Sexually Transmitted Infections Seminar

1. **Recognize** that sexually transmitted infections (STIs) are caused by a wide array of organisms.
2. **Describe** the different routes of transmission of common STIs.
3. **Recognize** the epidemiology of STIs in KSA.

❖ Epidemiology in KSA

- Most common cause is nongonococcal urethritis (NGU).
- Most common organism responsible for NGU is chlamydia trachomatis, followed by Mycoplasma genitalium.

❖ Causative organism

STIs	Transmission
HPV	Transmitted through direct contact with infected skin or mucosa.
Herpes Simplex 1-2	Occurs via oral-oral, oral-genital, or genital-genital contact, as well as contamination of skin abrasions with infected oral secretions.
Chlamydia	Hetero- and homo-sexual intercourse.
Neisseria gonorrhoeae	Hetero- and homo-sexual intercourse and oral-genital contact.
Hepatitis B	Hetero- and homo-sexual intercourse.

❖ Incubation period

Infection	Incubation Period
Chlamydia trachomatis	Men: 5-10 days women: 7-14 days
N. Gonorrhea	Men: 4-8 days Women: 10 days
Trichomonas vaginalis	4-28 days
HSV	2-7 days
Primary Syphilis	7 to 90 (median is 21 days)

Urethral or vaginal /endocervical discharge

4. **Communicate** properly with a patient presenting with a suspected STI.
5. **Apply** the medical knowledge to properly take history, examine, order and interpret laboratory tests, manage, and counsel a patient presenting with urethral or vaginal/endocervical disc

❖ History taking

90% of all STIs are asymptomatic so you don't look for discharge in the history look for risk factors.

- Amount, color, consistency, smell, timing and associated symptoms.

- **Red flags:** we're worried about:
    6. In lower UTI: **pyelonephritis**
        1. Ask about: fever, N/V, flank pain
    7. In vaginal discharge: **PID**
        1. Ask about: pain, fever, illness, N/V, flu like
        2. R/O by: cervical motion test – painful

  Most of the time you can't reach the diagnosis by history, so the purpose of it is to differentiate normal discharge from abnormal.
  What's normal? In a woman's cycle discharge changes: before ovulation – after period its dry and scanty bc you have high progesterone> low estrogen> dryness, as the hormones increase around ovulation the discharge increases as well and thickness becomes rubbery and yellowish and odorless.
  What's abnormal? A lot, continuous, smelly.

- **Sexual history/risk factors:**
    - Last sexual intercourse
        - If he presents after a year with an STI what can it be? HIV, syphilis, herpes, trichomonas (men with trichomonas are asymptomatic)
    - Contraceptive use: condoms, spermacide
    - Age of first intercourse
    - Number of sexual partners
    - Sexual preferance, history of anal (most imp risk)
    - Previous STIs in pt and in the partner

- **Social history:**
    - Marital status
    - Alcohol or drugs

❖ Physical examination: The primary focus of the examination is on the genitalia.

- **Males (while standing): the purpose of examination in a male is not visualize the discharge but to r/o other causes of the discharge like cancer so examine the testicles and do the milking to check if there's blood however even if it looks different screen for STI regardless. So, when a pt presents with discharge 1st thing to do is screen for STI if negative then examine. But if the pt has no risk factors, very forthcoming, no history then I start with examination.**

➢ Avoid examination after micturition because urination temporarily washes away discharge.
➢ Inspect skin for lesions and underwear for secretions.
➢ Discharge may be grossly evident at urethral lumen or may only be detectable after "stripping" or "milking".
➢ Mucopurulent or purulent discharge confirms urethritis diagnosis in a symptomatic male patient. If the pt comes with discharge even if asymptomatic it's an STI until proven otherwise bc it's not common for men to have discharge.
➢ Examine the scrotum for swelling and tenderness for epididymitis.
➢ Digital rectal examination if suspecting prostatitis.

- **Women (in lithotomy):**

➢ Avoid examination after micturition
➢ Inspect skin for lesions and underwear for secretions.
➢ Strip the urethra by inserting a finger into the anterior vagina and stroking forward along the urethra.
➢ Look for swelling, erythema and mucopurulent discharge at the cervical opening.
➢ In case of cervicitis, the cervix becomes very friable, bleeding is easily induced by gentle passage of a cotton swab through the cervical opening.

