THE NAMES OF GOD
Endometriosis

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What is the endometriosis

- Endometriosis is a condition where tissue similar to the lining of the womb starts to grow in other places, such as the ovaries and fallopian tubes.
- Endometriosis can affect women of any age. It's a long-term condition that can have a significant impact on your life.
SITES OF INVOLVEMENT

- Gross and microscopic pathology
- Superficial peritoneal lesions
- Ovarian lesion (endometrioma)
- Deeply infiltrating endometriosis
Endometriosis on surface of ovaries  
Chocolate cysts  
Kissing ovaries
Deep infiltration site endometriosis
In general, the most common sites of endometriosis, in decreasing order of frequency, are the ovaries, anterior and posterior cul-de-sac, posterior broad ligaments, uterosacral ligaments, uterus, fallopian tubes, sigmoid colon and appendix, and round ligaments.
Occasionally, an endometrioma arises in the anterior abdominal wall, usually in the vicinity of a surgical incision, although these lesions can occur in women with no history of surgery or history of endometriosis.

Rarely, endometriosis has been reported in the breast, pancreas, liver, gallbladder, kidney, urethra, extremities, vertebrae, bone, peripheral nerves, spleen, diaphragm, central nervous system, hymen, and lung.

Most women have multiple areas of involvement.
EPIDEMIOLOGY AND RISK FACTORS

• prevalence varies with the population being studied, approximately 10 percent of reproductive-age women globally have endometriosis
• Determining the prevalence of endometriosis in the general population is challenging because some women are asymptomatic, those with symptoms can have varied and nonspecific presentations, and definitive diagnosis typically requires surgery
When the prevalence of endometriosis was assessed by surgical indication, endometriosis was present in 57 percent of women with endometriosis as a preoperative indication, in 21 percent of women with preoperative pelvic pain, and in 8 percent of women without anticipated endometriosis or pelvic pain.
Nulliparity
prolonged exposure to endogenous estrogen early menarche [before age 11 to 13 years]
late menopause
shorter menstrual cycles (defined as ≤27 days)
heavy menstrual bleeding
obstruction of menstrual outflow (e.g., müllerian anomalies)
exposure to diethylstilbestrol in utero
height greater than 68 inches
lower body mass index
exposure to severe physical and/or sexual abuse in childhood or adolescence
high consumption of trans unsaturated fat
factors associated with a decreased risk

- multiple births
- extended intervals of lactation
- late menarche (after age 14 years)
- Increased consumption of long-chain omega-3 fatty acids
- Race: higher in White and Asian women compared with Black and Hispanic women

One retrospective study reported that among women with peritoneal endometriosis, ovarian endometrioma was less common in those women who had used oral contraceptive pills compared with women who had not (18 versus 49 percent)
Pathophysiology

- exact cause of endometriosis remains unknown
- The pathogenesis of endometriosis appears to be multifactorial, including ectopic endometrial tissue, altered immunity, imbalanced cell proliferation and apoptosis, aberrant endocrine signaling, and genetic factors
Retrograde menstruation theory
also called the *implantation theory* or *transplantation theory*

- It suggests that during a woman's *menstrual flow*, some of the endometrial debris flow backward through the Fallopian tubes and into the peritoneal cavity, attaching itself to the *peritoneal surface* (the lining of the abdominal cavity) where it can proceed to invade the tissue as or transform into endometriosis.

- Retrograde menstruation *alone is not able* to explain all instances of endometriosis, and *additional factors* such as *genetics, immunology, stem cell migration, and coelomic metaplasia* are needed to account for disseminated disease and *why* many individuals with retrograde menstruation are not diagnosed with endometriosis.
Evidence supporting retrograde menstruation comes from the observation that the incidence of endometriosis is increased in girls with genital tract obstructions that prevent drainage of menses through the vagina and therefore increase tubal reflux.
The existence of endometriosis in girls prior to menstruation, and thus not yet exposed to retrograde menstruation, challenges the retrograde menstruation hypothesis regarding the etiology of endometriosis.
• Researchers are investigating the possibility that the immune system may not be able to cope with the cyclic onslaught of retrograde menstrual fluid.

• In this context there is interest in studying the relationship of endometriosis to autoimmune disease, allergic reactions, and the impact of toxic materials

• There are immune system changes in people with endometriosis
Other theories

Stem cells:

- Endometriosis may arise from stem cells from bone marrow and potentially other other sources.
- In particular, this theory explains endometriosis found in areas remote from the pelvis such as the brain or lungs.
- **Stem cells** may be from local cells such as the peritoneum (coelomic metaplasia) or cells disseminated in the blood stream (vascular dissemination) such as those from the bone marrow.
Environment:

- Environmental toxins (e.g., dioxin, nickel) may cause endometriosis.
- Toxins such as dioxins and dioxin-like compounds tend to bioaccumulate within the human body.
- Further research is needed but "it is plausible that inflammatory-like processes, caused by dioxin-like environmental chemicals, can alter normal endometrial and immune cell physiology allowing persistence and development of endometrial tissue within the peritoneal cavity, normally cleared by immune system cells."
Coelomic metaplasia:

- **Coelomic** cells which are the common ancestor of **endometrial** and **peritoneal** cells may undergo **metaplasia** (transformation) from one type of cell to the other, perhaps triggered by inflammation.
Autoimmune:

- **Graves disease** is an autoimmune disease characterized by hyperthyroidism, goiter, ophthalmopathy, and dermopathy. People with endometriosis had higher rates of Graves disease. One of these potential links between Graves disease and endometriosis is autoimmunity.
Endometriosis-related pelvic pain is associated with increased production of inflammatory and pain mediators as well as neurologic dysfunction related to the implants.

An increase of nerve fibers and imbalance of sympathetic and sensory nerve fibers have been demonstrated in women with endometriosis-related pain.
Proposed mechanisms for pain symptoms include estrogen acting as a neuromodulator that selectively repulses the sympathetic axons while preserving sensory innervation, inflammation stimulating peripheral nerve sensitization, and chronic pain inducing changes in the central nervous system.
THANK YOU