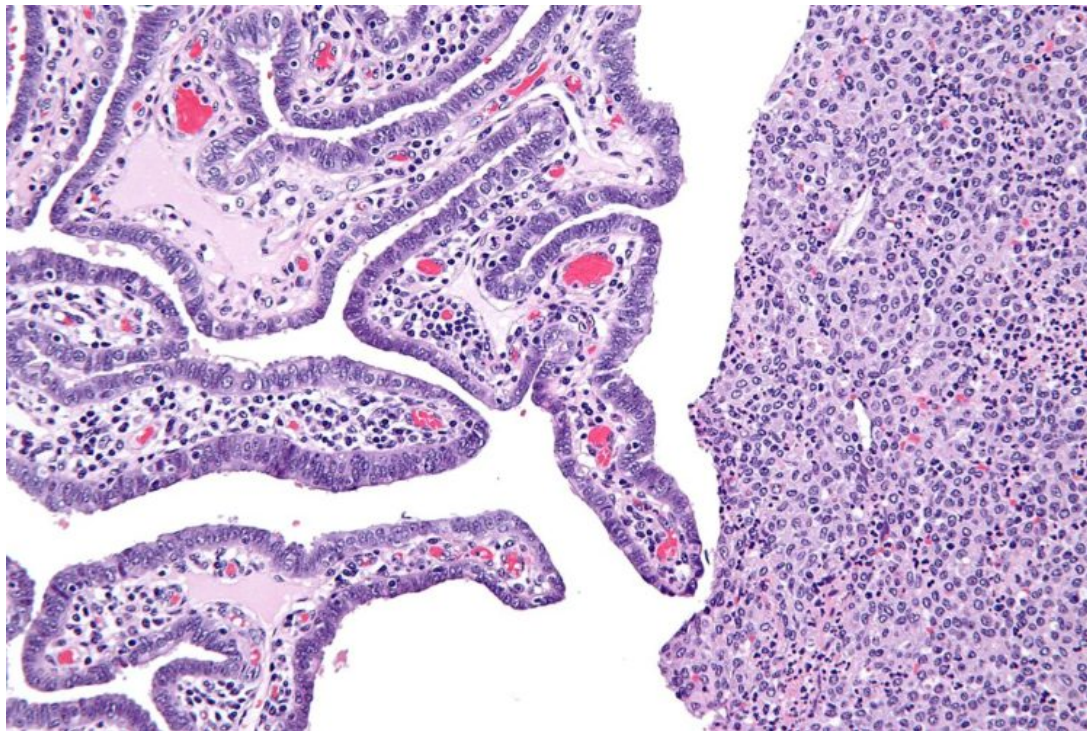


# Salpingitis: Diagnosis and Treatment

[See online here](#)

**Salpingitis is the inflammation of the fallopian tubes usually due to gonorrheal or chlamydial infections, but other gram-negative and anaerobic bacterial pathogens have been also implicated. Patients can present with lower abdominal pain, fever, and an elevated erythrocyte sedimentation rate. Ultrasonography and diagnostic laparoscopy can help confirm the diagnosis of salpingitis and exclude other differential diagnoses or associated complications such as hydrosalpinx, adhesions, and tubo-ovarian abscesses. Antimicrobial management is the mainstay of treatment and surgical management should be reserved to patients with non-responsive tubo-ovarian abscesses or ruptured abscesses.**



## Definition

Salpingitis is an infection that causes inflammation of the fallopian tubes. It is a form of **pelvic inflammatory disease (PID)**, which refers to an infection of the female reproductive organs. Some patients with PID may not have salpingitis, however, as the term PID is used to refer to a number of diseases in the female genital tract.

## Epidemiology

Inflammation of the fallopian tubes is the **most common infection** in women of reproductive age. Approximately 2% of sexually active women develop salpingitis each

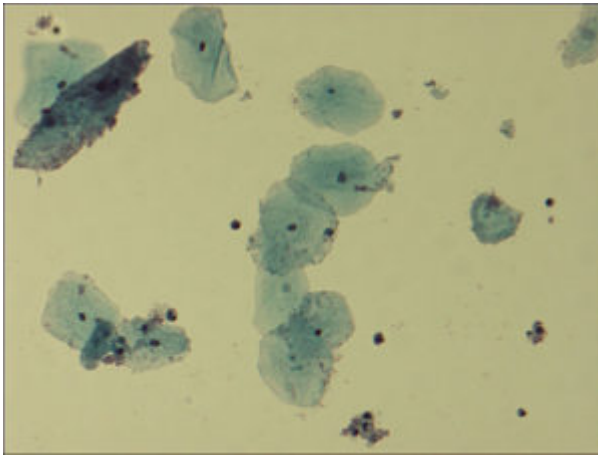
year.

