ENDOMETRITIS

An inflammation of the inner uterine lining that could interfere with conception and pregnancy outcomes.

Diagnosis Female

About Endometritis

Endometritis is defined as inflammation of the inner uterine lining (endometrium), grouped in various typologies (Pic. 1), depending on the underlying causality. Endometritis diminishes the success rates of both spontaneous conception and in vitro fertilization (IVF) cycles and could be responsible for obstetric complications.

Endometritis is generally caused by infection:

- sexually transmitted infections (STIs) - such as Chlamydia and gonorrhea
- tuberculosis
- infections caused by normal vaginal bacteria

Endometritis of chemical–mechanical origin, on the other hand, is generally caused by the presence of pessaries or intrauterine devices (IUD).

Endometritis may present in acute or chronic forms.

The acute form is principally a transitional phase of short duration generally arising due to the persistence of placental or abortive residues, or in combination with pelvic inflammatory disease, or with inflammatory conditions of bacterial/viral etiology elsewhere in the urogenital tract.

Chronic inflammation may follow the acute stage - which is the most frequently seen - or it may occur more subtly, as chronic inflammation ‘ab initio’, without passing through an acute stage. Chronic endometritis (Pic. 2) is characterized by the presence of plasma cells in the stroma. The most common organisms are Chlamydia trachomatis (chlamydia), Neisseria gonorrhoeae (gonorrhea), Streptococcus agalactiae (Group B Streptococcus), Mycoplasma hominis, tuberculosis, and various viruses. Most of these agents are capable of causing chronic pelvic inflammatory disease (PID). Patients suffering from chronic endometritis may have an underlying cancer of the cervix or endometrium (although infectious cause is more common).

The symptoms vary from overt forms. The typical presentation is with fever, tenderness in the pelvic region and unpleasant-smelling vaginal discharge after the birth.

A hysteroscopy (inspection of the uterine cavity by endoscope; Pic. 3), performed in the proliferative phase of the menstrual cycle (ovarian follicles develop and mature in preparation for ovulation), allows to identify the signs of endometrial inflammation. The outcome for patients with endometritis is generally very good if gets prompt treatment, which include antibiotics. However, the potential development of endometritis, if left untreated, leads to infertility or septic shock.

Associated diseases

Cervicitis

Cervicitis is an inflammation of cervix, the lower and narrow end of the uterus that opens into the vagina.
Cervicitis may ascend and cause endometritis and pelvic inflammatory disease (PID). The condition is accompanied with changes in vaginal pH, thus, it is more difficult for semen to swim into the uterine to then meet the egg in fallopian tube.

**Pelvic inflammatory disease**

Pelvic inflammatory disease (PID) is an inflammatory process elicited by the migration of pathogenic microorganisms from the lower to upper genital tract. It could be a result of cervicitis and/or endometriosis (uterine inner lining grows outside the uterus), if left untreated. A history of pelvic inflammatory disease suggests the possibility of tubal damage. PID is unquestionably the major cause of tubal factor infertility and ectopic pregnancies. If fallopian tubes are affected, the transport of sperm toward egg is disrupted.

It has also been described in cases of postpartum endometritis secondary to herpes simplex virus (HSV) and cytomegalovirus (CMV) infections, particularly in patients with human immunodeficiency virus (HIV).

**Complications**

Endometritis is the most common cause of sepsis after delivery (postpartum endometritis; PE). The likelihood of postpartum endometritis development after cesarean section increases by 5-10 times compared with spontaneous labor and its frequency has no tendency to decrease. The urgency of PE problem is determined not only by its high prevalence, economic losses, but its possible complications (uterine suture failure and generalization of infection as well).

**Pyometra**

Pyometra describes an accumulation of pus in the uterine cavity. In order for pyometra to develop, there must be both an infection and blockage of cervix via a stenotic cervix (pathologic narrowing of the uterine cervix). Signs and symptoms include lower abdominal pain (suprapubic), rigors, fever, and the discharge of pus on introduction of a sound into the uterus. Pyometra is treated with antibiotics, according to culture and sensitivity.

**Sepsis**

Sepsis (whole body inflammation) is a life-threatening condition that arises when the body's response to infection causes injury to its own tissues and organs. Common signs and symptoms include fever, increased heart rate, increased breathing rate, and confusion. Septicemia can be the cause of sepsis, which is a severe infection that can get worse very quickly. Sepsis can lead to septic shock, which is a life-threatening emergency.

**Risk factors**

- emergency cesarean section
- prolonged membrane rupture
- prolonged labor (more than 24 hours)
- multiple vaginal examinations during labor
- miscarriage
- hysteroscopy (inspection of the uterine cavity by endoscopy)
- placement of an intrauterine device (IUD)
- sexually transmitted infections (STIs)

![Impact on fertility](image)

In some cases, endometritis can be associated with infertility. Endometrial inflammation seems to interfere with the physiological mechanisms of oocyte fertilization and embryonic implantation. The relationship between chronic endometritis and infertility-related conditions such as repeated implantation failure (RIF) and recurrent miscarriage has recently emerged as an area of inquiry.

Repeated implantation failure is defined as failure to conceive following two or three embryo transfer cycles or cumulative transfer of 10 good quality embryos.

