Genital Infections

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Introduction

- Genital infections are most often sexually transmitted infections (STDs).
- The most common agents of STDs are *Chlamydia trachomatis,* papillomavirus, herpes simplex virus, *Neisseria gonorrhoeae*, and the most worrisome, human immunodeficiency virus (HIV).
- Additional agents spread by sexual contact include hepatitis B, cytomegalovirus, syphilis, chancroid, and lymphogranuloma venereum.

Genital Ulcers

- Single or multiple ulcerative lesions on the genitalia constitute one of the most common manifestations of STDs.
- Infection may begin as a papule or pustule and evolve into an ulcer.
- The nature of the ulcer and whether it is painful are significant differential features.
- The ulcer (chancre) of syphilis is typically single, firm, and indurated but painless, whereas genital herpes ulcers are often multiple and painful.

Diagnosis of Genital Ulcers

- The diagnosis is usually made by examination of Wright- or Giemsastained impression smears from biopsy specimens that demonstrate clusters of encapsulated coccobacilli in the cytoplasm of mononuclear cells.
- Chancroid, caused by *Haemophilus ducreyi*, is relatively rare in the developed world; it may be suggested by direct microscopy but requires a special selective medium for culture.

Genital Warts

- Genital warts may be caused by human papillomavirus (condyloma acuminatum) or *Treponema pallidum* (condyloma latum).
- Types 16 and 18, are highly associated with cervical cancer, and are less common causes of warts.
- Condylomata lata are painless mucosal warty erosions that develop in warm, moist sites such as the genitals and perineum in about one third of cases of secondary syphilis.
- Darkfield examinations are invariably positive as are both nontreponemal and treponemal serologic tests.

Urethritis

- Urethritis usually manifests as dysuria, urethral discharge, or both.
- The discharge may be prominent enough to be the chief complaint or may have to be milked from the urethra.
- The major causes of urethritis are *N* gonorrhoeae and *C* trachomatis, followed by *Mycoplasma* genitalium and herpes simplex virus.
- The diagnosis of gonorrhea is established primarily by culture, although direct examinations (Gram stain, DNA assays) may suffice in symptomatic patients. DNA-based assays are comparable to culture for screening.

Epididymitis

- Unilateral swelling of the epididymis is a common clinical illness seen in sexually active men. It is usually painful, with fever and acute unilateral swelling of the testicle that is sometimes confused with testicular torsion.
- In developed countries, the two most common causes of epididymitis are *N gonorrhoeae* and *C trachomatis*, especially in younger men.
- Treatment depends on demonstration of the etiologic agent in urethral specimens or epididymal aspirates.

Cervicitis

- The microbial etiology of cervical infections is varied; *N. gonorrhoeae* and *C. trachomatis* cause endocervicitis, and herpes simplex virus can infect the stratified squamous epithelium of the ectocervix.
- The major clinical manifestation of cervicitis is a mucopurulent vaginal discharge.
- The cervix is friable and inflamed, and polymorphonuclear leukocytes are present in the exudate. Chlamydial, gonococcal, and viral cultures are needed to demonstrate the etiologic agent. T
- herapy depends on the etiologic agent involved

Vaginitis and Vaginal Discharge

- Symptomatic vaginal discharge may occur alone or accompany salpingitis, endometritis, or cervicitis.
- Evaluation includes pelvic examination, cervical cultures for *N* gonorrhoeae and *C* trachomatis, and microscopic examination of the discharge. Measurement of the pH of the discharge may also be helpful.
- The clinical and laboratory findings vary with the etiologic agent. *Candida albicans* generally produces a vulvovaginitis associated with pruritus and erythema of the vulvar area and a discharge with the consistency of cottage cheese.
- Microscopic demonstration of yeast and pseudomycelia in a potassium hydroxide or Gram stain preparation of the exudate confirms the diagnosis.
- Trichomonas vaginalis typically produces a foamy, purulent vaginal discharge. The pH is variable (usually higher than 5.0), and numerous polymorphonuclear cells and motile trichomonads are seen on wet mount examination

• Bacterial vaginosis (BV), previously termed "nonspecific vaginitis," is the most common form of vaginitis in women.

- BV is associated with overgrowth of multiple members of the vaginal anaerobic flora, genital mycoplasmas, and a small Gram-negative rod (*Gardnerella vaginalis*), once believed to be the sole cause of the disease.
- The vaginal discharge of BV is yellowish, homogeneous, and adherent to the vaginal wall. The pH is greater than 5.0.
- Addition of potassium hydroxide (KOH) to the vaginal secretions produces a fishy smell as a result of volatilization of amines.
- The Gram stain shows a shift from the usual lactobacillary flora to one of many Gram-negative coccobacilli.
- Clue cells, which are vaginal epithelial cells heavily coated with *G vaginalis*, may also be seen. Therapy depends on the etiologic agent.

Pelvic Inflammatory Disease

- Clinical manifestations of pelvic inflammatory disease (PID) vary but generally include lower abdominal pain elicited by movement of the cervix or palpation of the adnexal or endometrial areas.
- About 50% of cases are caused by *N gonorrhoeae*. Nongonococcal PID has a complex and sometimes polymicrobial etiology, including *C trachomatis, Bacteroides*, anaerobic streptococci, and *Mycoplasma hominis* alone or in various combinations.
- In general, nongonococcal PID is milder than that associated with *N* gonorrhoeae infection. The incidence of PID is five to ten times higher in women with intrauterine devices than in those not using this form of contraception.
- The diagnosis is established most reliably by culture of peritoneal aspirates from the vaginal cul-de-sac.