

CLINICAL MEDICINE

YEAR II

SUBJECT: MEDICINE

TOPIC: STI's

BY

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Sexually Transmitted Infections (STIs)

- Sexually transmitted diseases (STDs) are those that are transmitted from one person to another during coitus or other genital contact.
- They sometimes are called venereal diseases, after Venus, the Roman goddess of love. The incidence of these diseases is disturbingly high.
- Organisms causing STDs usually do not live and reproduce on dry skin surfaces. Require the moist environments of membranes in the so-called “transitional zones” of the body—those that occur at openings between the external and internal body surfaces.
- These transitional zones include the vulva, vagina, and urethra of the female; the penis and urethra of the male; and the mouth, oral cavity, eyes, and anus of both sexes.
- Although the body forms antibodies to many of the STD organisms, immunities are slow to develop or may never occur.

BACTERIA

- Bacteria are single-celled, microscopic organisms.
- Most have a cell membrane and all lack membrane-bound organelles, including a nucleus.
- The bacterial genetic material is a single, circular molecule of DNA not arranged into a chromosome.
- Bacteria can have several shapes (e.g., rod-shaped; filamentous; spiral-shaped).
- Many bacteria cause disease by producing toxins. Bacteria that cause human illness can be prevented by vaccines or can be killed by antibiotics.

VIRUSES

- A virus is a tiny, non-cellular particle composed of a nucleic acid core (DNA or RNA) and a protein coat.
- Viruses are parasitic and reproduce only within a host cell.
- Some viral-caused human illnesses can be prevented by vaccination, but viruses are not harmed by antibiotics.
- Other kinds of organisms can cause STDs, such as fungi, protozoa.

Sexually transmitted infections (STIs) are caused by viral, bacterial or parasitic microorganisms that spreads from person to person during sexual contact.

However, other modes of transmission may include mother-to-child during pregnancy or childbirth, blood transfusion, or other contact with blood or blood products.

As many as 30 distinct STIs have been identified globally. Some of these are easily treatable while some are not. HIV, the virus that causes AIDS, is perhaps the most serious STI.

Primary Prevention

Interventions

- Abstinence
- Condom promotion to increase their use, and reduce barriers to utilization
- Behavioural change interventions with explicit messages about the risks of STIs
- The HPV vaccine, **bivalent, quadrivalent, or 9-valent**, is recommended routinely for females aged 11 and 12 years and can be administered beginning at 9 years of age. Vaccination is also recommended for females aged 13–26 years who have not yet received all doses or completed the vaccine series.
- The quadrivalent vaccine is recommended routinely for MSM (Men having sex with men) through age 26 years; the efficacy of this vaccine in preventing HPV associated diseases in men aged >26 years is unknown.
- Hepatitis B vaccination for those who were not vaccinated when younger
- Vaccination against Hepatitis A and B for all MSM is recommended
- Outreach and peer-based interventions for high risk populations
- On-site individual counselling and HIV testing, mass communication regarding risk reduction, and multiple-component motivation (e.g. advertising campaigns) and skills education in STI clinics

Secondary Prevention of STIs

- Secondary prevention curtails STIs onset and transmission through early diagnosis and treatment.
- Risk-reduction counselling must screen clients for infection, discourage risky sexual activities, and encourage partner notification of infections.
- Patient-initiated partner notification may encourage partner referral for STIs etiological evaluation and treatment.
- Where appropriate laboratory facilities for investigations are unavailable the syndromic management approach is recommended.

Tertiary Prevention of STIs

- Tertiary prevention requires medical treatment and should reduce local complications (e.g. urethral stricture) or systemic complications (e.g. pelvic

inflammatory diseases and AIDS), and sequelae associated with untreated or incompletely treated infections.

- The revised guidelines exclude quinolones (e.g. Norfloxacin, Ciprofloxacin) from the list of drugs for treatment of *Neisseria gonorrhoea* due to increased resistance and replaces them with cephalosporins (Cefixime and Ceftriaxone), as first line and second line drugs, respectively

RISKS FACTORS FOR STI'S ACQUISITION AND TRANSMISSION

- Participation in unprotected vaginal, oral or anal sex (no condom or dental dam used)
- Genital to genital sexual contact
- Previous history of STIs
- Having multiple sexual partners
- Use of non-barrier contraceptives, such as spermicides especially those containing n-9 due to disruption of the genital epithelium
- Use of injection drugs, alcohol or other substances that can impair decision making ability
- Use of prep which may lead to decreased use of condoms hence increased risk
- Inconsistent and irregular use of condoms during sex
- Vaginal practices e.g. Douching
- IUCD placement for women especially within the first 20 days of placement
- use of spermicides

Any effective control strategy requires identification of vulnerable populations and working towards mitigation strategies with them.

An individual is vulnerable to STIs when his /her ability to avoid infection is diminished by inadequate personal knowledge or skills, cultural norms or circumstances.

These vulnerabilities include:

- Having primary education or less for an individual and/or their spouse
- Lack of formal employment
- Poverty
- Low income
- Intra uterine device (IUCD) placement for women especially within the first 20 days of placement
- Alcohol and substance abuse
- Use of spermicides especially those containing n-9 due to disruption of the genital epithelium
- Individuals and/or partners with multiple sex partners
- Gender based violence

- Mental and physical disability
- Childhood sexual abuse
- Child marriage
- Key populations e.g. SEX workers
- Out of school adolescents
- Early sexual debut
- Disempowerment of women
- People living with HIV
- Conflict situations
- Refugees/internally displaced persons and immigrant

Screening for different types of STIs is dependent on risk and vulnerabilities of different population sub groups.