<table>
<tr><th colspan="3">Laboratory tests</th></tr>
<tr><td>Gram stain and culture
Gram stain is not used at all, it takes a while for results</td><td colspan="2">❑ Gram stain has low sensitivity in women compared with men due to the possible presence of other nonpathogenic gram-negative diplococci in cervical secretions.
❑ Examine for the presence of WBCs (PMNs) and organisms:
o NGU: PMNs without any visible organisms.
o Gonococcal urethritis: gram-negative intracellular or extracellular diplococci in the urethral exudate.</td></tr>
<tr><td rowspan="4">In men
(dipstick, microscopy and Nucleic acid amplification testing (NAAT))</td><td colspan="2">❑ Specimen obtained from:
o First-void urine: the initial portion of the first urinary stream after awakening</td></tr>
<tr><td>Dipstick</td><td>Positive leukocyte esterase (this is diagnostic of urethritis).</td></tr>
<tr><td>Microscopy</td><td>The presence of ≥10 WBC/hpf (this is diagnostic of urethritis).</td></tr>
<tr><td>NAAT</td><td>For identification of the causative organism, using PCR.</td></tr>
<tr><td>In women
(NAAT)
(this is the best but it’s not available here)</td><td colspan="2">Specimen obtained from:
❑ Vaginal swab.
❑ Endocervical swab.
❑ Urine sample.</td></tr>
</table>

Usually we take 3 cervical swabs, but they’re not available here.
In case of an ulcer think of: normal skin or syphilis or herpes. We do viral swab to diagnose.
Another way for herpes is to check the immunity.

- **Why is it important to identify the organism causing the urethral/vaginal discharge?**
  - For accurate diagnosis and treatment.
  - For partner treatment.
  - Notification to ministry of health in order to monitor the epidemiology of STIs.

<table>
<tr><th colspan="2">Management</th></tr>
<tr><th>Gonococcal</th><th>Nongonococcal</th></tr>
<tr><td>Ceftriaxone AND Azithromycin (for possible additional activity against N. gonorrhoeae and for treatment of potential chlamydia coinfection). Most of the times they coexist</td><td>Chlamydia is targeted as it’s the most likely pathogen.
First-line treatment for chlamydia is either: azithromycin OR doxycycline</td></tr>
</table>

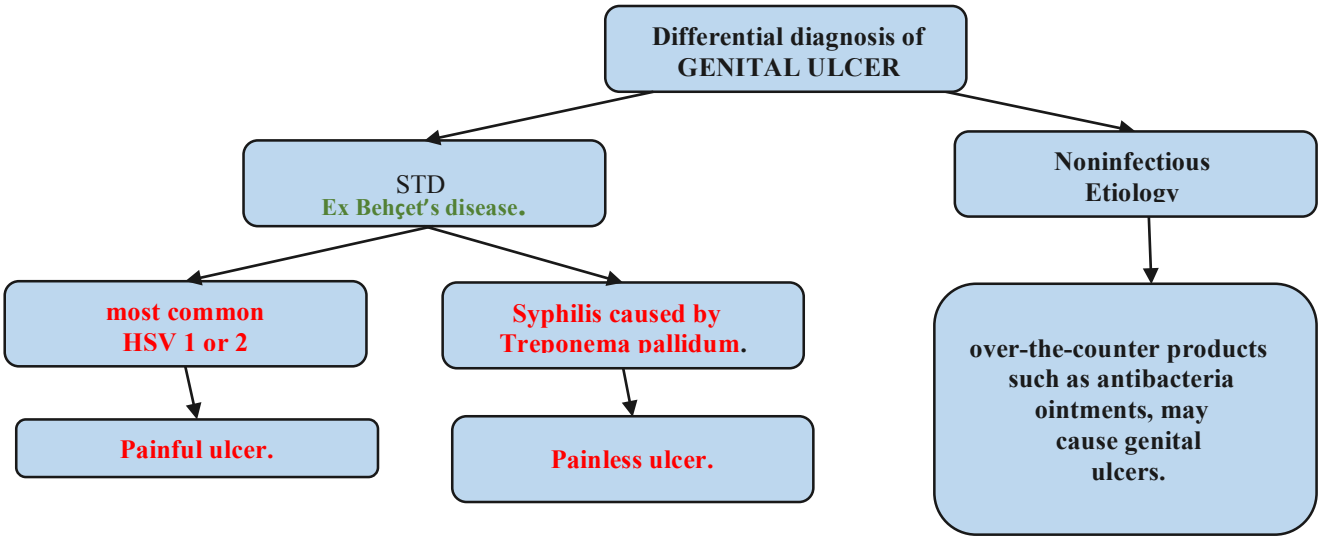
If you’re suspecting with no investigation give empirical treatment for both gonococcal and gonorrhea
Screen the partner and treat them as part of the management as well.
Always always: swab> treat> check results and follow up.

