Treatment of Postpartum Endomatrities

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Introduction:

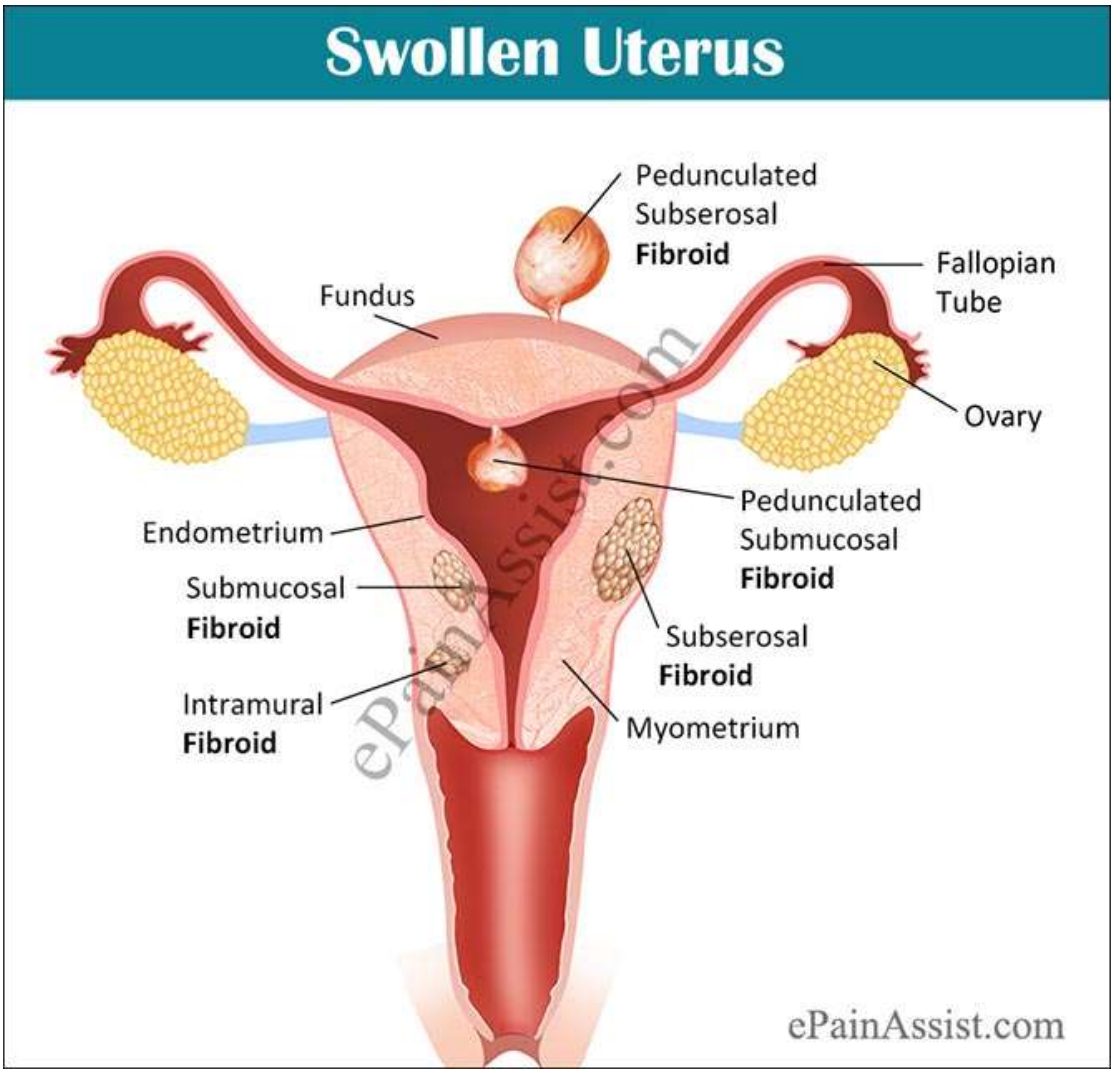
Infections of the uterus are subdivided into infections of the cervix (cervicitis) and endometrium (endometritis). Adnexitis differs as an inflammation of the upper genital tract, with involvement of the trunk (salpingitis) and the ovary (Oophoritis). The association endometritis, adnexitis that can go as far as the tubo-ovarian abscess with peritonitis of the small pelvis, is called inflammatory disease -pelvic matte (PIM) or pelvic inflammatory disease "(PID). This clinical picture is often the cause of infertility and should therefore be treated as quickly than efficiently Endometritis is rarely isolated and is not seenso only sporadically as a diagnosis main. In the majority of cases, endometritis is secondary to a transmitted infection ascending sexual habit beginning with an inflam - cervix. Germs can cause a adnexitis or pelvic inflammatory disease without it necessarily being associated with an endome trite. Endometritis is often a secondary diagnosis, if not evoked or posed.