Although STI services play an important role in the prevention and control of STIs, there are several barriers to uptake of these services.

These include but are not limited to the following:

- Culture and religion
- Age and consent
- Asymptomatic STIs
- Limited access to STI information
- Stigma
- Fear of the partner notification process; treatment at local pharmacy shops
- Lack of youth friendly reproductive health centres where they could seek STI testing
- Confidentiality
- Commodity supply

STIs can be managed through etiological, clinical and syndromic approaches; or through a combination of these approaches.

The management of any STI through all of these approaches should follow these standard steps:

1. History taking
2. Physical examination
3. Establishment of diagnosis and treatment plan
4. Education and counselling to prevent re-infection
5. Education and counselling to enhance compliance
6. Condom promotion, demonstration and dispensing

Gonorrhea

- Gonorrhea (“clap,” “drip,” “strain”) is an STD that has been afflicting humans for centuries.
- The condom, diaphragm, and spermicidal foams, creams, and jellies offer some protection against transmission of this disease, but the increasing preference for the combination pill over these methods in recent years has decreased the use of these measures.

Causes of Gonorrhea

- Gonorrhea is caused by the bacterium *Neisseria gonorrhoea*, named after the scientist Albert Neisser, who identified it in 1879.
- The term gonorrhoeae is derived from a Greek word that means “flow of seed.” *Neisseria gonorrhoeae* is a Gram-negative, diplococcus bacterium.
- In 1883, Christian Gram of Denmark invented a stain that differentiated gram-positive from gram-negative bacteria. Gram-positive bacteria stain more darkly because of differences in their cell wall structure. “Diplococcus” means that these bacteria occur in pairs, with their adjacent sides flattened. A common name for the bacterium *N. gonorrhoeae* is gonococcus, and gonorrhea is often referred to as a “gonococcal infection.”

Transmission of Gonorrhea

- 16 different strains of *N. gonorrhoeae*, some more damaging than others.
- All strains die quickly when exposed to dry air and sunlight, so it is virtually impossible to catch this disease by touching toilet seats and only very rarely can it be transmitted by moist towels, clothes, or hands.
- The main way this bacterium is transmitted is during heterosexual or homosexual coitus.
- The bacteria also can be transmitted to the mouth or anus during oral or anal coitus.
- The gonorrhea bacteria thrive in the moist membranes of the urogenital tract, as well as in the mouth and oral cavity, anus, and eyes.
- Incubation period (the time it takes before symptoms appear) is usually 2 to 5 days, but it can be as soon as 1 day or as long as 8 days.

Female Gonorrhea Symptoms

- About 75% of females who acquire gonorrhea are asymptomatic (show no symptoms).
- Majority of females live with undiagnosed gonorrhea. This presents a problem because they are carriers of the disease without knowing it, and the disease can reach an advanced stage before a female knows that she has the affliction.

- Others who exhibit symptoms, the first sign usually is the appearance of a clear or whitish fluid discharge from the vagina (infection or inflammation of the vagina, called vaginitis). This discharge soon changes to a yellowish or greenish color; i.e., it becomes a pus-filled discharge. The vaginal wall can become quite irritated at this time.
- Eventually, the infection can reach the cervix; infection and inflammation of this organ (cervicitis) contribute to the purulent discharge. A discharge also can come from the urethra (urethritis). Urination can become difficult and painful when urethritis is present.
- Also, the bacteria can reach the urinary bladder, causing infection (cystitis).

Female Gonorrhoea Complications

- If left untreated, the bacteria can infect the uterus (endometritis) and can reach the oviducts 2 to 10 weeks after the initial infection. Inflammation and infection of the oviducts (salpingitis) can lead to infertility. If left untreated, the bacteria can spread to other pelvic and abdominal organs, resulting in a dangerous condition called pelvic inflammatory disease (PID).
- The bacteria also can cause inflammation of the heart, brain, spinal cord membranes, eyes, skin, and joints.
- Oral coitus with a person carrying the bacteria in his or her genital region can lead to infection of the oral cavity.
- Anal coitus can transmit the disease into the anus and cause inflammation of the rectum (proctitis).

Gonorrhoea and Pregnancy

- Can pass the disease to the fetus
- The bacteria can enter the fetal blood across the placenta. If this happens in the first trimester, there is an increased risk of miscarriage.
- *N. gonorrhoeae* in the birth canal can infect the eyes of the newborn. Untreated, the newborn's eyes develop a purulent discharge within 21 days of birth, and the eyes can eventually be destroyed. Treatment of the newborn's eyes with silver nitrate or an antibiotic prevents this from occurring.

Male Gonorrhoea Symptoms

- Most men (70 to 90%) develop recognizable symptoms of gonorrhoea.
- The first signs usually are a purulent discharge from the urethra and redness of the glans of the penis.
- Urination can become painful and difficult, and scar tissue can form in the urethra.
- Men also can have painful erections, pain in the groin region, and a low fever. If not treated, the infection can spread in about 3 weeks to the urinary bladder and prostate gland and can infect these organs. The epididymis also can become infected, and in

some cases the testes themselves become infected and inflamed (orchiditis), sometimes leading to infertility.