❖ Counseling

- ICE, GATHER and educate the patient.
- **Screen for other STIs:** HBV, HIV, syphilis.
- Rafrain from sexual activity while waiting for results and 7 days after treament.
- Follow within a week and retesting for pregnant women.
- **Screen the partner.**
- Preventions:
  1. **Behavior:** abstinence, condoms.
  2. **Vaccines.**

GENITAL ULCER

9. **Apply** the medical knowledge to properly take history, examine, order and interpret laboratory tests, manage, and counsel a patient presenting with genital ulcer.
10. **Recognize** latent syphilis and able to order screening tests for it.



❖ Focus history

General history which you must take from a person with a genital ulcer is like a general history which taking from any person with STD

4 The number of lesions.
5 Painful ulcers or painless.
6 The presence of swelling in the inguinal area (lymphadenopathy).
7 Constitutional symptoms.
8 Anatomic location of a genital ulcer which may cause painful urination in a female with an ulcerative labial or urethral lesion, or in a male with an ulcer at the urethral meatus or on the glans.
9 Are the ulcers recurrent? A history of recurrent ulcers would suggest HSV infection.

❖ Examination related to genital ulcer

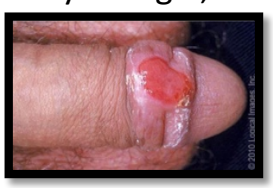
Herpetic lesions:

Very Delicate vesicles patients don't see them most of the time, they just feel the pain of the ulcers.

- ✓ can begin as one or a group of vesicles an erythematous base.
- ✓ These vesicles subsequently open, resulting in shallow ulcers/erosions that may coalesce.
- ✓ It often break prior to being noticed.

Syphilitic lesions:

is classically a single, indurated, well-circumscribed painless ulcer on a clean base.



Syphilitic lesions

Herpetic lesions

❖ Examination of the lymph node:

- You should examine the inguinal lymph nodes for lymphadenopathy and tenderness.**In general if you get examine one set of the lymph-node you must examine all of lymph-nodes. Why ???Because they might be immunocompromised. They might have TB, lymphoma , brucellosis or Something else with STI.**
- Inguinal lymphadenopathy is commonly seen in patients with infectious causes of genital ulcers.
- The lymph nodes are often tender inpatients with HSV.
- Rubbery, non-tender nodes are often seen in late primary syphilis.

other anatomical sites, such as the pharynx or rectum, may be affected by sexually transmitted infections, and pharyngitis, proctitis, or (more commonly) asymptomatic infection at these extragenital sites may accompany the presenting STI. **Maybe first herpes lesion appears in the oral cavity or as vesicles around the mouth.**

❖ Diagnosis investigations for herpes simplex 1 or 2

We couldn't differentiate between herpes1 and herpes2 Clinically.

- PCR , If HSV PCR is not available we do viral culture.
- PCR have a higher sensitivity than culture .

زمان كانوا يعتقدون انه بس هربس ون هو اللي ينتقل سكشولي. بس اكتشفو حتى انو هربس تو كمان ممكن ينتقل سكشولي .

please be careful because the two type could also Transmitted عن طريق اخر غير السكشولFor example, some baby could get service from parent's or someone's by kissing.

❖ Treatment

We should give an empirical treatment for any patient who is had a known exposure to an STI that causes genital ulcers.

Infection	Medication	Frequency	Duration	Note
Syphilis	Penicillin G benzathine	MI, one dose		• Don't forget to order serological tests prior to giving therapy, use non treponemal tests to follow up response
HSV1 and 2	Acyclovir	Oral, 3 times daily	7-10 days	• antiviral therapy should be started ASAP after lesion appearance & within 72 hours. • Antivirals will decrease duration and severity of symptoms.
	Famciclovir			
	Valacycvir	Oral ,Twice daily		

Syphilis

- caused by the bacterium Treponema pallidum
- Transmitted from person to person by direct contact with a syphilitic sore, known as a chancre.
- Chancres can occur on or around the external genitals, in the vagina, around the anus, or in the rectum, or in or around the mouth.