His clinical picture can therefore be very variable, from a discreet haemorrhagiparic disorder to a severe sepsis.

The pathologist distinguishes between endometritis acute, chronic and specific (eg tuberculosis), which will not be addressed in this review. The histology of curettage in acute endometritis reveals the presence of neutrophils in the glands and microabscess, then that in chronic inflammation the presence of plasma cells in the endometrial stroma is pathognomonic. If the musculature is affected, it is an endomyometritis. The distinction between acute and chronic endometritis is less important for the clinician for whom the distinction between non-puerperal and puerperal endometritis is more critical. This article aims to address the clinical presentation, diagnosis and treatment of endometritis.[1].

Non-puerperal endometritis

Non-puerperal endometritis is often seen in the context of a pelvic inflammatory disease with sexually transmitted pathogens. The group at risk is the youth group women under 25, sexually active and frequently changing partner or having already presented sexual diseases [2].



Other risks are intrauterine interventions such as curettage (abortifacient or fractional) and diagnostic and therapeutic hysteroscopies. ticks. An intact cellular and humoral defense cervix, with an intact endometrium, prevent ascending infections, while the bodies aliens (eg, IUDs) and tumors (e.g. myomas, polyps, carcinomas) in the uterine cavity promote the development of endometritis.

Clinical:

Non-puerperal endometritis may occur - ter on the oligosymptomatic mode by a disorder painless haemorrhagiparous, e.g. meno- / metrorrhagia, intermittent or irregular bleeding [3]. In case of hemorrhagic disorders under ovulation inhibitors, always think about endometritis as a possible etiology in the differential diagnosis and look for a Chlamydia infection on a cervical smear. At the young women on pill, literature shows that endometritis passes more often unnoticed than in women without hormone therapy [4], why this form of endometritis is particularly feared because it can have serious consequences, including the secondary occurrence of infertility and / or chronic abdominal pain.

Pelvic pain and an impression of generalized weakness are other symptoms cific. It is only with fever that an endo - acute trite will eventually be suspected. according to the Center of Disease Control and Prevention (CDC), in a young woman complaining of pain in the lower abdomen, pain with mobilization - the cervix and the pressure of the region of the are sufficient minimal clinical criteria to diagnose pelvic inflammatory disease and start treatment antibiotic [5]. Other criteria, including fever and abnormal vaginal discharge confirms the diagnosis of pelvic inflammatory disease [6].

Diagnostic:

As usual, you need a good history, especially rules, contraception and sexual activity. The frequency of urination and stool gives important elements about the systems urinary and digestive, which must also enter in the differential diagnosis where appropriate. During speculum examination, it is important to examine the cervix and describe the possible fluorine its color, consistency and smell. A collar very fragile, bleeding at the slightest touch, speaks in favor of cervicitis. On the smear, the presence of leukocytes and bacteria does not prove not necessarily the diagnosis of endometritis, however, the absence of inflammatory signs is a major argument against this diagnosis.

Sparkling fluorine is seen in infections Trichomonas, and a fishy smell evokes in firstly a bacterial vaginosis (or colitis aminic). In the microscope, the latter is seen by the so-called "clue cells" (epithelial cells invaded by bacteria), many bacteria with no flora of Döderlein.

Cervical smears for general bacteriology, chlamydia and gonococci are required. The pathos - The most common genes are recalled in Table 1 p. From our perspective, it is possible to do without smears and intrauterine biopsies to confirm or exclude the presence of an endo -metritis. However, in case of cervical infection by chlamydia or gonococci, endometritis is present in about 25% of cases [3], and in 70-90% in case of confirmed annexite [7].

