SEXUALLY TRANSMITTED DISEASES
SALLY E. SELF, M.D.

Objectives

1. Know syphilis inside and out: primary, secondary, tertiary and congenital
2. Know gonorrhea
3. Know herpes simplex infection
4. Know human papilloma virus (HPV) infection
5. Know chancroid
6. Know granuloma inguinale
7. Know lymphogranuloma venerum
8. Know trichomoniasis
9. Know the nongonococcal STDs

Reading: *Basic Pathology* pages 669-678

I. Syphilis: Known for almost 400 years, syphilis, AKA lues AKA the great pox, has been endemic throughout the world.

A. Organism: *Treponema pallidum*. A spirochete whose only host is humans. It can be transferred across mucosal surfaces during intercourse and even across the placenta to infect the unborn. The inflammation of syphilis is rich in PLASMA CELLS!!

B. Primary syphilis is characterized the presence of the chancre at the site of inoculation. This site may include the penis, vagina, cervix, mouth or anus. The chancre is hard or indurated and usually painless (compare with chancroid) and will ulcerate. Spirochetes are readily demonstrable from scrapings of the chancre. Serologic tests are often negative in this stage.

C. Secondary syphilis usually occurs around two months after the resolution of the primary chancre. There is generalized lymphadenopathy as well as a variety of mucocutaneous lesions that commonly affect the palms of the hand and soles of the feet. In moist areas like the axilla, wart like lesions may develop called condyloma lata. These lesions eventually resolve over a period of weeks. Then, the patient enters the latent phase which lasts about one year.

D. Tertiary syphilis develops in about one-third of untreated patients after a latent period of about five years. It consists of three major phases which may overlap in any combination in a given patient.

1. Cardiovascular syphilis, in the form of syphilitic aortitis, accounts for about 80% of the cases of tertiary syphilis. It is more common in men. Initially, the disease attacks the vaso vasorum. There is a slow, relentless destruction of the root and arch of the aorta which eventually leads to a saccular aneurysm and possible rupture.

2. Neurosyphilis makes up a minority of tertiary syphilis cases. The disease manifests itself as meningovacular disease, tabes dorsalis and general paresis.

3. Benign tertiary syphilis is characterized by the development of granulomas called gummas in various sites. The favored areas for gumma development are bone, skin and mucus membranes of the mouth and upper airway.

E. Congenital syphilis occurs when the spirochetes cross the placenta from an infected mother. The transmission may occur at any time during the pregnancy. However, infection of the fetus before the fourth month of gestation is rare. There are three main categories of congenital syphilis:

1. Stillbirth: In the absence of treatment, about 40% of infants will die before birth. Common problems seen at autopsy include hepatomegaly, pneumonitis and bone abnormalities and pancreatic fibrosis.

2. Infantile syphilis is congenital syphilis that presents at or shortly after birth. There is chronic rhinitis (snuffles) and skin changes similar to those seen in adults.

3. Tardive or late congenital syphilis usually manifests about two years after birth. Changes include Hutchinson’s incisors, saber shins, interstitial keratitis with blindness, deafness due eighth cranial nerve damage, saddle nose, chronic meningitis, and deformed molar teeth.

II. Gonorrhea: Organism *Neisseria gonorrhoeae* . This is the most common reportable communicable disease in the US with more than 1 million new cases reported each year. Humans are the only natural reservoir for the organism. And recently, there has been an emergence of strains of *N. gonorrhoeae* that are resistant to multiple antibiotics.

A. In males, infection is characterized by painful urination (dysuria), urinary frequency and a mucopurulent discharge. The discharge charge can be so profuse as to completely a persons underwear. Prompt treatment clears the infection and symptoms.

B. In females, symptoms of infection include, dysuria, lower pelvic pain and vaginal discharge. Untreated cases may lead to inflammation of the fallopian tubes and ovaries (pelvic inflammatory disease [PID]). Gonorrhea may be transmitted to infants when passing through an infected birth canal.

III. Nongonococcal urethritis and cervicitis: This class of STDs is the most common STDs. Multiple organisms have been implicated including, *Chlamydia*, *Mycoplasma* and *Trichomas sp*. The affected areas include oral, anal vaginal/pelvic and penile tissues. Some of the organisms do not culture easily with routine methods and must be sought after with diligence if suspected.

IV. Chancroid: Organism *Hemophilus ducreyi*. More common in the tropics, Asia and Africa. Much like syphilis, a lesion develops a few days after infection at the site of inoculation. But, unlike syphilis, the forming ulcer is often painful, especially in males. Also, multiple sites may appear. The ulcer bed in covered by a yellow shaggy exudate that contains neutrophilic debris. *H. ducreyi* can usually be cultured from the ulcer.

V. Granuloma inguinale: Organism: *Calymmatobacterium donovani*. The disease is uncommon in the US. The lesion begins as a raised papule in the genitals and eventually ulcerates. There is a mass of protuberant and painless granulation tissue that accompanies the ulcer. In untreated cases, scarring may occur which may be disfiguring and associated with urethral, vulvar or anal strictures. In some cases, elephantiasis of the external genitalia may also occur.

VI. Lymphogranuloma venerum (LGV). Organism: *Chlamydia trachomatis*. This is a chronic inflammatory disease distinct from the nongonococcal strains discussed above. The disease is endemic in third world areas.

Patients with LGV may have a nonspecific inflammation and/or ulcers of the lower genital tract. There is usually a mixed granulomatous and neutrophilic inflammatory response. Chlamydial inclusions are common in epithelial cells. Like granuloma inguinale, scarring is common in the late stages of untreated cases.

VII. Trichomoniasis: Organism: *Trichomonas vaginalis*. This is a sexually transmitted protozoan that is a frequent cause of vaginitis. The disease may case itching and a watery vaginal discharge. The disease is usually asymptomatic in males. Both partners should be treated to clear the infection.

VIII. Genital Herpes Simplex (HSV): Organism: Usually HSV type 2 but type 1 may also cause a genital out break. This disease affects 30 million Americans. An infection occurs immediately when the virus comes into contact with a mucosal surface or broken skin. The initial lesions are painful vesicles on the affected area which may include the mouth, anus, vagina, cervix or penis. The virus is actively shed during this period and continues to shed until all lesions are completely healed. After several days, the vesicles resolve, but recurrent outbreaks are common and may persist for a lifetime, though the repeated outbreaks tend to be of milder severity and shorter duration. Neonatal herpes may occur when a baby comes in contact with an infected birth canal (60% of affected infants ultimately die of the disease). Also, for those who are imuunocompromised, HSV infection may be a life threatening disease.

IX. Human papilloma virus (HPV) infection. HPV is the cause of genital or venereal warts AKA condyloma acuminata. The lesions are considered to be precancerous, especially when associated with certain viral subtypes. Much like HSV, the virus inoculation occurs upon contact. Within days to weeks, a warty growth is seen. And while freezing or surgical treatments may get rid of the wart, the host still has the virus which may transmit the virus to a new partner.

Review Questions:

1. Compare and contrast the various stages of syphilis including primary, secondary, tertiary and congenital.
2. What are some of the clinical manifestations of gonorrhea?
3. Define and discuss nongonococcal STDs.
4. Define and discuss chancroid.
5. Define and discuss granuloma inguinale.
6. Define and discuss lymphogranuloma venerum.
7. Define and discuss trichomoniasis.
8. Define and discuss herpes simplex infection.
9. Define and discuss human papilloma virus infection.
10. What is a gumma?
11. List all of the causative organisms for the disease mentioned above.