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# TREATMENT OF ENDOMETRIOSIS: A COMPREHENSIVE REVIEW

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## ABSTRACT

The existence of a functional endometrium somewhere else than the uterine cavity or mucosa is known as endometriosis, and it is a chronic illness. Endometriosis symptoms and indicators differ greatly from patient to patient. Endometriosis can be treated and managed using allopathic medicine, but the effects take time to manifest. Endometriosis begins to recur after stopping the drug. Long-term allopathic treatment does not completely cure endometriosis. The many medications used in Ayurveda are a blessing to humanity. Natural illness treatment is aided by these natural medications. The literature study leads us to the conclusion that endometriosis can be successfully controlled and patients can lead better lives if Ayurvedic guidelines are followed for diagnosis and treatment at the appropriate time, with the right medications and therapies.

**KEYWORDS:** Endometrium, Ayurveda, Allopathic treatment, Natural treatment.

## 1. INTRODUCTION TO DISEASES

The word Endometriosis is derived from the Greek words *endon* meaning “within,” *metra*, meaning “uterus,” and *osis*, meaning “abnormal or diseased condition”.[1] It is a chronic disease and can be defined as the presence of functioning endometrium (gland and stroma) in sites other than the uterine mucosa or uterine cavity, which include the ovaries, fallopian tubes, pelvic peritoneum, recto-vaginal septum, abdominal wall, bowels, cervix, bladder, and vagina.[1,3,5] Endometriosis is the most common estrogen- dependent disorder in gynaecology that can result in substantial morbidity, including pelvic pain, multiple operations, and infertility. It is estimated that endometriosis occurs in 2–10% of reproductive-aged women

(age of 25–35 years) in general population and 50% in the infertile population.[2,4,6,7,8] The American Society for Reproductive Medicine (rASRM) has a classification system which is based on intra-operative disease finding, and the endometriosis is classified into four stages. The four stages are according to the assigned points of endometriosis lesions in the peritoneum and ovaries, and corresponding to the size of the lesions. The points are also assigned on the homogeneity of adhesions on the ovaries and fallopian tubes. Finally, all the points are summed and a finale value obtained and stages of endometriosis is classified in following four stages.[9]

- Stage-1 (Minimal endometriosis): 1-5 points
- Stage-2 (Mild endometriosis): 6-15 points
- Stage-3 (Moderate endometriosis): 16-40 points
- Stage-4 (Severe endometriosis): >40 points

Endometriosis can be classified based on various factors such as location, depth of tissue penetration and severity. Some common types of endometriosis are as follows:

- Superficial Peritoneal Endometriosis: Presence of endometrial tissue on the peritoneal lining (the inner surface of the abdominal cavity).[10]
- Ovarian Endometriosis: Endometrioma is a cyst that forms on the ovaries when endometrial tissue grows within the ovarian tissue.[11]
- Deep Infiltrating Endometriosis (DIE): Endometrial tissue invades deeper into pelvic organs such as the bowel, bladder, or uterus.[12]
- Adenomyosis**:** In this type of endometriosis, the endometrial tissue is present within the muscle wall of the uterus.[13]

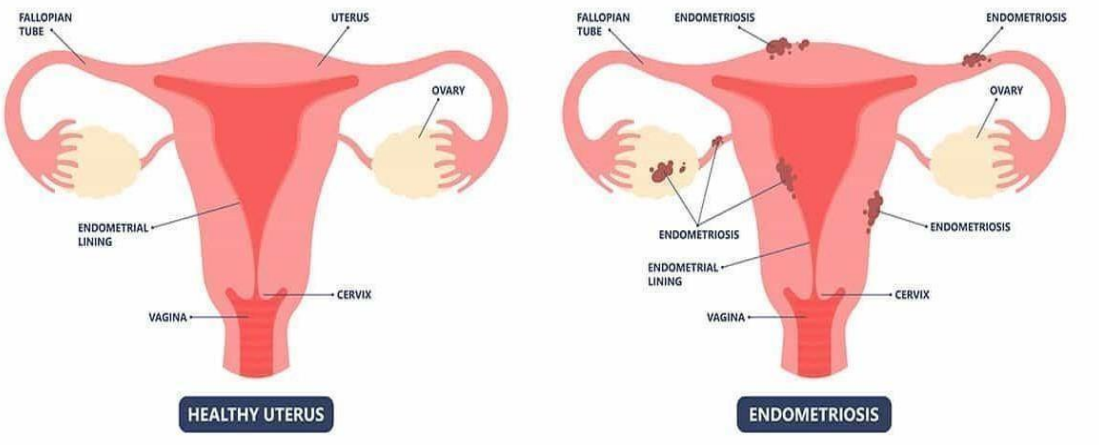


**Figure 1: Healthy and after endometriosis uterus].**

## 2. PATHOPHYSIOLOGY

Endometriosis is a complex condition that is characterized by the presence of endometrial-like tissue outside the uterus, which can lead to chronic pain and infertility. Its pathophysiology involves a range of factors, which include:

- **Retrograde menstruation:** Retrograde menstruation occurs when menstrual blood, along with endometrial tissue, flows backwards through the fallopian tubes into the pelvic cavity. This blood contains endometrial cells, which are shed during menstruation. These cells can implant and grow on various pelvic structures, leading to the formation of endometrial lesions outside the uterus.[14] Dr. John A. Sampson originally proposed the hypothesis of retrograde menstruation as a contributing factor to endometriosis in 1927. By this hypothesis, it can be said that retrograde menstruation plays a major role in the development of endometriosis.[15]

- **Inflammation and Immune dysfunction:** The immune cells (Lymphocytes (T-cells) and macrophages) promote the growth of endometrial tissue outside the uterus by the release of the inflammatory cytokines like interleukin-6(IL-6), tumor necrosis factor-alpha (TNF-alpha) and other chemokines.[16] Endometrial cells growing outside the uterus may have mechanisms to evade immune surveillance.[17] IL-6 promotes inflammation and promotes the growth of endometrial-like tissue outside the uterus. Women with endometriosis have increased levels of IL- 6.[18] Women with endometriosis have been found to have elevated levels of TNF-α in their serum, peritoneal fluid, and endometriotic lesions.[19]

- **Hormonal imbalance:** Hormones like estrogen, progesterone play role in development of endometriosis. Women having the problem of endometriosis have an abnormal response to estrogen, which leads to the growth of endometrial-like tissue outside the uterus. The actions of estrogen are mediated by the estrogen receptors (ERs), which are ER-alpha and ER-beta presented in the endometrial tissue. Both receptors are expressed in endometriotic lesions and ectopic endometrial tissue grows and survives due to the activation of the receptors.[20] One common characteristic of endometriosis is progesterone resistance, which results from the suppressed progesterone receptor (PGR) expression and activity. This leads to endometriosis-related chronic pelvic pain, infertility and inflammatory disorders.[21]

## 3. SIGNS & SYMPTOMS[1]

- Pelvic pain (40-50 %)
- Dysmenorrhea (58-80 %)
- Dyspareunia (40-50 %)
- Infertility
- Gastrointestinal discomfort (1-2 %)
- Painful Urination (1-2 %)

## 4. DIAGNOSIS[22, 23]

A specific diagnosis requires a medical history review, clinical examination, imaging studies, and surgical intervention. Some diagnosis and management of endometriosis can be done by the following:

- **"Red flag" symptoms and signs:** chronic pelvic pain, dysmenorrhoea, dyspareunia, gastrointestinal symptoms, urinary symptoms like dysuria or hematuria, and infertility. Endometriosis can be diagnosed based on the presence of a fixed retroverted uterus, pelvic discomfort, tender uterosacral ligaments or adnexal masses.
- **Imaging studies:** Women having signs and symptoms if bowel endometriosis, transvaginal sonography is useful for identifying rectal endometriosis.
- **Gold standard test:** The gold standard test for diagnosing endometriosis is a visual inspection of the pelvic during laparoscopy. This procedure involves inserting a thin, lighted tube with a laparoscope through a small incision in the abdominal wall to visualize pelvic organs and confirm the presence of endometrial tissue outside the uterus.
- **Blood test:** The level of cancer antigen (CA)-125 may be raised in women with endometriosis. However, CA-125 levels in plasma, urine, or serum should not be used to diagnose endometriosis because it has limited potential with a low sensitivity of 28% and a specificit y of 90%.