Gonorrhea Diagnosis

- The symptoms of gonorrhea are not especially useful in diagnosing the disease. This is because they are similar to symptoms of some other kinds of STD and because many females and some males are asymptomatic.
- Unfortunately, there is as yet no reliable blood test for gonorrhea, and direct microscopic observation only reveals the organisms in about half the infected individuals.
- Swabs of the urethra, cervix, and/or rectum are made and are cultured in a special (Thayer—Martin) medium.
- The colonies of bacteria growing in this medium are then examined with a microscope for the presence of *N. gonorrhoeae*, and several biochemical tests are used to confirm the presence of this organism.
- This culture test takes about 24 to 48 hr. Unfortunately, in about 15 to 20% of people who have the disease, the gonorrhea bacteria are not visible in a culture. Therefore, it is a good idea to have repeat cultures done.

Treatment of Gonorrhea

- Ceftriaxone 1g stat OR
- Cefuroxime 500mg bd X 5/7 OR
- Cefixime 400mg OD X 5/7

Syndromic Treatment of Anorectal Discharge

Since the causative agents for anorectal discharge is similar to those of urethral discharge in males, treatment for these syndromes are similar.

First Line Preferred:

Cefixime 400 mg PO stat AND Azithromycin 1gm PO stat: 4 Cs OR

Second Line Preferred:

Ceftriaxone 1g IM stat AND Azithromycin 2 gm PO stat: 4 Cs

Syphilis

- Syphilis is a serious sexually transmitted disease caused by a bacterium, *Treponema pallidum*.

- About 50 million people in the world now have syphilis, and its incidence has been slowly increasing.

Origin of Syphilis

Columbian Theory

- There are at least two theories about the origin of syphilis. The “Columbian theory” proposes that Christopher Columbus and his crew contracted the disease from natives on their first voyage to the West Indies in 1493.
- They then introduced the disease to Europe. The first documented epidemic of syphilis occurred in western Europe at the end of the 15th century. People in one country usually blamed foreigners for introducing the disease.
- Thus, it was called the “Neapolitan disease” in France, the “French pox” by Italians, and the “French or Spanish disease” by the English.
- In 1520, after the epidemic was over, an Italian physician and philosopher, Hieronymus Fracastorius, wrote a poem in which the people of the earth were given a horrible disease by the sun god, Apollo, because a shepherd encouraged his people to worship the king instead of Apollo.
- The shepherd’s name was Syphilis.

Evolutionary Theory

- The “evolutionary theory” of the origin of syphilis proposes that this disease is related to other non-venereal diseases such as yaws and non-venereal syphilis.
- Yaws, a nonvenereal tropical disease of the skin, is the most primitive of all the diseases. It is caused by a bacterium closely related to *Treponema-pallidum*, called *Treponema-pertenuis*.
- When people migrated to cooler, drier northern climates, their skin became drier, and *Treponema-pertenuis*, favoring moist regions, migrated to the axilla, mouth, nostrils, crotch, and anus and caused nonvenereal syphilis.
- This disease (also called endemic syphilis) is a childhood infection in arid regions of the world. It is transmitted by direct (nonsexual) body contact, in drinking water, or by eating utensils.
- The bacterium that causes this disease is not distinguishable from *T. pallidum* and probably evolved from *T. pertenuis*. Later, *T. pallidum* began to favor the even moister areas of the genitals and became the sexually transmitted affliction we now know as syphilis.
- Since it was recently proven that both yaws and syphilis were present in the Americas before Columbus, both theories may be true.

Syphilis vs. Gonorrhea

- For years, it was thought that syphilis and gonorrhea were caused by the same organism.

- An English physician, John Hunter (1728—1793), once attempted to prove that these diseases were caused by different organisms by injecting pus from a gonorrhea patient into himself.
- Unfortunately, and unbeknownst to him, the patient also had syphilis. Hunter contracted both diseases, perpetuating the misconception that they were caused by the same organism, and he died of his self-inflicted syphilis.
- In 1838, Phillippe Ricord of France determined that gonorrhea and syphilis were caused by different bacteria.

Syphilis Transmission

- Treponema pallidum is a **corkscrew-shaped (spirochete) bacterium**.
- Thrives in moist regions of the body and will survive and reproduce only where there is little oxygen present.
- It is killed by heat, drying, and sunlight. Therefore, one cannot catch syphilis from contacting toilet seats, bath towels, or bedding.
- It can, however, live in collected blood for up to 24 hr. at 40C, and thus, in rare cases, is transmitted during blood transfusion.
- Nine out of 10 cases of syphilis transmission occur during sexual intercourse, although it also can be introduced into an open wound in the skin.
- Fortunately, only about 1 in 10 people exposed to the bacteria develops syphilis.

Primary Stage of Syphilis

- Primary Stage The symptoms of untreated syphilis occur in four stages.
- The primary stage of syphilis usually appears as a single sore called a chancre (pronounced shang'ker) at the place where the bacteria first entered the body.
- Round, ulcer-like sore with a hard-raised edge and a soft center. It looks like a crater, about 1/2 to 1 in. in diameter. This chancre, which for all its awful appearance is painless, appears 10 to 90 days after entry of the bacteria.
- Because the **chancre is painless** and may be in a location not readily noticed, a person may not realize that he or she is infected.
- In males, the chancre usually occurs on the **glans or corona of the penis**, but it can occur
- anywhere on the penis or on the scrotum.
- In females, it usually appears on the vulva, but sometimes can appear on the cervix or vaginal wall.
- After oral coitus with an infected person, it can appear on the lips, tongue, or tonsils, and it can appear in the anus after anal coitus with an infected person.
- Inguinal lymph nodes enlarge a few days after the sore appears.
- The chancre heals in 1 to 5 weeks, and the primary stage is then over.
- Meanwhile, the bacteria travel in the blood or lymphatic system to other parts of the body and eventually cause the secondary stage of syphilis if the person is not treated.