There are no clear recommendations in the literature on the need to search equally mycoplasma and ureaplasma because these germs are relatively often 2.3% of asymptomatic women) [8]. Mycoplasmas are able to go back into and are associated with salpingitis, but with other germs considered as for them as true pathogens [9].

If there is suspicion of infection, remove the IUD if necessary. This is not essential if Pap smear shows Actinomyces in the absence any other symptom [10]. In case of suspicion endometritis, it is recommended to send the removed IUD for bacteriological examination.

At the bimanual examination, it is necessary to look for neck pain under insufflation. The uterus is also very painful. In an inflammatory disease - pelvic floor, it is possible to palpate sensitive, possibly increased in volume.

Inflammatory parameters are increased depending on the severity of the endometritis or the pelvic inflammatory disease. It is furthermore recommended to analyze the urine and make a pregnancy test. Depending on the clinical situation, serological tests for syphilis or HIV are also to be considered, and to repeat after three months.

Transvaginal ultrasound has proven itself in diagnostic imaging. Endometritis has no typical ultrasound criteria but this examination makes it possible to visualize any intrauterine tumors or adnexal abscesses. The presence of free liquid in the small pond (Douglas) is a possible sign of inflammation. The exten - of tubo-ovarian abscess can be judged on a Abdominal CT. The best method of diagnosis of acute pelvic inflammatory disease however, there is laparoscopy, which also makes it possible to take samples and smear secretions [5]. If perihepatitis (FitzHugh-Curtis syndrome) is diagnosed.

Table 1. Most common pathogens of a non-puerperal endometritis / inflammatory disease pelvic.
Chlamydia trachomatis
Neisseria gonorrhoeae
streptococci
staphylococci
Trichomonas vaginalis
Anaerobic bacteria (eg Bacteroides species, clostridia)
Actinomyces (IUD)
Tuberculosis

It is very likely it results from a gonococcal infection or chla mydies. During diagnostic laparoscopy, we usually also perform curettage for histological confirmation of endometritis. Performed by an experienced gynecologist, a Hysteroscopy is a good diagnostic method of chronic endometritis, with detec - micropolypes [11]. This examination is also performed as part of the diagnosis of a infertility, always looking for chlamydia.

The Treatment:

Treatment of endometritis, usually not isolated, depends on the main clinical picture, reason for which only a few basic notions will be given here. Any inflammatory disease need to undergo specialized treatment, and hospitalization is essential according to its severity (table 2 p). A combined antibiotic therapy, covering anaerobes and chlamydia, is done intravenously. In our service, treatment with ciprofloxacin and metronidazole has a proven track record. If the cervical smear is positive for Chlamydia without clinical sign of infection, it is a treatment with 1 g azithromycin in a single oral dose which is recommended. But if there are clinical symptoms such as haemorrhagic disorders, treatment with doxycycline 200 mg / day for 7 to 10 days is indicated. The partner must receive in both cases 1 g of azithromycin.

Before the 20th week of pregnancy, it is erythromycin 500 mg 4 times daily for 7 days to be used, and after week 20 1 g of azithromycin single dose [12].

In case of gonococcal cervical infection, without involvement of the annexes, treatment with single dose of 250 mg ceftriaxone i.m. is considered sufficient. It goes without saying that the partner must also be treated. As this has already been specified, the extraction of any foreign intrauterine body is important.

Puerperal endometritis:

Endometritis or puerperal endomyometritis is manifested by uterine subinvolution, pains of the uterus, putrid lochia, fever and deterioration of the condition general. Headaches are also quite typical of such an infection. Women having Caesareans are at special risk, which is why antibiotic prophylaxis is recommended for such an operation. [13]. Other risk factors are a loss water for a few days, multiple vaginal examinations during delivery and manual placental controls or detachments or instrumen rate. Endometritis is mostly multimicrobial (tab 3 p). The infection may affect the mother and her newborn Chlamydial cervical infection can give a conjunctivitis and atypical pneumonia of the child.

The importance of bacterial vaginosis during of a pregnancy and during childbirth is very controversial. Swedish work diagnosed bacterial vaginosis in about 16% of women early in their pregnancy and found at they have three times more puerperal endometritis [14]. Other authors have found an increased risk of preterm birth and rupture premature water pocket. But studies who treated pregnant women with bacterial vaginosis by metronidazole [15] or clindamycin [16] versus placebo no benefit in prematurity or peripartum infection. The role of endometritis chronic is also not clear, no evident relationship with prematurity having been discovery [17].