The most common etiological factor for salpingitis is **chlamydia**. Expansion of screening programs for asymptomatic chlamydia infection has dramatically decreased the incidence of salpingitis and PID.

Salpingitis is more common among teenagers. As well, the disease usually follows a sexually transmitted infection. Thus, those most at risk of developing salpingitis include women with:

- Multiple sexual partners
- History of sexually transmitted diseases
- Instrumentation or surgery with the potential lead to sexually transmitted infections
- History of unprotected sex

## Etiology



**Image:** Microscopic view of *Gardnerella vaginalis*, magnified 400x.  
By: Dr. F.C. Turner; photographed using Olympus BX50 microscope at the Department of Pathology, University Medical Center Groningen, The Netherlands. License: Public domain.

Salpingitis is an infectious disease that has been associated with multiple organisms. ***Neisseria gonorrhoea*** and ***Chlamydia trachomatis*** are the most commonly identified pathogens in both PID and salpingitis.

Other possible pathogens include ***Gardnerella vaginalis*** (see image), ***Escherichia coli***, ***Haemophilus influenzae***, **group B beta-hemolytic streptococci**, and **bacteroides**. In the wake of widespread screening programs for gonorrhea and chlamydia infections, it became clear that other pathogens are becoming more common as the cause of salpingitis in the developed world.

## Pathophysiology

Salpingitis occurs when pathogens move through the cervix, endometrium, and, eventually, the fallopian tubes. Intrauterine devices, endometrial biopsy, dilation and curettage, hormonal changes brought on by menstruation, and retrograde menstruation all predispose patients to salpingitis.

## Complications

If left untreated, patients with salpingitis may develop **chronic pelvic pain**, which can be difficult to treat. This chronic pain may be caused by **pelvic adhesions** or the formation of **tubo-ovarian abscesses**. Additionally, **hydrosalpinx** can cause pelvic pain.

**Laparoscopy lysis of adhesions** can be attempted for chronic pelvic pain. Patients with a tubo-ovarian abscess usually present with new-onset acute abdominal and pelvic pain, fever, and an abdominal mass. **Ultrasonography imaging** of the tubo-ovarian abscess is indicated to rule out rupture. Non-ruptured abscesses can be treated with **antimicrobials**, while ruptured abscesses should be treated **surgically** and be adequately drained. As well, the pelvis needs to be irrigated.

Long-standing or recurrent history of salpingitis or PID leads to sub-fertility and an increased risk of ectopic pregnancy.

## Clinical Presentation

Patients with acute salpingitis usually present with **pelvic pain**, an **adnexal mass**, and **fever**. Additionally, **inflammatory biomarkers** such as erythrocyte sedimentation rate may be elevated.

Other features include foul-smelling vaginal discharge, intermenstrual spotting, nausea, vomiting, and frequent urination.

## Diagnostic Work-up

The diagnosis of salpingitis is a clinical diagnosis determined by laboratory or imaging studies that excludes other differential diagnoses.

**Erythrocyte sedimentation rate** and **C-reactive protein** are usually elevated in inflammatory conditions, including salpingitis, and should therefore be checked in this group of patients. Additionally, a **cervical swab and culture** is indicated to define sensitivity patterns for *N. gonorrhea* and *Chlamydia trachomatis*, as they are the two most commonly identified pathogens. Treatment should begin immediately.