Secondary Stage of Syphilis

STI's lecture notes by N. King'ori

- Secondary Stage The secondary stage of syphilis occurs 2 weeks to 6 months after the primary stage.
- This stage is characterized by a rash that appears on the upper body, arms, and hands, which then spreads to other skin regions.
- In white-skinned people, the rash appears as cherry-colored blemishes or bumps that change to a coppery-brown color.
- In dark-skinned people, the blemishes are grayish blue.
- Larger bumps can develop and burst, especially in the inguinal region.
- The rash does not itch and is painless, but the syphilis bacteria are present in great numbers in these sores, and contact with the sores is very infectious to other people.
- Other symptoms of the secondary stage include hair loss, sore throat, headache, loss of appetite, nausea, constipation, pain in the joints and abdominal muscles, a low fever, and swollen lymph glands.
- The symptoms are minor and cause little inconvenience in about 60% of untreated individuals in the secondary stage and thus can be completely overlooked.
- The secondary stage goes away in 2 to 6 weeks, and the untreated individual then enters the latent stage of syphilis.

Latent Stage of Syphilis

- Latent Stage During the latent stage of syphilis, which can last for years, a person exhibits few or no symptoms.
- After about a year of the latent stage, the individual can no longer transmit the bacteria to another person (except to a fetus, as discussed later). About half of the people who enter the latent stage never leave it, even if not treated.
- The other half eventually enter the tertiary stage of syphilis if not previously treated with antibiotics.

Tertiary Stage of Syphilis

- Tertiary Stage Entrance into the tertiary stage of syphilis occurs because the bacteria have invaded tissues throughout the body.
- The tertiary stage is characterized by large, tumor-like sores (gummas) that form on tissues of skin, muscle, the digestive tract, liver, lungs, eyes, nervous system, heart, or endocrine glands.
- Infection of the heart (cardiovascular syphilis) can cause severe damage to the heart and its valves.
- Invasion of the bacteria into the central nervous system causes “neurosyphilis,” and the brain and spinal cord can be severely damaged.
- People with neurosyphilis can develop partial or total paralysis, blindness, or psychotic and unpredictable behavior.
- People in the tertiary stage are not infectious, but about 4000 die annually of tertiary syphilis in the United States.

Congenital Syphilis

- A person is not infectious in most of the latent stage or in the tertiary stage of syphilis.
- This is true except in the case of an infected pregnant woman, who can pass the bacteria to her fetus at any stage of syphilis.
- The placenta protects the fetus against invasion of the syphilis bacteria up to the 6th month of pregnancy, after which time the T. pallidum organism passes through the placental membranes into the fetal bloodstream. Then, the fetus can contract the disease from the mother.
- If this happens, about 30% of the fetuses miscarry and 70% are born with congenital syphilis.
- The latter children are contagious in their 1st and 2nd year, and go through all the stages of syphilis if left untreated.
- About 23 in 100 such cases develop tertiary syphilis in 10 to 20 years.
- Symptoms of tertiary congenital syphilis include damage to the eyes, deafness, flattening of
- the bridge of the nose (“saddle nose”), and central incisor teeth that are spread apart and
- notched (“Hutchinson’s teeth”). Many of these individuals die from this affliction.

Diagnosis of Syphilis

- Several of the symptoms of syphilis can be confused with those of other sexually transmitted diseases.
- It is difficult to grow cultures of T. pallidum in the laboratory. Therefore, other tests are necessary to see if a person has contracted the disease. Diagnosis of syphilis can be accomplished in several ways.
- Several such tests are available, including the **Venereal Disease Research Laboratory (VDRL) test**, the **Rapid Plasma Reagin (RPR) test**, and the **Syphla-Chek Test**.
- A blood test for the presence of antibodies to the disease can be done a week or so after the primary chancre appears.

Treatment of Syphilis

- Benzathine penicillin 2.4 M U IM stat
- Procaine penicillin 1.2 M U daily IM for 10 days
- Doxycycline 100mg BD for 15 days

Chlamydia

- Nonspecific urethritis has, in the past, referred to any sexually transmitted urethritis (urethral infection) not caused by Neisseria gonorrhoeae.

- We know now that the leading cause of this affliction is the Gram-negative, bacterium-like microorganism *Chlamydia trachomatis*.
- This is a member of a group of very small bacteria that, unlike other bacteria, live inside cells and were once thought to be virus.
- About half the cases of nonspecific urethritis in men and women are caused chlamydia.
- *Chlamydia* can also pass to the eyes by touching infected regions.
- At present, there are about million reported new cases of chlamydia each year, making it the leading sexually transmitted disease in the United States in this regard.

Chlamydia and the Female

- In females, the cervix is the main site of chlamydia infection, leading spotting between periods, a yellowish vaginal discharge, and frequent urination
- The cervix, vagina, urethra, and vulva become reddened and irritated.
- There is an association between chlamydia infection and cervical cancer.
- About 50 to 70% of infected women have no symptoms, which makes early detection difficult.
- The result of an untreated infection could be pelvic infection and sterility.
- A chlamydia infection in a pregnant woman can be passed to her child during delivery, and the result can be lung and eye infections in the newborn.

Chlamydia and the Male

- Male partners of chlamydia-infected women usually have chlamydia their bodies.
- Although 30% of men are asymptomatic, the remainder develop frequent and painful urination.
- For men, the incubation period is 7 to days.
- Chlamydia infection can lead to abnormal and nonmotile sperm men.
- Chlamydia Diagnosis and Treatment
- Chlamydia is detected by tissue culture as well as an enzyme test.
- For both sexes, chlamydia can be cured by treatment with tetracycline or erythromycin but not penicillin.
- Both partners should be treated, even if only one has symptoms.