Diagnostic:

In the diaper suites, endometritis is a clinical diagnosis. An ultrasound does not showno noticeable difference between women having or not puerperal endometritis [18]. But if the clinical picture is serious, and especially in case of uterine right lateral pain, one has to think about thrombosis of the ovarian vein. Abdominal ultrasound can help diagnosis, but computed tomography is more reliable.

In principle, when the diagnosis of endometritis is posed, it is necessary to make a vaginal smear for bacteriological examination, and especially not to be missed.

Table 2. Reasons for hospitalization.

Failure of outpatient treatment
Bad compliance
Pregnant women
Severe nausea and vomiting
High fever and deterioration of the general condition
Tubo-ovarian abscess
Immunosuppressed patients
Appendicitis not excluded

Table 3. Most common pathogens of a endometritis / puerperal endomyometritis.

Gram positive germs
Streptococci, Staphylococci, Diphteroids,
enterococci
Gram negative germs
E. Coli, Gardnerella, Enterobacter, Proteus
anaerobes
Bacteroides, peptostreptococci and clostridia

Streptococcus A infection (puerperal fever). It is also to exclude urinary tract infection. Inflammatory parameters, leukocytes and CRP, are indicated to follow the evolution.

In the postpartum, free flow of lochia is a good prevention against endometritis. The mobilization of the women who gave birth and, naturally, breastfeeding favor it. As soon as there is stasis lochia, it is worthwhile to resort to uterine tonics, being the most effective time. It is not appropriate to give because of its undesirable effects, particularly on breastfeeding.

ligands

TLR	TLR location	Typical ligands
TLR1	Plasma membrane	Triacylated lipopeptides
TLR2	Plasma membrane	Peptidoglycan, lipoteichoic acid
TLR3	Endosome	Single-stranded RNA and double-stranded DNA
TLR4	Plasma membrane	Lipopolysaccharide, LTA, fibronectin, mannan (*Candida*)
TLR5	Plasma membrane	Flagellin
TLR6	Plasma membrane	Diacylated lipopeptides, fungal zymosan
TLR7	Endosome	Single-stranded RNA, imidazoquinolines
TLR8	Endosome	Single-stranded RNA
TLR9	Endosome	Bacterial and viral unmethylated CpG motifs

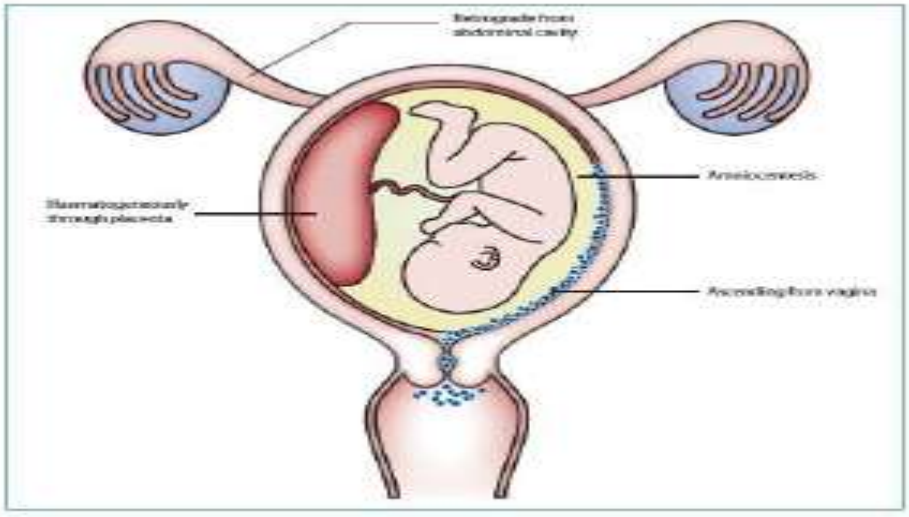
TLR, Toll-like receptor.