❖ Syphilis stages

To make it easier:
Primary: purely local
Secondary: acute systemic presentation
Latent(chronic): either you treat it or not ..if they develop immunity they're careers (asymptomatic careers)
Tertiary(chronic): اللي ما صار كارير صار عنده كومبليكاشنز

❖ Latent syphilis

The latent (hidden) stage of syphilis is a period when there are no visible signs or symptoms of syphilis. Without treatment, the infected person will continue to have syphilis in their body even though there are no signs or symptoms. it's divided into:

- Early latent syphilis: infection occurred within the last 12 months and it's infectious.
- Late latent syphilis: infection occurred more than 12 months ago and it's not thought to be infectious. You should do serology to decide خليها في بالك انها انفكشوس انتل بروفن اذر وايز

❖ Screening and diagnosing syphilis

- To diagnose the specific stage, signs and symptoms are used.
- To diagnose syphilis there are Direct methods and serological tests:

- **Direct methods:** **No body do it**
  - such as Darkfield microscopy showing motile spirochetes (high specific) and direct fluorescent antibody (DFA) testing.
- **Serological tests which are divided into:**
  - **Nontreponemal tests:**
    rapid plasma reagin (RPR) test and the Venereal Disease Research Laboratory (VDRL) test.
  - **Treponemal test**:
    Treponema pallidum hemagglutination assay (TPHA), T.pallidum enzyme immunoassay (TP-EIA) and Fluorescent treponemal antibody absorption (FTA-ABS).

- **What is the difference between treponemal and non-treponemal tests?**

• **Nontreponemal tests:** Determine the presence of a nontreponemal antibody directed against cardiolipin antigens.
• **Treponemal tests:** Use proteins from syphilis bacterium. And based on the detection of treponemal antibody.

Dr Notes:

- **Treponemal (to confirm):** specific to syphilis..it's either positive or negative so if they are immune it will be always positive..it doesn't tell me if there's active infection.
- **Non treponemal (to screen):** it's sensitive ..ممكن يرتفع لاي سبب it has titers, it can tell me is this active or non active syphilis. Also it's good for follow up لما نعطيهم العلاج نشوف التايتر يتغير او ما يتغير

We actually test both of them all the time..Always DO BOTH.

- **When can we say a patient has latent syphilis?**

• Patients **without** a past diagnosis of syphilis who have **both**
a reactive **nontreponemal** test (e.g. rapid plasma reagin) and a reactive **treponemal** test.
• Patients with a **prior history of syphilis** (1ry or 2ry) who have a current nontreponemal test **titer that demonstrates a four fold or greater increase** from the last nontreponemal test titer.

- **Which type of serological syphilis tests can be used to follow up response to treatment?**
- Nontreponemal test antibody **titers** might correlate with disease activity and are used to follow treatment response.

Anogenital warts = Condyloma acuminate

8. **Apply** the medical knowledge to properly take history, examine, order and interpret laboratory tests, manage, and counsel a patient presenting with Anogenital warts.

❖ Background

Condyloma acuminatum (also known as genital warts or anogenital warts) refers to an epidermal manifestation attributed to the epidermotropic human papillomavirus (HPV). More than 100 types have been isolated to date. Many of these have been related directly to an increased neoplastic risk in men and women. Approximately 90% of condylomata acuminata are related to HPV types 6 and 11. These 2 types are the least likely to have a neoplastic potential. Risk for neoplastic conversion has been determined to be moderate (types 33, 35, 39, 40, 43, 45, 51-56, 58) or high (types 16, 18) causing cancers in females as well as males.

❖ Risk factors

- Intercourse at early age
- Increasing number of lifetime sexual partners
- Increasing number of partner's lifetime sexual partners
- Immunocompromise

Yeast, warts and herpes are opportunistic infection, they are dormant and appear when there's decrease in immunity, change in hormones (pregnancy, birth control pills) affect immunity, that's why kids have more common warts than adults because they have weaker immunity than adults

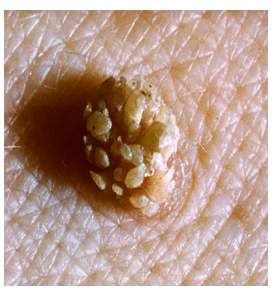
❖ History

Smoking, oral contraceptives, multiple sexual partners, and early coital age are risk factors for acquiring condyloma acuminatum.
The chief complaint usually is one of painless bumps, pruritus, or discharge.
A baby born vaginally to a mother with warts might need NICU admission, they get respiratory issues, or we might choose to do c-section if warts are very severe
any infection in babies 1 month old or less → medical emergency → admit
if a kid present to you with warts in his mouth, check his hands if he has warts on hands, then this is self-infection, if not, or he has warts in his genital area, suspect sexual abuse
The patient's history may indicate presence of previous or other current STDs.
Latent illness may become active, particularly with pregnancy and immunosuppression.
Lesions may regress spontaneously, remain the same, or progress.