Other STI Bacteria

- Other causes of nonspecific urethritis include *Ureaplasmaurealyticum*, which is related to chlamydia.
- *Hemophilus vaginalis*, a bacterium, also produces some cases of nonspecific urethritis.
- In women, these can also cause pelvic infection and even infertility, and they can cause infertility in men (through scarring sex accessory tubes or damaging sperm).

Treatment

- Doxycycline 100mg PO bd for 7 days OR
- Tetracycline 500mg PO QID for 7days OR
- Erythromycin 500mg PO QID for 7days

Lymphogranuloma venereum

- Lymphogranuloma venereum is a tropical sexually transmitted disease rare in the United States, but its incidence is on the rise. It is caused by *Chlamydia trachomatis*, the same organism (but a different strain of it) that is one cause of nonspecific urethritis. Although most people catch this disease after close contact, it also can be transmitted on clothing.
- A newborn's eyes also infected with this organism if it is present in the vulva of a delivering mother. After an incubation period of 7 to 21 days, a small, painless blister for males, this blister occurs on the penis or scrotum, and in females occurs vagina, vulva, cervix, or urethra.
- The anus, tongue, or lips can also be involved. Other symptoms can include swelling of inguinal lymph nodes, fever, backache, abdominal and joint pain, and loss of appetite.
- In a few cases spreading organisms can cause a serious complication. Reiter's syndrome is characterized by rheumatism, arthritis, conjunctivitis, and heart valve.

Diagnosis of this disease is by a skin test (Frei test) or by a test for antibodies. Both tests, however, only become positive 3 to 4 weeks after the onset disease.

Treatment

1. Doxycycline 100mg BD 14 days
2. Tetracycline 500mg QID 14 days

Chancroid

- Chancroid (or "soft chancre") is a sexually transmitted disease caused by small, Gram negative bacterium, *Haemophilus ducreyi*.
- Once the bacteria enter in the skin or invade the mucous membranes of the genital region, a small (small elevation on the skin) appears in 12 to 24 hr.
- This papule, can found on the penis or vulva, then bursts, and an ulcer forms in 1 to 2 days) ulcer looks like the chancre of primary syphilis except that it has soft edges. It also is painful with tender suppurative adenopathy, whereas the hard chancre of primary syphilis is painless.
- Multiple soft chancres can develop as the organism spreads, even to the thighs. A common symptom is swollen lymph glands in the groin region. Many females do not show symptoms but are carriers of the bacteria.

- Anal coitus can soft chancre in the anus. Chancroid can be diagnosed by examining a skin culture under a microscope and looking for Hemophilus ducreyi.
- Also, evidence of H. ducreyi can be detected by a skin test (Ducrey's skin test) becomes positive 1 to 2 weeks after a person is infected. Standard treats with a sulfa drug such as sulfonamide.

Diagnosis

One or more painful genital ulcer with regional lymphadenopathy

Treatment

- Ceftriaxone 1g IM stat OR
- Cefuroxime 500mg bd x 5/7
- Erythromycin 500mg TID 7days or
- Azithromycin 1g orally single dose or 500mg OD X 3days

NB:

Syndromic Treatment of Genital Ulcer Syndrome

The HCP should examine for the presence of the ulcers to quantify the number of ulcers.

If there is an ulcer or ulcers, treat for syphilis, chancroid and HSV 2.

Non-vesicular Ulcer

First Line Preferred Treatment:

Benzathine penicillin 2.4 MU IM weekly for 3 weeks AND Azithromycin 2 gm PO stat: 4Cs OR

Second Line Preferred Treatment:

Ceftriaxone 1 gm IM stat AND Doxycycline 100 mg PO BD for 14 days: 4Cs.

Doxycycline is contraindicated in pregnancy If a patient has a known allergy to penicillin Azithromycin 2 gm PO stat should be given instead of Benzathine penicillin or Ceftriaxone.

Vesicular Ulcers

First Line Preferred Treatment:

Azithromycin 2 gm PO stat AND Acyclovir 400 mg PO TDS for 10 days: 4Cs OR

Second Line Preferred Treatment:

Acyclovir 400 mg PO TDS for 5 days or 800 mg PO TDS for 2 days if there is a history of recurrent HSV 2: 4Cs * For HIV infected patients use Acyclovir 400 mg TDS for 10 days

Granuloma Inguinale

- Granuloma inguinale is caused by a Gram-negative bacterium by the of Calymmatobacterium granulomatis (formerly called Donovanigranulomatis).
- It is more common in India and New Guinea. From one to several weeks after the bacteria enter the body, a tiny blister occurs on the penis or vulva, which then develops into an open, bleeding sore.
- The skin around the sore becomes swollen and red. One can diagnose this disease by looking for the bacteria in a small piece of skin taken from the edge of the sore, using a microscope.

Diagnosis

- Culture of causative organism is difficult and diagnosis requires dark-staining Donovan bodies on tissue crush preparation or biopsy.

Treatment

- Cotrimoxazole 960mg bd 14 days OR
- Doxycycline 100mg BD 3 weeks OR
- Azithromycin 1g once per week for 3 weeks OR
- Ciprofloxacin 750mg orally BD 3 weeks OR
- Erythromycin 500mg QID 3 weeks

NB;

- Tetracycline is contraindicated in pregnancy

Genital Herpes

- Herpes genitalis is a very common viral STI.
- Each year, about 5 million people in the world contract this disease.
- It is most prevalent in teenagers and young adults, especially in poorer regions, but it can infect anyone.
- There may be an inherited resistance to herpes viruses, since a gene for herpes virus sensitivity is present on chromosome 3 in humans.