In the presence of obvious signs of infection, Methergin® is an important treatment associated with antibiotics. This is usually the association amoxicillin / clavulanic acid 1g 2-3 x / day p.o. or 3 x 1.2-2.2 g i.v. which is used. In the Serious cases with sepsis, according to the Zürcher Geburtshilfe-Handbuch (Zürichois obstetrics manual) [12], it is the triple combination Augmentin® /Dalacin® / Garamycin® which is used. In such situations, thromboembolic prophylaxis is important, preferably by a heparin of low molecular weight.

For any procedure on the uterus postpartum, eg. during a manual separation of the placenta, we administer in our service a antibiotic prophylaxis with amoxicillin / acid clavulanic 3 x 1.2 g i.v. or ceftriaxone 1 x 1 g i.v. Uterotonics are still used in short term postoperatively.

METHODOLOGY:

- Maternal death rate in developed countries 17 - 10 :per 100,000 births
    - Infection = approximately 12% (3rd rank of identified etiologies)
    - Endometritis = 2 - 3% of postpartum infections
    - Maternal death rate in developing countries: 438 per 100,000 births
- 1ST cause of death = puerperal infection: 30 to 39% of cases



- Readmission to the hospital within 6 weeks: 1ST cause = infection (15.5% of cases)
- Average post-delivery time = 5 days

- Caesarean section:
  - Cesarean section rate in France: 20%
- %80of postpartum endometritis
  - Incidence = 15 - 20% without other FdR versus <3% vaginal delivery
  - Incidence = 7% if scheduled cesarean versus 30% if cesarean no scheduled
  - Incidence up to 35% if extended RPM or during labor
  - Incidence up to 85% if cumulative of FdR
    - Ascending pathway (chorioamnionitis and endometritis)
    - Caesarean section: myometrial necrosis, hematomas, seromas, foreign bodies

- **Cochrane Meta-Analysis 2017**
  - **39studies - 4,221 women**
  - **Clinda + genta = reference treatment**
  - **Other "reasonable" combinations: betalactamines + antianaerobic activity**
  - **No difference in adverse effects (less diarrhea)**
- **cephalosporin**
  - **No study of the impact of the antibiotherapy regimen in Nné**

- **No interest in a PO relay after 24 to 48 hours of apyrexia**

PRINCIPLES OF TREATMENT:

There are various antibiotic regimens currently reported in the literature and used in convenient. Active empirical treatment against aerobic and anaerobic organisms is generally preferred. The combination of clindamycin plus gentamicin is largely considered the "gold standard."

The patient should respond to treatment within 48 hours of initiation and be became afebrile in 96h. (The answer is evaluated by an improvement in symptoms pyrexia and leukocytosis.) Treatment should be continued until the patient is afebrile for 24-48 hours. If parenteral therapy has been successful (90%- %97-of cases), oral therapy is not necessary. However, if there is bacteremia. Proven, an oral relay is recommended for the leave, for a total duration of 7 to 10 days. AT note that the transition from IV to PO should be done according to the DST when available.

When a patient does not respond adequately, further investigation and change of antibiotic therapy is recommended. When the patient does not respond to treatment, do not forget the possibility of a pelvic abscess or wound. An imagery is to be strongly considered to explore the differential diagnosis. We start with a

pelvic ultrasound, which may be supplemented with a CT scan if necessary (especially if there is suspicion of septic thrombophlebitis or ovarian vein.(If a chlamydial infection is proven or strongly suspected, Chlamydia (ex: Doxycycline) should be prescribed for a total of 14 days %15 .of patients with endometritis present late (1 to 6 weeks after delivery) with late postpartum hemorrhage and lighter symptoms.

Therefore, oral therapy is sufficient (eg Clavulin 875 mg BID) in as much as chlamydia has been eliminated.

THE RESULT:

Postpartum endometritis is a term that includes endometrial, myometrial infections and the parameter. The infection begins when bacteria from the vagina ascend to the cervix and the uterus during labor.

The incidence is approximately 1-5% of patients who give birth vaginally. About 15% cases of postpartum endometritis have a late onset.