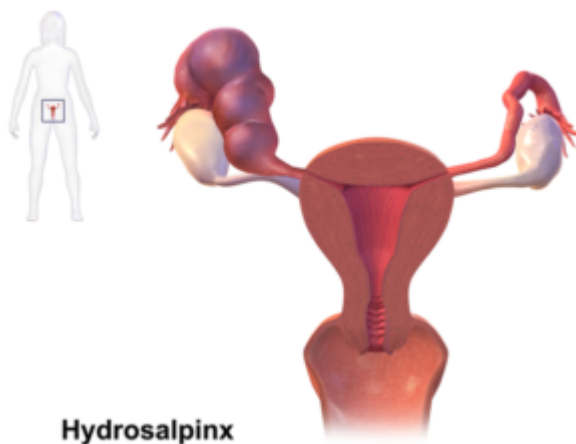


Image: Hydrosalpinx. By: BruceBlaus. License: [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)

Patients with chronic pelvic pain should undergo a **laparoscopy**, which is both diagnostic

and therapeutic. Diagnostic laparoscopy can directly visualize the fallopian tubes, which are usually swollen when inflamed. Additionally, adhesions and abscesses can be identified and excluded.

Patients with salpingitis have a somewhat similar presentation as those with **ectopic pregnancy**. Ultrasonography can help exclude this latter condition, especially when combined with a **beta-hCG test**, when appropriate. Additionally, ultrasonography can reveal **hydrosalpinx** (see image) or **edema** and **fluid accumulation** in the tubes, which are signs of inflammation. **Abscesses** can also be visualized on ultrasound.

If an **endometrial biopsy** is performed, **endometritis** is usually evident because the majority of the patients have an ascending infection and the pathogens usually move through the endometrium before reaching the fallopian tubes.

## Treatment

When a patient presents with adnexal tenderness, fever, and an elevated erythrocyte sedimentation rate, it is important to determine whether inpatient or outpatient treatment is needed.

**Pregnant patients**, those who have a **tubo-ovarian abscess**, patients experiencing **severe vomiting** and a **high fever**, or those who do not respond to outpatient management should be treated as inpatients. Inpatient regimens for salpingitis include IV **cefotetan**, **cefoxitin plus doxycycline**, or **clindamycin plus gentamicin**. Twenty-four hours after clinical improvement is seen, the patient should be put on **doxycycline** alone for 2 more weeks.

Patients with **intrauterine devices** do not benefit from removing the device unless they do not show any clinical improvement 3 days after beginning medical treatment.

Several regimens exist for the outpatient management of salpingitis. **Ceftriaxone plus doxycycline** with or without **metronidazole** and **cefoxitin plus probenecid** and **doxycycline** with or without **metronidazole** are both effective. **Doxycycline** should be used for 14 days after the first 24 hours of clinical improvement with discontinuation of other drugs.

Patients with a **tubo-ovarian abscess** that is not ruptured can be treated medically with **clindamycin plus gentamicin** to cover both anaerobes and **gram-negative organisms**. Additionally, **ampicillin** should be used if enterococcus is suspected.

Patients with tubo-ovarian abscesses who are not responding to medical treatment need **surgical intervention**. Surgery can involve a **unilateral oophorectomy** or simple drainage of the abscess by **laparoscopy** or percutaneously.

When the abscess is in the cul-de-sac, is midline, adherent to the **peritoneum**, and appears cystic on ultrasound, a **posterior colpotomy** can be performed. Otherwise, **percutaneous drainage** or **laparotomy** may be indicated to drain the abscess.

If the tubo-ovarian abscess ruptures, the patient will become severely ill and pelvic pain will intensify. In these patients, surgical treatment is an emergency and any delays carry a **significant mortality risk**.

Surgery includes removal of the abscess, the uterus, tubes, and both ovaries, as well as irrigation of the pelvis to remove pus. If the abscess is unilateral and the preservation of fertility is desired, a **unilateral salpingo-oophorectomy** can be done. Unfortunately,

without a **hysterectomy**, the risk of recurrence of salpingitis in the other tube after a tubo-ovarian rupture is relatively high. This possibility should be discussed with the patient.

Delays usually result in a **complicated postsurgical recovery** due to bacterial absorption into the different pelvic organs, which can lead to **incision dehiscence**, **intestinal obstruction**, **fistulas**, **acute respiratory distress syndrome**, and **septic shock**. Fortunately, salpingitis complications have become rarer since the introduction of screening programs for chlamydial and gonorrhoeal infections.

## References

[Fallopian Tube Disorders](#) via medscape.com

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Notes