



WHAT IS ENDOMETRIOSIS?

Endometriosis is a common and sometimes debilitating condition affecting 7-10% of women of any nationality and has no cure. It is an estrogen dependent disease, so affects women in the reproductive years.

It is the condition where cells that would normally only exist in the endometrium (lining of the uterus) are found elsewhere. It can be a physically debilitating, and psychologically disabling condition. It can be severely painful and affect fertility.

It can be present in up to 50% of infertile women. It can be present in up to 60% of women with pelvic pain.

The commonest places for endometriosis to exist are mainly in the pelvis:

- Ovaries - commonest
- Fallopian tubes
- Vagina
- Cervix
- Uterosacral ligaments (ligaments from the uterus to the back of the tail bone)
- Between rectum and vagina

The classic lesion is the chocolate cyst on the ovary that contains old blood that has dissolved. As the endometriosis cysts respond cyclic hormones by swelling, the cyst can perforate and release its contents into the pelvis which then cause inflammation and scarring. This is what causes pain and scarring.

Unusual places for endometriosis to occur that can cause diagnostic difficulty are:

- Abdominal scars
- Lung and its lining
- Diaphragm
- Kidney
- Spleen
- Gallbladder
- Nasal membranes
- Spinal canal
- Stomach
- Breast

Adenomyosis is the invasion of the myometrium (muscular wall of uterus) by endometriotic tissue.

It most commonly occurs in women of reproductive age – mostly around 25-30 years of age when diagnosed.

Symptoms can include:

- Painful periods
- Pelvic pain
- Painful intercourse
- Lower abdominal or back pain
- Painful bowel movements, especially during a period
- Painful urination, especially during a period
- Pain with exercise
- Infertility

Diagnosis can be difficult and sometimes delayed, because symptoms are not always typical. Symptoms do not correlate with disease severity.

The symptoms of endometriosis can mimic these other conditions:

- Pelvic inflammatory disease
- Vaginismus (spasm in vagina)
- Tumors of bowel, ovary, uterus
- Muscular pain
- Constipation
- Irritable bowel syndrome
- Interstitial cystitis (irritable bladder)
- Ovarian cysts
- Ectopic pregnancy
- Acute appendicitis
- Urinary tract infection

Causes of Endometriosis

He exact cause is unknown, but there are several theories and also some special associations.

Retrograde Menstruation is the commonest theory. This is that the menses flow backwards out through the fallopian tubes and into the pelvis. Many normal women have this anyway, so researchers wonder whether women with endometriosis have some additional problem that may make their retrograde menstruation more likely to cause endometriosis through some possible abnormal hormonal and other influences.

Metaplasia is another theory. This is where the original tissue cells in the area of the pelvis may change into the type of cells that would normally line the endometrium.

Genetic factors are important because it runs in families.

Risk factors of Endometriosis include:

- Family history
- Early age of menarchy (commencement of periods)
- Short menstrual cycles (less than 27 days)
- Long duration of menstrual flow (over 7 days)
- Heavy periods
- Fewer births
- Delayed childbearing

- Defects of uterus or fallopian tubes
- Iron deficiency may contribute

The immune system also has a role in endometriosis because studies have shown increased inflammatory messengers like IL-8, TNF-alpha and IL-10 in these patients.

Women with endometriosis have been found to have antibodies against endometrial tissue. They have also been found to have decreased T-cell and Natural Killer cell responsiveness – these are special cells in the immune system that respond to the environment and to invaders respectively.

Also these women have higher rates of autoimmune diseases like Systemic Lupus Erythematosus, Rheumatoid Arthritis, and Multiple Sclerosis. Women with recurrent immune –mediated miscarriages may be more prone to endometriosis.

Similarly, these women have a higher rate of allergies, eczema and asthma.

There is an increased rate of under active thyroid in these women.

Endometriosis is correlated with an increased rate of ovarian cancer and Hodgkins lymphoma

Medical causes can include where endometriosis develops after a gynaecological procedure, abdominal surgery or after a Caesarean section.

Dietary influences show that there is a 40% decreased risk in women who eat more green vegetables and fresh fruit, and an 80% increased risk in those who eat high amounts of beef and other red meat.

Environmental factors have been researched. Some toxins like bisphenol-A, parabens, Phthalates, pesticides, dioxins, PCB's, solvents and formaldehyde may have a role. In one study, deep endometriotic nodules were found to be associated with high blood levels of dioxin and PCB's. Monkey research has shown a connection between dioxin exposure and endometriosis, but this has not been proven in humans.

