



# Cervicitis

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# Cervicitis

- Inflammation of the uterine cervix may be infectious and non-infectious
- **Causes of infectious**
- endocervical infection (mucopurulent) is caused by *Neisseria gonorrhoeae* and *Chlamydia trachomatis*
- Infection of portio vaginalis is caused by *Trichomonas vaginalis*, human papilloma virus (HPV), herpes simplex virus (HSV), *Treponema pallidum*, *Haemophilus ducreyi*, and donovanosis. These can produce either exophytic or ulcerative lesions
- **Causes of non-infectious**
- Trauma from foreign bodies (eg, tampons, pessaries, IUDs), surgical instrumentation, and therapeutic intervention
- Radiation
- Malignancy
- chemical irritation (eg, deodorants, douching),

# Frequency of Infectious Cervicitis

- The World Health Organization estimates that at least 250 million new cases of sexually transmitted diseases occur each year
- Trichomoniasis is the most common with approximately 120 million cases a year
- Chlamydia is the next most common STD with approximately 50-70 million cases a year
- HPV, HSV and gonorrhea each account for roughly 20-30 million cases a year

# Risk Factors

- Youth e.g. <25 year
- Single marital status
- Urban resident
- Low Socioeconomic status



# Complications of Cervicitis

- Pelvic Inflammatory disease
- Infertility
- Ectopic pregnancy
- Cervical cancer
- Spontaneous abortion
- Premature rupture of membranes and preterm delivery
- Perinatal and neonatal infections which could lead to mental retardation, blindness, low-birth weight, stillbirth, meningitis and death
- The social stigma is strong and might expose women to verbal, emotional, or physical abuse from others particularly male partner.

# Clinical Picture

- **History taking**
  - history of sexual activity and type of contraception (if any). Increased incidence of Chlamydia cervicitis in women has been associated with use of oral contraception
  - Most patients present with complaints of vaginal discharge or vaginal bleeding
  - Dyspareunia and dysuria may be present
  - Abdominal pain and fever are associated with involvement of the upper genital infection
  - Patients with mild cervicitis may be asymptomatic, and many patients with chlamydial cervicitis are asymptomatic
- **Physical Examination**
  - Finding in the cervix include the following :
    - Erythematous and inflamed cervix on speculum examination
    - Possible purulent discharge from the cervical os
    - Cervix tender to palpation
    - Trichomonas vaginalis may result in a friable cervix with prominent papillae and punctuate hemorrhage (strawberry cervix)

# Investigations

## ■ Traditional tests

- Wet mount of the discharge usually demonstrates more than 5 WBCs per high-power field
- Gram stain of the cervical mucopus may reveal gram-negative intracellular diplococci in cases of gonorrhea. Culturing in modified Thayer-Martin medium is the criterion standard for confirming gonorrhea
- Enzym-linked immunoassay or direct fluorescent antibody testing often is used to detect Chlamydia infection. DNA probes with 90-97% sensitivity are also available for simultaneous detection of gonococcal and chlamydial organisms
- Chlamydia culture is performed on McCoy cells sometimes indicated (in case of suspected child abuse)

## ■ Newer Tests

- Several high specific and sensitive tests have been developed including:
  - Polymerase chain reaction (PCR)
  - Ligase chain reaction (LCR)
  - Transcription mediated amplification (TMA)
- PCR and LCR testing consists of amplification of specific DNA sequences, while TMA testing is an RNA amplification assay
- It is better to do these tests with endocervical specimens, but they may be easily performed on first-void morning urine samples



# Management

- Establishing the etiologic agent is the key to successful treatment
- Ensure that patient's sexual contacts receive the appropriate examination and treatment . Most treatment failures are actually reinfection from an untreated sexual partner
- Advise patients to abstain from sexual activity until test results following therapy are negative and partners are treated.
- **Drug therapy:**
  - Ceftriaxane (rocephin) first choice for the treatment of gonorrhea ...125mg IM single dose . Class b in pregnancy and pediatric dose as adult
  - - Doxycycline is the treatment of choice for chlamydia.. 100mg orally(PO) bid for 7 days. Unsafe in pregnancy and contraindicated before 8 year-old
  - - Azithromycin (Zithromax) for chlamydia ...1g po single dose Class b in pregnancy. 10mg/kg not to exceed 1g/dose In children
  - - Metronidazole (Flagyl) 2g po single dose for T vaginalis