EARLY START	LATE BEGINNING
In the first 48 hours postpartum	48 hours to 6 weeks postpartum
Usually after a cesarean section	Usually after a vaginal delivery
Bacteroides, Prevotella, Streptococcus gr A and B Enterobacteriaceae	Chlamydia, Mycoplasma hominis

SYMPTOMATOLOGY:

The presence of fever is the most important diagnostic criterion. It is essential to dismiss the possibility of any other source of infection. A significant fever is defined as more than ° 38.5C in the first 24 hours after delivery or more than 38 ° C for 4 hours consecutive. Upon examination, the uterus may be soft, subinvoluted, and painful. The patient may have abnormal bleeding or smelly lochia. Can also observe headache, generalized malaise and leukocytosis which increases with presence of segmented neutrophils. More rarely, the patient may have sepsis or a syndrome of toxic shock.

FLORE:

Postpartum endometritis is typically a polymicrobial infection involving a combination of aerobes and anaerobes of the genital tract.

BACTERIA	GRAM -: Enterobacteriaceae
ANAEROBIC BACTERIA	Bacteroides spp., Peptostreptococci, Prevotella spp.
ENDOGENOUS ORGANISMS	Mycoplasma hominis, Ureaplasma spp.
ORGANIZATIONS TRANSMITTED SEXUALLY	Chlamydia trachomatis, Neisseria gonorrhoeae

RISK FACTORS:

The following risk factors are associated with endometritis:

Cesarean delivery or assisted vaginal delivery	Duration of membrane rupture (> 18h)
Bacterial vaginosis	Severe anemia, major bleeding
Extended work	Use of antepartum corticosteroids
Repeated vaginal examinations	Use of internal fetal monitoring

Manual removal of the placenta or placental retention	Large amount of meconium in the amniotic fluid
Maternal diabetes	Carrier of rectovaginal or urinary SB, Chorioamnionitis
Low socioeconomic status	Prematurity or postdatism
HIV	

Note that the use of prophylaxis during caesarean section is associated with a decrease in the incidence of endometritis. The agent of choice is cefazolin 1 to 2 g IV x 1 given befor the surgical incision.

EVALUATION:

Bacterial cultures of the cervix and blood cultures should be done immediately. They are indicated in patients who do not respond to treatment, and if sepsis is present severe or toxic shock. It is suggested to do cervical screening for chlamydia and gonorrhea in the following cases:

Late endometritis	**If no test done since the beginning of pregnancy**
Positive personal history	**During rehospitalization for postpartum endometritis**
High risk patient	

COMPLICATIONS:

The complications of endometritis are, inter alia, peritonitis, salpingitis, ovaritis, intra-abdominal abscess, necrotizing myositis of the uterus and sepsis. Thrombophlebitis pelvic septic syndrome, which may be associated with septic pulmonary embolism, is a possible complication but rare.

RECOMMENDATIONS TO THE HEALTH CITY:

Considering, the therapeutic form of the CSL, the spectrum of activity and the literature, the treatment options that are recommended to the CSL are grouped in the tables that follow. Treatment is based on early or late onset of infection.

Conclusion:

In current clinical practice, endometritis the exception of the puerperium, is too often neglected and undiagnosed. These are usually symptoms of colitis / cervicitis, or those an adnexitis or an inflammatory disease pelvic dominant, and the clinician does not not enough importance to the endometrium. But, strong fortunately, that does not matter as to in many cases, because the symptoms of infection anyway give the indication to antibiotic therapy, which will also be directed for eventual endometritis. Isolated endometritis is much more delicate because their symptoms are either very discreet or absent, so that their diagnosis and treatment are too late. Recall here that in hemorrhagic disorders, especially in Inhibitors of ovulation, endometritis should always be mentioned. If they are not diagnosed, chlamydia can cause a ascending infection with long-term risk tubal sterility. In young women with a suspicion of chlamydia infection it is therefore perfectly justified to start a treatment before having the results of the smear.

The importance of bacterial vaginosis for com plications of pregnancy is still not definitively specified.

- 1st cause of postpartum fever, often early (3-5 days postpartum)
- Preferred factors: cesarean section, vaginosis+++
- Clinical diagnosis
- Low role of microbiological documentation and imaging (except failure of Treatment)
- Microbiology: S. agalactiae, anaerobic vaginal flora, other streptococci,
- S. aureus, E. coli but often plurimicrobial
- Differential diagnoses: placental retention, pelvic venous thrombosis
- Treatment: clinda + genta or amox / clav - most often IV - duration: up to 24-
- 48h of apyrexia (no recommendation of duration if treatment per os: 7-14)

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