Human exposure to dioxin and dioxin-like PCBs is primarily through food and pesticides. Dioxin and dioxin-like PCBs have been shown to increase the risk of multiple cancers, diabetes, and cardiovascular disease; impair prostate development and reproductive capabilities; reduce memory function; and suppress the immune system

There seems to be an abnormality in the way estrogens are converted in these patients and the amount of estrogens could be excessive. Because there is increased aromatization (conversion) of estrogens, there is also increased production of the inflammatory messenger, prostaglandin E2. This in turn keeps driving aromatization which creates a vicious cycle of inflammation. In addition, there is a deficiency of the enzyme which converts Estradiol to the less potent Estriol.

Genetic variations in detoxification genes may explain why some people are more vulnerable. Since most chemicals and toxins are detoxified through the liver, researchers have been looking at variations of these detoxification genes and their effects. Women with variations of the P450 1A1 gene and the glutathione S-transferase M1 gene have increased risk of endometriosis.

Diagnosis of Endometriosis

Although different types of scans as well as examination can give clues, the best way to diagnose the condition is by laparoscopy and biopsy of the abnormal tissue. At the same time as laparoscopy, the abnormal tissue can be removed.

A blood test called CA-125 is only a guide as to the activity of the disease and can be used to follow progress. It cannot be used as a stand alone diagnostic test because it can be raised in other, unrelated conditions.

Treatment of Endometriosis

The goals of treatment overall include:

- Reduce pain, inflammation and disability
- Shrink endometriosis lesions
- Support immune system and reduce oxidation
- Support fertility if necessary

The condition can spontaneously resolve in one third of women with no active treatment. Otherwise the disease can progress in an unpredictable manner.

Medical hormone manipulation is the commonest first line approach and this involves controlling or eradicating the menstrual cycle. This can give up to 95% success.

Combined contraceptive pill where there is a combination of synthetic estrogen and progestin can give 80-85% success with pain relief.

Danazol is a synthetic form of testosterone used to thin the endometrial lining and reduce levels of estrogen. Danazol has been shown to have some immune-modulating effects and gives 90% relief after a 6 month course. Its side effects include deepening of the voice and unwanted hair growth, in addition to sensitivity to sunlight.

Progestins are synthetic progesterone derivatives prescribed when estrogen therapy is contraindicated or poorly tolerated. They suppress ovulation and menstruation.

GNRH inhibitors. Gonadotrophin-releasing hormone agonists are used to induce a menopause-like state. They work on the pituitary to inhibit the release of luteinizing hormone and follicle-stimulating hormone, resulting in very low levels of estrogens and androgens being made by the ovaries, which will inhibit ovulation and menstruation. Its problems like hot flushes, bone density lowering and other side effects come from the induced menopause like state.

Bioidentical progesterone can decrease uterus contractions and pain as well as reducing estrogen receptors. It can be used 3 weeks on, one week off or just in the last few days before the period.

Non steroidal anti-inflammatory drugs can be beneficial for pain.

Surgery is useful in two situations. Where fertility needs to be enhanced without the suppression of the menstrual cycle, careful, selective removal of endometriosis tissue is useful. Where the disease is

severe, removal of lesions can be helpful. If very severe, complete hysterectomy and removal of ovaries may be necessary.

Nutritional support can include reducing inflammation and oxidation and help liver detoxification. This can be achieved by following the following dietary and supplement guide:

Reduce saturated animal fat food.

Increase soy intake gives increased genistein and daidzen

Increase fruits and vegetables

Increase omega 3 fatty acids found in oily fish and omega 3 supplements – they reduce inflammation

Omega 6 fatty acids in the form of borage oil, evening primrose oil or black currant seed oil reduce the prostaglandin 1 series which reduces inflammation.

Increase cruciferous vegetables – cabbage, kale, broccoli, brussel sprouts, and cauliflower. These contain indole -3 carbinol which helps produce weaker, safer estrogens in the liver.

Flax seed helps liver detoxification of estrogen

Vitamin E reduces oxidation

Vitamin C helps increase T-cell activity, macrophage activity, interferon and antibody production. As an antioxidant, it helps reduce any oxidative tissue damage from vitamin C depletion caused by estrogen excess, contraceptives and smoking.

Anti-inflammatory herbs may include:

- Quercetin
- Boswellia
- Curcumin
- Ginger
- Pycnogenol ® (extract from French maritime pine bark) has been found to have anti inflammatory and antioxidant qualities in endometriosis

Herbs that may modulate the immune system include:

- Astragalus
- Panax Ginseng
- Curcumin
- Withania Somnifera

Milk Thistle contains Silymarin which inhibits TNF-alpha (which is elevated in endometriosis). It also acts as an antioxidant and may increase estrogen clearance by inhibiting an enzyme called beta-glucuronidase which would normally recycle it.

Indole -3 Carbinol and its breakdown product, DIM (Diindolylmethane) help increase weaker estrogens and reduce stronger estrogens. This helps reduce the endometriosis while reducing the risk of ovarian and breast cancer.

Eradicate environmental influences in the environment by being diligent about the source of food and water as well as cosmetics, toothpaste, domestic cleaning fluids and other exposures.

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