## 5. LITERATURE REVIEW OF TREATMENT

### I. ALLOPATHIC TREATMENT

| Sr.No. | Class | Drug | Action/Effect | Side effect | Reference no. |
|---|---|---|---|---|---|
| 1. | GnRH antagoni st | Elagolix (150mg/day, 250 mg/day) Cetrorelix (Weekly 3mg SC, 0.25mg/day,) | Dose-dependent, pain relief can be achieved by modulating the level of hypo-oestrogenism. | Headache, Nausea, Anxiety, Hot flashes, Bone Mineral Density (BMD) reduction. Local skin reaction | [24,25,26] [24,27] |

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|---|---|---|---|---|---|
| | | | Inhibition of Luteinizing hormone secretion, prevents ovulation and inhibits production of sex steroids. | with redness, Swelling and Pain | |
| 2. | Aromatase inhibitors | Anastrozole (1mg/day) Letrozole (2mg/day/ 5mg/day) | Blocks the enzymatic activity of aromatase reduces the synthesis of estrogen. Prevent secretion of estrogen. | Long-term use may lead to hypoestrogenic side effects such as Vaginal dryness, Headache, Hot flushes, Arthralgia. No significant side effects during its use for 6 months. | [25, 28] |
| 3. | Androge nic drug | Danazol (600mg/day) | Reduce pain due to endometriosis. | Hyperandrogenic effects like Weight gain, Acne, hirsutism, Breast atrophy and Virilization. | [25, 28] |
| 4. | SPRMs | Asoprisnil (5,10, 25mg/day for 12 weeks) | Selective progesterone receptor modulator & reduce nonmenstrual pelvic pain and dysmenorrhoea. Improve pain and reduce the endometrial thickness. Prevents or suspends ovulation by binding to the | Mild side effect like Headache, Abdominal pain, Tenderness. | [24, 25] |
| | | Mifepristone (50mg/day for 6 months) Ulipristal acetate (30mg oral tablet) | progesterone | Abdominal pain, Fatigue, Dysmenorrhoea, Dizziness No significant side effect. Headache, Nausea, | [24, 25] [24] |
| 5. | Progestin s | Medroxyprogesteron e acetate (30mg/day or 60mg/day) Norethisterone | Suppresses ovulation and reduce serum levels of LH. Inhibit LH & FSH. Highly specific for | Nausea, Weight gain, Water retention, Intercyclic bleeding, Headache, | [28, 29] |

| | | | | | |
|---|---|---|---|---|---|
| | | acetate (2.5 – 5mg/day) Dienogest (2mg/day) | progesterone receptors, Reduction of the estrogen levels. | Depression, Breast tenderness, Amenorrhea, Delay in regulation of menstrual pattern. | |
| 6. | NSAIDs | Ibuprofen (400-600mg three times daily) Naproxen (250mg upto four times daily) Diclofenac (25-50mg upto three times daily) | Reduce production of prostaglandins by inhibiting COX enzyme which reduces inflammation and pain. It also manages dysmenorrhea. | GI disturbance like ulceration, Nausea, Vomiting, Diarrhoea. | [24, 30] |
| 7. | Oral contraceptives | Combination of Estrogen-Progestogen | Regulate menstrual cycles and reduce pain | Estrogen may cause nausea, hypertension, uterine enlargement and Progestogen may cause Acne, Alopecia, Increased muscle mass, Decreased breast size. | [28, 31] |
| 8. | GnRH agonists | Leuprolide acetate Goserelin (3,6 mg/4 weeks or for 6 months) | Decreases FSH & LH secretion. Blocks release of LH from pituitary gland. | Hypoestrogenism like hot flashes, Vaginal dryness, Decreased libido, Breast tenderness, Insomnia, Depression, Irritability and Fatigue, Headache, Osteoporosis. | [25, 31] |

## II. AYURVEDIC TREATMENT

### 1. Case Study-1[32]

A 23-year-old *vata* dominant *pitta prakriti*, unmarried bank employee, complained acute abdominal pain for almost six months. Patient suffered painful defecation, dysmenorrhoea and breast tenderness. The sonography revealed right-side endometrioma measuring 6.9 × 5 cm and normal-size left ovary. Surgery was the only option after a 3- month course of hormone therapy.

*Yoga basti* (a series of eight medication enemas) was started as ayurvedic medication from the first day visit. After the course of *yoga basti* the pain was significantly reduced. This medication was continued for two and a half months. To boost her chances of conception the patient was promised to take *yoga basti* every monsoon until her conception. The medication was stopped when the surgery was cancelled and after 3 months the endometrioma size increased to 10.3 × 5.5 cm. When the pain intensity reduced patient continued only with *kuberaksha vati*. After 15 months, the patient returned for *yoga basti* in monsoon, before 3 months of wedding and was advised to avoid contraception after her wedding. Eight weeks of medication for alopecia areata were observed during the autumn season. The size of cyst was observed 7.6 × 5.2 cm in sonogram. The patient gave birth to a healthy after a full term normal delivery without any maternal complications related to the cyst.