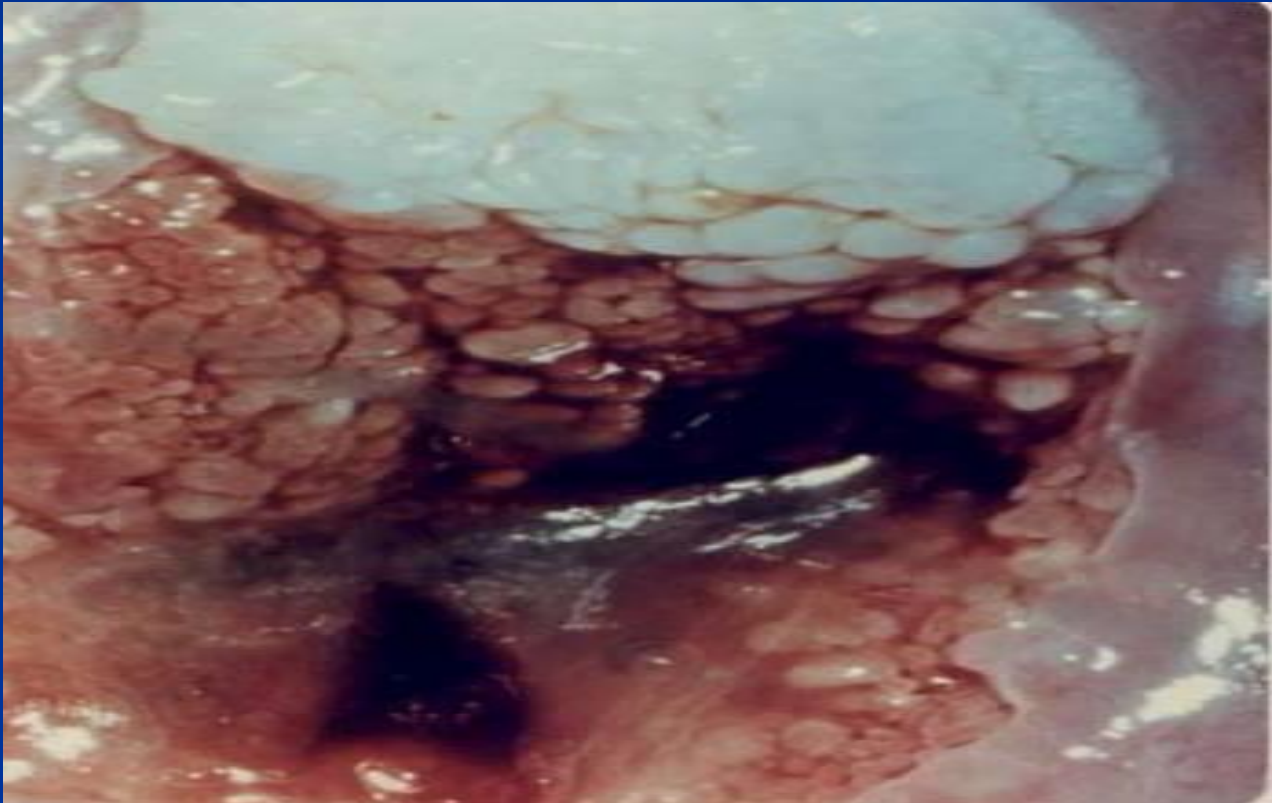


# Infections involving the portio of the cervix

HPV can infect the ectocervix and can cause warty lesions similar to those seen in the vagina or on the vulva; however, the virus on the cervix typically causes flat warts. These are macular or papular lesions that become more visible to the naked eye when swabbed with 3-5% acetic acid. The acetic acid causes cellular dehydration. The resulting increase in nuclear density appears clinically as a white lesion. This phenomenon is transient. The term “aceto-white” describes this finding. In addition to HPV, squamous metaplasia and cervical intraepithelial neoplasia can appear aceto-white.

- HPV lesions tend to have indistinct and feathered borders, and the lesions may appear broken or flocculated. Unlike cervical intraepithelial neoplasia (CIN), satellite lesions may be present, and HPV lesions may be within or outside the transformation zone on the portio of the cervix. Another appearance of HPV may be snow-white, shiny, and raised lesions. Frequently, fine-caliber blood vessels are present.
- Lesions suggestive of HPV should be confirmed by performing a biopsy. The hallmark histologic feature is the koilocyte. On both cytologic preparations of cervical biopsy specimens, koilocytes are cells with wrinkled nuclear membranes (like raisins) that frequently are binucleate and occasionally are multinucleate. The nuclei are surrounded by a clear halo, which gives the cells their name. Cytologic and nuclear atypia typically is present. In cervical biopsy specimens, a few normal mitotic figures may be seen in the basal layer of the squamous epithelium, while koilocytes occupy the intermediate and superficial layers.
- Currently, more than 80 types of HPV are described, but only a few types cause genital tract lesions. The typical exophytic warts that present on the vulva, vagina, and cervix are type 6 or type 11. Types 16, 18, 31, 33, and 35 are more commonly associated with flat warts and have an epidemiologic link to CIN. Kits are available that classify HPV lesions as either benign (ie, 6 or 11) or at risk (ie, 16, 18, 31, 33, and 35).