Cause of Genital Herpes

- This disease is caused by herpes simplex type 2 virus.

- There are 25 herpes viruses which cause such diseases as; fever blisters and cold sores (herpes simplex type 1 virus) chicken pox in children or shingles in adults (varicella—zoster virus) infectious mononucleosis (Epstein—Barr virus) cytomegalic inclusion disease, which affects the fetus and newborn and results in enlargement of the liver and spleen (cytomegalovirus).
- The herpes simplex type 2 virus usually affect the body below the waist (e.g., the genitals, thighs, and buttocks), whereas type 1 usually invades areas above the waist.
- About 20% of herpes infections of the genital region, are caused by herpes simplex type 1, usually as a consequence of oral coitus with an infected person.
- Similarly, type 2 occasional is isolated from mouth sores.
- Condoms are not 100% effective in preventing transmission of the herpes virus.
- It should be emphasized that herpes genital can be transmitted by nonsexual contact within infected person.
- Herpes viruses can survive a few hours on moist toilet seats, gloves, in tap water, an on-plastic surfaces in spas, a person could at least theoretically could acquire the virus from these surfaces, although actual transmission via this route is rare.

Genital Herpes Symptoms

- Once a person contracts the herpes genitals virus, usually through genital contact, clusters of tiny blisters develop that change to painful round sores in 4 to 7 days.
- Two or 3 days later, these take the form of multiple, small, round, itchy ulcers.
- Severe ulcers occur only in about 10% of infected people; in the remaining 90% the sores are minor and often go unnoticed.
- In males, the sores occur mainly on the penis (shaft, foreskin, glans, urethral meatus), especially the uncircumcised.
- The primary symptoms usually are more painful in females with sores appearing on the labia, clitoral hood, cervix, vaginal introitus, urethral meatus, or perineum.
- Urination and coitus can be painful.
- More severe but less common symptoms in both sexes include fever and enlargement of the inguinal lymph nodes.
- In general, the symptoms are more severe in people who have never been exposed to any herpes virus.
- If a person touches an open sore and then his or her eyes, he or she can develop a virus infection that can lead to blindness.
- The sores, if they develop, heal in 1 to 6 weeks.
- Individuals can infect other people most when sores are present but can also be infectious after the sores and scabs disappear.
- After the herpes sores have healed, the virus migrates up sensory nerves to clumps of nerve cells near the spinal cord. They lie dormant there for several days, weeks, or months.

- When they become active again, they migrate back to the skin, and cause recurrence of the symptoms.
- Such recurrence can be on different parts of the penis or scrotum in males or on the vulvovaginal, or cervix in females.
- The recurrent attack often is accompanied by enlargement of the lymph nodes in the groin, as well as fever and headaches. Then, the symptoms go away in 1 to 4 weeks.
- Recurrence of symptoms can occur frequently (e.g., once a month), or there may be several months between attacks.
- Some individuals have more than 10 attacks, and these often are associated with times of stress or, in females, with menstruation.
- Eventually, antibodies are formed that alleviate or stop recurrences, and a few people may never have a second attack. Nevertheless, herpes genitalis can stay with many people for their entire lives.
- There is a disturbing positive correlation of females developing cervical cancer after having had herpes genitalis; the incidence is two to four times higher than in those who have not had herpes genitalis.
- Herpes also is associated with an increased risk of atherosclerosis and blood clots.

Genital Herpes & Pregnancy

- Herpes simplex type 2 virus in the blood of a pregnant female can cross the placenta and damage the fetus. This, however, is rare.
- More often, the fetus is exposed to the virus during birth, especially if the woman has open sores during delivery.
- However, about a third of cases of neonatal herpes occur during deliveries in which the woman had no open sores.
- About 25% of newborns exposed to herpes virus type 2 develop blindness or brain damage, and another 25% of exposed newborns develop skin lesions.
- For this reason, the fetuses of women with herpes infection often are delivered by cesarean section.

Genital Herpes Diagnosis

- In addition to the previously described symptoms, herpes genitalis can be diagnosed by taking a smear from the cervix, culturing it with tissue cells, and examining the cells for the presence of the virus.
- Also, a blood test for antibodies is available, but it does not differentiate between antibodies to herpes simplex type 1 and type 2 viruses.

Genital Herpes Treatment

- There is no reliable cure for herpes genitalis, which explains why the actual number of people having the virus is high.
- Some procedures, however, have the potential to reduce the severity and frequency of recurrence of the herpes symptoms. Proper hygiene has such an effect.
- Vitamin A seems to be helpful because it stimulates the immune system.
- Zinc sulfate administered in a special tampon prevented recurrence and spread of the disease in a preliminary trial.
- Topical application of a drug, 5-iodo-deoxyuridine, seems to relieve the symptoms.
- A drug called 2-deoxy-D-glucose can also combat herpes genitalis.
- The most commonly used drug is,
 - Acyclovir (Zovirax) 200mg 5 time per day for 10 days OR 400MG QID for 10 days, which interferes with reproduction of the herpes virus.
 - Famciclovir 250mg orally TDS 7-10 days
 - Valacyclovir 1g orally BD 7-10days
- Evidence shows, however, that new strains of the herpes virus resistant to acyclovir can appear
- Exposure of the herpes sores to a certain dye and fluorescent light can increase the healing rate and decrease recurrence, but there is a possibility that such exposure increases the risk of cervical cancer.