**2. Case Study-2**[33]

A 44-year-old female reported to the Outpatient Department in February 2014 for the management of 20 years of chronic pelvic pain diagnosed as endometriosis, which requires continuous medication. An MRI demonstrated a small uterine fibroid and a right complex ovarian cyst. The patient said that the pelvic pain starts 5-6 days prior to menstruation and the pain is most severe on the first day of the menstrual cycle. The patient was diagnosed having ovarian cyst and advised to take oral contraceptives (OC) pills and she continued it for one an half year. She denied to take OC pills and started to take NSAID for management of pain. But the pain got intense and advised for MRI scan, which showed an ovarian cyst and small uterine fibroid. She was advised by gynaecologist to have OC pills for three months. Her family history revealed that her mother was advised for hysterectomy (surgical removal of the uterus and cervix) for uterine fibroid and stage-1 ovarian carcinoma. The patient history revealed a constipated bowel habit and disturbed sleep.

The patient started taking Ayurvedic treatment in 2014. The treatment plan was to perform *shodhana karma* (cleansing therapies) after correcting patient's *agni*. *Vaishvanara churna* (12 gm) was given for improving the digestive fire. Then a *Mahanarayana taila* was orally administered up to maximum dose 140 mL up to seven days. *Virechana* (purgation therapy-cleanses the *pitta* and purifies blood) was performed with administering *Trivrit leha* (25 gm). After purgation therapy, she was *Yoga basti* and *Uttara basti* (intrauterine installation of medicated formulation). Whole cleansing therapy was completed in period of 21 days and advised to take *Satapuspa taila* (prepared from *Anethum sowa*) orally 5 mL twice daily

before food for two months. After six months of follow-up there were no episodes of pelvic pain and MRI showed normal right and left ovary with a dominant follicle in the right ovary.

### 3. Case Study-3[34]

A 38-year-old married woman reported to the OPD of the Government. Ayurveda College, Thiruvananthapuram, with complaint of increased bleeding associated with excessive clots, severe dysmenorrhoea, dyspareunia for one year and thick curdy white discharge, bilateral lower abdominal pain, vulval itching, increased frequency of micturition with burning sensation for two years. On, ultrasound sonography, she was detected to have multiple uterine fibroids, bulky uterus (10 cm) increased endometrial thickness – 13mm, and both ovaries show cysts (right ovary 5.5 cm and left ovary 4 cm).

The patient started Ayurvedic treatment for the management of ovarian endometriosis. During first visit the patient was prescribed internal medicines *Mahatiktakam kashayam* (90 ml twice a day before food), *Pushyanugam* tablet (2 tablets twice a day after food), *Saribadyasavam* (20 ml twice a day after food), *Triphala Guggulu* (2 tablets twice a day after food), *Brihat Triphala Choornam* (1 tsp with hot water at bed time) and *Kantha sindooram* (2 pinch with *kashayam* before food). After taking this medication for three months symptoms of increased bleeding reduced, no clots and vaginal discharge reduced and bladder symptoms also reduced. On ultrasound sonography there was presence of uterine fibroids with bilateral endometriotic cysts. Endometrial thickness was observed 8mm. During second visit the patient was prescribed *Guggulutiktakam kashayam* (90 ml twice a day before food), *Triphala Choornam* (1 tsp with hot water at bed time) and Capsule of *Rasagandhi mezhugu* (1 twice a day after food). After taking this medication for 3 months bilateral lower abdominal pain and bladder symptoms were absent and no dyspareunia, no clots. On ultrasound sonography multiple fibroids with no residual endometriotic cysts were observed.

From the literature reviews it seems that, the ayurvedic treatment aims to *vatasamana* (calm down vata dosha) and correct the digestive fire.[33] *Ayurveda* blesses womens with numerous drugs which helps them to maintain their health naturally.[35]

## 6. CONCLUSION

Endometriosis is a chronic disease and can be defined as the presence of functioning endometrium in sites other than the uterine mucosa or the uterine cavity. Signs and symptoms of endometriosis vary widely in every patient. The Allopathic treatment can help to treat and

manage the endometriosis but it effect comes when the medication is continued. Once the medication is stopped, endometriosis starts to develop again. After having a long-term allopathic treatment, the endometriosis is not fully treated. From the literature review we can conclude that if the diagnosis and treatment of endometriosis is started with Ayurvedic protocols at the right time with the proper selection of drugs and proper therapies, it can successfully manage and patient can live the better quality of life.

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