In conclusion, untreated chronic endometritis seems to diminish the success rates of both spontaneous
conception and IVF cycles, as well as to contribute to adverse obstetrical outcomes, as intrauterine infections, preterm delivery, and postpartum endometritis.

However, the exact mechanisms by which chronic endometritis can lead to a compromised fertility are not yet fully understood and are still the subject of numerous studies.

**Prevention**

In the case of endometritis caused by sexually transmitted disease, practicing safe sex may reduce the risk of inflammation. Also, getting routine screening is recommended.

Development of endometritis should be prevented by using sterile equipment and techniques during delivery or surgery.

**Symptoms**

Symptomatic endometritis may include:

- abdominal swelling
- abnormal vaginal bleeding
- abnormal vaginal discharge
- constipation
- discomfort when having a bowel movement
- fever
- general feeling of sickness
- pain in the pelvis, lower abdominal area, or rectal area

Chronic endometritis is often clinically silent. Therefore, it is impossible to accurately determine its true prevalence in the general population.

**Therapies**

**Self therapy**

Chinese herbs

Nowadays, lots of Chinese Herbal Medicine (CHM) and extracts have shown various positive treatment effects. Clinical practice has proved that CHM has a positive therapeutic effect in treating chronic endometritis.

Chinese herb treats endometritis by regulating inflammatory cytokines. It is well-known that cytokines can regulate the inflammatory response. Inflammation alters endometrial cytokine production, and this may have impaired endometrial functions resulting in reducing embryo receptivity. According to the different role that plays in the process of inflammation, inflammatory cytokines can be divided into two groups: pro-inflammatory cytokines and anti-inflammatory cytokines. The former can promote the development of inflammation while the latter can inhibit the development of inflammation, promote the process of repair and regeneration of tissue. Therefore, whether to keep the balance between the two influences the outcome of inflammation.

**Conventional medicine**

The therapy for endometritis is pharmacological and is based on the administration of broad-spectrum
antibiotics. Surgical intervention are not the treatment of option in endometritis.

Pharmacotherapy

Antibiotics

Generally, the drug of choice is doxycycline, administered in doses of 100 mg every 12 hours for 14 days, or alternatively, the administration of cephalosporins, macrolides, or quinolones is possible.

It is preferable for the partner to also undergo the same antibiotic treatment.

Where antibiotic therapy fails and/or where the presence of endometritis persists, an endometrial culture with a relative antibiogram should be considered and an appropriate antibiotic treatment must be prescribed.

In case of persistence of signs of chronic endometritis at subsequent hysteroscopy, the protocol can be repeated up to three times. In the presence of confirmed tuberculous endometritis, the patient should be given a specific antibiotic therapy for tuberculosis (isoniazid, ethambutol, rifampicin, and pyrazinamide for 2 months, followed by isoniazid and rifampicin for another 4 months).

Surgical therapy

Not used.

Assisted reproduction

If conservative medical treatments fail to achieve a full term pregnancy, the physician may suggest the patient undergo in vitro fertilization (IVF). IVF and assisted reproductive technology (ART) generally start with stimulating the ovaries to increase egg production. Most fertility medications are agents that stimulate the development of follicles in the ovary. Examples are gonadotropins and gonadotropin releasing hormone (GnRH). After stimulation, the physician surgically extracts one or more eggs from the ovary, and unites them with sperm in a laboratory setting, with the intent of producing one or more embryos. Fertilization takes place outside the body, and the fertilized egg is reintroduced into the woman’s reproductive tract, in a procedure called embryo transfer.

The fertilized eggs (embryos) are cultivated under very stringent conditions and examined every day by the embryologist to evaluate their progress. The embryos are usually cultured for 3 to 5 days, before the best one(s) are selected to be put (transferred) in to the womb.

Approximately 14 days after the embryo transfer the woman should have a quantitative beta hCG (Human chorionic gonadotropin). This is the first measurable indication of embryo implantation.

The rate of success for IVF is correlated with a woman’s age. More than 40 percent of women under 35 succeed in giving birth following IVF, but the rate drops to a little over 10 percent in women over 40.

Find more about related issues

Therapies

Egg donation
Process by which a woman donates eggs for purposes of assisted reproduction or biomedical research.
Learn more at: [www.fertilitypedia.org/edu/therapies/egg-donation](http://www.fertilitypedia.org/edu/therapies/egg-donation)

ICSI
A micromanipulative fertilization technique in which a single sperm is injected directly into an egg.
Learn more at: [www.fertilitypedia.org/edu/therapies/icsi](http://www.fertilitypedia.org/edu/therapies/icsi)
Sperm donation
The procedure in which a man (sperm donor) provides his sperm for fertility treatment.
Learn more at: www.fertilitypedia.org/edu/therapies/sperm-donation

Standard IVF
A process in which an egg is fertilised by sperm outside the body: in vitro. Own or donated gametes may be used.
Learn more at: www.fertilitypedia.org/edu/therapies/standard-ivf

Gallery

Images show endometrium with abundant plasma cells (diagnostic for chronic endometritis) and scattered neutrophils.

The focal hyperemic area allowed chronic endometritis to be diagnosed in a woman with a history of repeated implantation failure.

The micropolyps, which appear with a varied morphology, are scattered over the uterine wall and may often be encountered with polyps (A) and/or pseudopolyps.

Sources

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Chinese herb treats endometritis by regulating inflammatory cytokines and T-cell paradigm in infertility

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