Syndromic Treatment of Anorectal Ulcers

Since the causative agents for anorectal ulcers are similar to those of genital ulcer syndrome, treatment for these syndromes are similar.

Non-vesicular Ulcer First Line Preferred Treatment:

Benzathine penicillin 2.4 MU IM weekly for 3 weeks AND Azithromycin 2 gm PO stat: 4Cs

OR Second Line Preferred Treatment: Ceftriaxone 1 gm stat IM AND Doxycycline 100 mg PO BD for 14 day if allergic to penicillin: 4Cs. Note: Doxycycline is contraindicated in pregnancy.

Vesicular Ulcers First Line Preferred Treatment:

Azithromycin 2 gm PO stat AND Acyclovir 400 mg PO TDS for 10 days: 4Cs OR Second Line Preferred Treatment: *Acyclovir 400 mg PO TDS for 5 days or 800 mg PO TDS for 2 days if recurrent HSV 2: 4Cs Note: For HIV use Acyclovir 400mg TDS for 10 days

Genital Warts (HPV)

- Genital warts (**Condyloma acuminata**) occurs in the genital region because of the presence of a human papilloma virus (HPV).

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- This virus often is transmitted sexually, which is why the condition may be called “venereal warts.” These warts also can appear spontaneously. (The kind of warts that occur on the skin in other body regions is caused by a different virus.)
- About 20% of sexually active 14- to 18-year-old females have the virus, and most of their partners do as well.
- This amounts to about two million new cases in the United States annually, which makes it one of the most prevalent STIs.

Genital Warts (HPV) Symptoms

- After the genital wart virus is contracted, the warts appear in 3 weeks to 8 months.
- They are moist, soft, cauliflower-like bumps occurring singly or in groups. They can be pink, red, or dark gray.
- Females often get them on the cervix, labia, vulva, or perineum.
- In males they appear on the prepuce, glans, or coronal ridge of the penis, as well as in the urethra and on the scrotum.

Genital Warts (HPV) Treatments

- Genital warts can be effectively treated with the medications that chemically or physically destroy the warts
- podophyllin or trichloroacetic acid = chemical
- dry ice, or liquid nitrogen = freeze warts
- The warts usually dry up and fall off a few days after being treated.
- If this does not work, the warts can be removed by laser surgery or heat cauterization.
 - Syndromic Treatment of Anogenital Growths If the Warts are Small and Few First Line Preferred Treatment:
 - If the warts are small in size or few in number (less than 3) use Podophyllin 10-25% application weekly until the warts fall off.
 - This should be done at the health facility. For warts in the vagina or the anal canal, Podophyllin should be applied with the use of a speculum or a proctoscope and allowed to dry before removing the appliance.
 - Alternative Treatment: Imiquimod 5% cream can be applied by the patient with a finger/cotton swab at bedtime, left on overnight, 3 times a week or every other day for 16 weeks.
 - The treated area should be washed with soap and water 6-10 hours after application. If the warts are many (more than 3) or large: Refer patients to a higher health level facility for surgical excision.

Genital Warts (HPV) Diagnosis

- Genital wart infection can be serious. In women, there is a strong association between the presence of the virus and abnormal growth (dysplasia; cancer) of the cervix.

- There are about 70 types of HPV, and 4 are commonly associated with cervical abnormalities.
- About 95% of women with cervical cancer have one or more types of HPV virus (compared with 20% of women without cervical cancer).
- It takes about 2 1/2 years after acquiring the virus for the resultant cervical abnormalities to appear.
- Although a Pap smear does not detect the virus, any cervical abnormalities detected by a Pap smear should be followed by an antibody test available for HPV.
- Women with a positive HPV test should get a Pap smear every 6 to 12 months.
- Men who are positive for HPV should be aware that some types of cancer of the penis appear to be associated with the virus.
- Women are 5—11 times more likely to have HPV and cervical cancer if their spouse frequents prostitutes or has many sexual partners.
- There also is an association of the virus with cancer of the anus in gay men.

Pediculosis Pubis, “Crabs”

- An STI caused by an Arthropod
- Pediculosis pubis, or “crabs,” is caused by a tiny, parasitic, blood-sucking crab louse by the name of Phthirus pubis.
- This organism can be transmitted by direct body contact and also by contact with hair, clothing, or bedding.
- The organism can be seen at the base of hairs or as black spots visible on underwear. It lives in pubic, axillary, eyebrow, eyelash, and facial hair, but never in scalp hair.
- It needs the environment of human hair, as it dies in 24 hr. if removed.
- Female parasites lay tiny white eggs at the base of hairs, and the eggs hatch into larvae in 7 to 9 days.
- Adults or larvae causing itching, and scratching can lead to secondary infection of the skin or hair follicles.
- In World War II, parasitized people were shaved and a 10% DDT powder was used for 24 hr.
- Now, an insecticide called gamma benzene hexachloride (Kwell) is applied as a cream, lotion, or shampoo.
- If one member of a household has crabs, all members should be treated.
- All underclothing and linens should be washed in hot water with bleach.

