 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 a very wide sense including nidana and chikitsa. In curative aspect, so many treatments have been mentioned, but in which type of infertility or on which factor like Ritu, Kshetra, Ambu, Beeja, it will act, is not clearly mentioned. Now-a-days, it is the need of time to evaluate all the things separately. The anatomical description in Ayurvedic literature is different from 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 procreates children and propagates 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 very common gynecological condition affecting women in their reproductive years. All though Endometriosis is not considered as a life-threatening disease, is a life altering disease that requires timely diagnosis and treatment. The cause of endometriosis is still controversial, and the condition involves endometrium (cells making up the internal lining of the uterine cavity), for unknown reasons, growing outside the uterus, most commonly on 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 affect the movement of sperm, egg pick up by the tube, egg fertilization, embryo growth and implantation.

INCIDENCE - Globally 90 million women are suffering with endometriosis. Prevalence of endometriosis is 3-

10% of reproductive age group & 25-35% of infertile women. Peak incidence is 30-45 yrs of age.

Women at risk

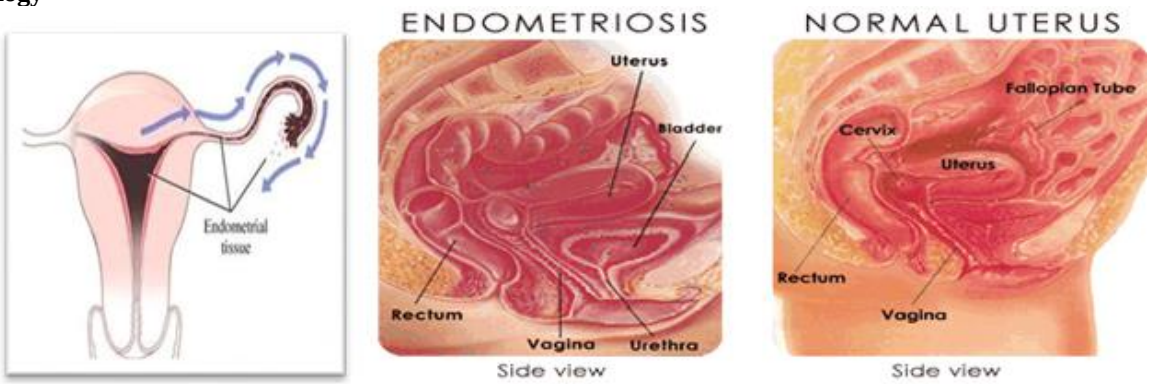
1. Familial risk – as endometriosis is a partial genetic disease, risk of endometriosis is 7 times greater if a first degree relative has been affected by endometriosis.
2. Women receiving high dose of oestrogen.
3. Lady with uninterrupted cycles with delayed child bearing
4. Lady with earlier menarche, 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 factor

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

Pathology



The endometrium stroma and glands in the ectopic site has got the potentiality to under go cyclical change.

Proliferative changes are constantly evidenced, secretive changes are absent in ectopic endometrium.

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

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

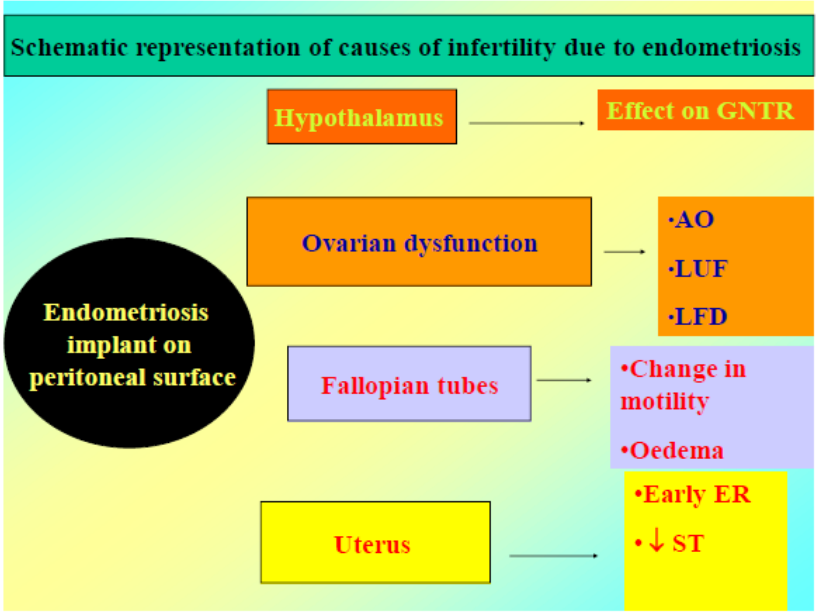
Formation of Chocolate Cyst

Inspite of dense addhesion amongst the pelvic sturcture, fallopian tubes remain patent.

Clinical features

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

Common sites of endometriosis	Remote sites
✓ Ovary ✓ Pouch of douglas ✓ Utero sacral ligament ✓ Recto vaginal septum ✓ Abd. Scar following hysterotomy	✓ Pleura & lungs ✓ 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, are as follows:

1. **Distorted pelvic anatomy** – major pelvic adhesion, including those that resulting from endometriosis scan impair oocyte resealse ovary or inhibit ovum capture or transport
2. **Altered peritoneal function** –increased volumeof peritoneal fluid, as well as peritoneal fluid concentration of prostaglandin, proteases and cytokines have adverse effect on 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 follicule syndrome, Luteal phase defect, Abnormal follicular growth and premature as wellas LH Surges
5. **Imparied implantation** –Reduced endometrial expression of a cell adhesion molecule during the time of implantation and very low level of enzyme involved in the syntheses 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 follicule, 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, chronic liver disease.
- Glycol-protein
- Cell surface antigen > 35 ц/ml in 80%
- USG
- MRI

Staging system laparoscopic findings has been proposed to allow clinicians to communicate the extent of disease and permit standardization and comparison of outcomes for clinical trial, 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 entity 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 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 which 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 above said vyapads. The arthava vaha srotos has also got the moola artava vahini dhamani.

In the pathogenesis of endometriosis fallopian tube also plays an important role regarding the retrograde menstrual flow and also in causing infertility with the deficiency or alteration in tubal motility with 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 is caused due to the anovulatory cycles, leutinized unerupted follicleand 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) satisfies the condition of primary and secondary infertility caused due to endometriosis. These conditions fall under the category of anovulatory cycles except sapraja vandhya, and kakavandhya which denotes the conditions of secondary infertility caused due to the 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 outcome compared to those without endometriosis.
2) Women with endometriosis have higher incidences of preterm delivery, pre eclamsia, APH, Cesarean section when compared to women without endometriosis.
3) The prevalence of endomertiosis is gearter in infertile than in fertile women.
4) Pregnancy, it is said protects the woman by periodically suppressing ovarian activity. Hence probably the incidence of endometriosis was nil or was 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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