# Acetowhite due to HPV



# Infections involving the portio of the cervix

## ■ Herpes simplex virus

- Of women with their first episode of HSV-2 infection, 70-90% have herpetic cervicitis as part of the manifestation. In recurrent infections, cervicitis is present in 15-20% of women.
- Primary herpetic cervicitis frequently is asymptomatic; however, it may present as a purulent or bloody vaginal discharge. Grossly, the cervix may appear diffusely red and friable. At times, ulcerations, which may be extensive, are present on the ectocervix.
- Making a clinical diagnosis may be difficult. Colposcopic findings of acute cervicitis are identifiable in two thirds of women with primary herpes cervicitis. Multinucleate cells with typical ground-glass inclusions may be identified on cervical cytology results in 60% of these women.
- The differential diagnosis includes the chancre of syphilis. Gonorrhea and chlamydia infection can cause a similar type of discharge, although ulceration in these conditions is uncommon. Syphilis, gonorrhea, and chlamydia infection may coexist with HSV-2 infection. Women with primary genital herpes involving the cervix should be started on antiviral therapy.
- The other presentation of herpes involving the cervix is asymptomatic shedding. In these instances, the classic multinucleate cells with ground-glass inclusions may be identified on cervical cytology results as an incidental finding. In a sexually transmitted disease clinic, HSV was isolated from 4% of randomly selected women. Treatment for asymptomatic shedding is not recommended.

# Infections involving the portio of the cervix

## ■ *T pallidum*

- The primary lesion of syphilis develops at the site of inoculation 2-6 weeks after infection. The primary lesion begins as a papule and then ulcerates. Typically, the diameter is 0.5-1.5 cm.
- In women, besides the labia and posterior fourchette, the cervix is a common site for the primary chancre. Because the primary lesion is asymptomatic and the cervix is not visualized readily, primary lesions in this location frequently remain undiagnosed. If untreated, they heal in 3-6 weeks. The disease then enters the latent period.
- The differential diagnosis of these ulcers includes HSV-2 and *H ducreyi*. Diagnosis is best made using a dark-field microscopic examination of exudate taken from the surface of the lesion. The rapid plasma reagin (RPR) test results may be positive at a relatively low titer (1:16 or less) at this time. If syphilis is strongly considered and both the dark-field examination and the RPR test findings are negative, a repeat RPR test in 2 weeks will have positive results.
- Treatment for primary syphilis is benzathine penicillin G at 2.4 million units. If the patient is allergic to penicillin, doxycycline at 100 mg twice daily for 2 weeks by mouth or tetracycline at 500 mg 4 times daily by mouth for 2 weeks is acceptable. If the patient is pregnant, desensitization followed by treatment with penicillin is recommended.
- All patients with a diagnosis should be tested for HIV.



# Infections involving the portio of the cervix

## ■ *H ducreyi* (ie, chancroid)

- The primary ulcer is typically on the fourchette, labia, or vestibule.
- Vaginal wall ulcers can occur and, at times, involve the cervix. Involvement of the cervix alone is very rare.

## ■ Donovanosis (ie, granuloma inguinale)

- The typical site of infection in women is the labia minora and the fourchette. Lesions of the cervix are uncommon but are easily confused with cervical carcinoma.
- Four distinct types of lesions are described; the most common lesion on the cervix is the necrotic, deep, foul-smelling ulcer associated with tissue destruction.
- A tissue smear is the mainstay of diagnosis. A Giemsa stain typically is used. The Donovan bodies are identified in monocytes. The characteristic histologic picture is that of chronic inflammation, with plasma cells and polymorphonuclear leukocytes. Rarely, Donovan bodies are identified on cervical cytology.
- Treatment is with trimethoprim-sulfamethoxazole double-strength tablets twice daily or doxycycline at 100 mg orally twice daily. Alternative regimens include ciprofloxacin at 750 mg twice daily or erythromycin base at 500 mg 4 times daily. Treatment is for a minimum of 3 weeks.

# Infections involving the portio of the cervix

## ■ ***Actinomyces* organisms**

- *Actinomyces* organisms are isolated most commonly in women with intrauterine devices (IUDs), but infection can be a result of surgical instrumentation and abortion.
- Demonstrating the organism in the center of large abscesses confirms the diagnosis.
- Lesions appear yellow and granular to the naked eye, hence the term sulfur granule.

## ■ **Tuberculosis**

- When the cervix is involved, the lesion almost always is secondary to tuberculous salpingitis, which is secondary to pulmonary tuberculosis.
- The gross appearance can be confused with invasive carcinoma.
- Histologically, multiple granulomas or tubercles with central caseation necrosis, epithelioid histiocytes, and multinucleated Langhans giant cells characterize the lesions.
- The differential diagnosis includes lymphogranuloma venereum and sarcoidosis. An unequivocal diagnosis requires the identification of acid-fast *Mycobacterium tuberculosis*.

- **Schistosomiasis and amebiasis:** These are common in certain geographic areas



# Cervical ectopy

- Represent the red coloration of portio vaginalis due to presence of columnar epithelium on the surface of ectocervix
- It is physiological as in:
  - puberty
  - pregnancy
  - use of contraceptive pills
  - use of HRT
  - use of ovulation induction agents
- \* In cases of laceration of cervix the endocervical columnar epithelium become apparent on naked eye examination as a result of eversion of the ectocervix