Lower abdominal pain: PID

- Lower abdominal pain in women is associated with pelvic inflammatory disease (PID). PID denotes pelvic infections in women (e.g. salpingitis, endometritis, Parametritis, oophoritis) caused by microorganisms which generally ascend from the lower genital

tract to invade the endometrium, fallopian tubes, ovaries, other adjacent tissues and peritoneum

Etiology:

- Commonly Gonorrhoea and C.trachomatis which are sexually transmitted
- PID is often polymicrobial and may be associated with Mycoplasma, Bacteroides, Streptococcus, E. coli, H. Influenza which may or may not be sexually transmitted

Risk factors:

- The occurrence of vaginal discharge may be an antecedent event STD
- postpartum and postabortal ascending infections
- Intra uterine device (IUD)

Clinical feature:

- Mild to severe bilateral lower abdominal pain is the most common complaint, which may
- first be noticed during or shortly after the menses and which is sometimes associated with fever.
- The presence of vaginal discharge supports the diagnosis of PID and pain during intercourse or urination may also be present

Physical examination

- Lower abdominal and adnexal tenderness together with cervical excitation tenderness may be indicative of PID.
- A tender pelvic mass together with fever, nausea or vomiting can also be detected.
- Vaginal discharge, genital ulcer, presence of IUD, open cervix (abortion tissue seen or felt) support the diagnosis of PID.

Diagnosis:

- Is often difficult. Over diagnosis and treatment may be justified in order to prevent complications.
- Rule out other cause of lower abdominal pain in women such as appendicitis, ectopic pregnancy and Cholecystitis

Laboratory:

- Direct wet mount microscopy of a vaginal specimen is necessary. The presence of pus cells in numbers exceeding those of epithelial cells suggests infection of the lower genital tract.

Complications

- Peritonitis and intra-abdominal abscess
- Adhesion and Intestinal obstruction
- Ectopic Pregnancy
- Infertility

Treatment

Most patients with mild to moderate PID can be treated as an outpatient Some patients need hospital admission:

Indications for admission are

- Uncertain diagnosis
- Pelvic abscess suspected
- Pregnant patients
- Co- infection with HIV
- As the infection is poly-microbial in nature instead of single, combination of antibiotics should be prescribed. The spectrum of activity of the antimicrobial agents should cover the following organisms: Gonorrhoea, C. trachomatis, aerobic and anaerobic bacteria.
- Antibiotics should be initiated empirically even before the microbiological report is available.

Syndromic Treatment of Lower Abdominal Pain in Women:

Suspected PID, which presents, as lower abdominal pain syndrome in women should be treated promptly to avoid complications associated with it.

First Line Preferred:

Cefixime 400 mg PO stat AND Doxycycline 100 mg PO BD for 14 days AND Metronidazole 400 mg PO TDS for 14 days: 4Cs OR Second Line Preferred: Ceftriaxone 500 mg IM stat AND Doxycycline 100 mg PO BD for 14 days AND Metronidazole 400 mg PO TDS for 14 days: 4Cs

OR Gentamicin 240 mg IM stat AND Doxycycline 100 mg PO BD for 14 days AND Metronidazole 400 mg PO

Inguinal bubo:

Inguinal bubo is an enlargement of the lymph glands in the groin area.

Etiology:

- The common sexually transmitted pathogen associated with Inguinal bubo include
- C. trachomatis serovar L1-L3 (Lymphogranulomavenereum or LGV)
- Haemophilus ducreyi (chancroid)
- Calymmatobacterium granulomatis (granuloma inguinale)
- Treponema pallidum (syphilis) may sometimes cause inguinal bubo
- Except in case of LGV, a bubo is rarely a sole manifestation of STD and is usually found together with the etiologically related genital ulcer. Non-sexually transmitted local or systemic infections can also cause inguinal lymphadenopathy.

Clinical feature:

- Usually patients complain of unilateral or bilateral painful swelling in the groin, but buboes can be painless.
- It is important to ask for any history of associated genital ulcer.

Treatment:

Syndromic Treatment of Inguinal Bubo

Patients should be treated for inguinal bubo after ruling out other possible causes of the inguinal swelling.

If there is an accompanying genital ulcer, follow syndromic management of non-vesicular genital ulcers.

First Line Preferred Treatment:

Benzathine penicillin 2.4 MU IM weekly for 3 weeks AND Azithromycin 2 gm PO stat: 4Cs

OR Second Line Preferred Treatment:

Ceftriaxone 1 gm IM stat AND Doxycycline 100 mg PO BD for 14 days: 4Cs. Doxycycline is contraindicated in pregnancy. If there is no accompanying genital ulcer, treat for lymphogranuloma venereum.

Scrotal Swelling Syndrome

- The cause of scrotal swelling depends on the age of the patient

For those younger than 35 years

- Gonorrhoea
- C.tracomatis

For those older than 35 years

- Gram negative organisms
- Tuberculosis
- Other cause includes:
 - Brucellosis, Mumps, Onchocerciasis, Wuchereriabuncrofti
 - It is important to exclude other causes of scrotal swelling which may require urgent surgical evaluation and management
- Testicular Torsion
- Trauma
- Incarcerated inguinal hernia

Complications of Scrotal Swelling:

caused by STI include

- Epididymitis
- Infertility
- Impotence
- Prostatitis
 - Treatment of Scrotal swelling suspected of STI origin is similar to Urethral discharge.

Syndromic Treatment of Scrotal Swelling

Since the causative agents for painful scrotal swelling caused by STIs are similar to those causing urethral discharge in men, treatment for this condition is similar to that of syndromic treatment of urethral discharge in men after ruling out other possible causes of the swelling.

First Line Preferred: **Cefixime 400 mg PO stat AND Azithromycin 1 gm PO stat: 4 Cs**

OR Second Line Preferred: **Ceftriaxone 500 mg IM stat AND Azithromycin 2 gm PO stat: 4 Cs**
Review after 7 days and if cured discharge from the clinic. If there is no improvement, refer to a surgeon