❖ Physical Examination

Single or multiple papular eruptions may be observed. Eruptions may appear pearly, filiform, fungating, cauliflower, or plaquelike. They can be quite smooth (particularly on penile shaft), verrucous, or lobulated.
Carefully search for simultaneously involved multiple sites.
Eruptions' color may be the same as the skin, or they may exhibit erythema or hyperpigmentation.
Search for evidence of other STDs (eg, ulcerations, adenopathy, vesicles, discharge).
Look for perianal lesions, particularly in patients with history or risk of immunosuppression or anal intercourse.

Filiform

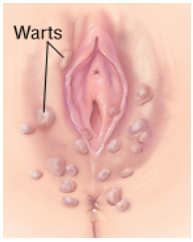


cauliflower

melanoma

❖ Laboratory tests

- Diagnosis of genital warts is made based on the clinical presentation of lesions. Biopsy is generally not performed for the diagnosis of genital warts.
- test for other STDs, such as HIV, gonorrhea, chlamydia, and syphilis.
- Biopsy: Biopsy is indicated for lesions that are atypical, recurrent after initial success, or resistant to treatment or in patients with a high risk for neoplasia or immunosuppression.
- Anoscopy: in case of warts in anus
- Urethroscopy: in case of warts in the urethra



❖ Management of Anogenital warts

Warts generally regress spontaneously within months or years
The CDC recommends keratolytic agents, antimitotic agents, and immune-response modifiers as alternative regimens to cryotherapy
We don't treat every single wart, because they recur, we treat if: pregnant, obstructing delivery

Topical creams:

11. Podophyllotoxin: arresting cell division in mitosis
12. Imiquimod: topical immune modulator
13. Trichloroacetic acid. This chemical treatment burns off genital warts.

Surgery:

Cryotherapy

Cryotherapy may be performed using an open spray or cotton-tipped applicator for 10-15 seconds and repeated as needed. Lift away mobile skin from underlying normal tissue before freezing.

Cryotherapy is an excellent first-line treatment, particularly for perianal lesions.

Cryotherapy is safe during pregnancy

Electrodesiccation تجفيف كهربائي

Smoke plume potentially may be infective.

Curettage

Surgical excision

Excision has highest success rate and lowest recurrence rate.

Carbon dioxide laser treatment

❖ Counselling

Overview
Genital warts are one of the most common types of sexually transmitted infections. human papillomavirus (HPV), the virus that causes genital warts, at some point during their lives. Some strains of genital HPV can cause genital warts, while others can cause cancer. Vaccines can help protect against certain strains of genital HPV. In many cases, the warts are too small to be visible.
Complications
Cancer. Cervical cancer has been closely linked with genital HPV infection. Certain types of HPV also are associated with cancers of the vulva, anus, penis, and mouth and throat.
HPV infection doesn't always lead to cancer, but it's important for women to have regular Pap tests, particularly those who've been infected with higher risk types of HPV.
Prevention
Limiting your number of sexual partners and being vaccinated will help prevent you from getting genital warts
Vaccination
Three HPV vaccines have been approved by the Food and Drug Administration. The most recent, Gardasil 9 is approved for use in males and females ages 9 to 45 to protect against cervical cancer and genital warts.

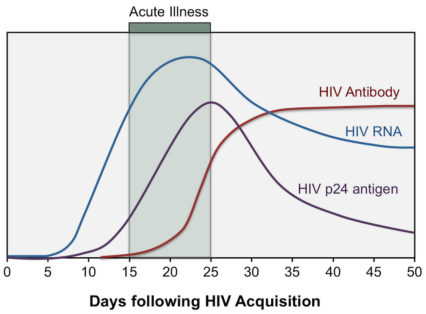
HIV

9. **Discuss** the natural history of HIV, interpret the results of HIV tests, and manage a patient with a positive result.

❖ Natural history of HIV

Window period:

Time between infection and development of anti-HIV antibodies; when serologic tests (ELISA, Western blot) are negative.



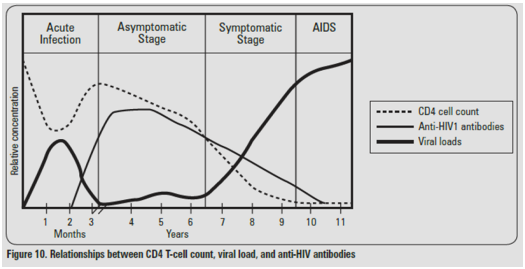


Figure 10. Relationships between CD4 T-cell count, viral load, and anti-HIV antibodies

❖ Interpret the results of HIV tests

Anti-HIV antibodies detectable after a median of 3 weeks, virtually all by 3 months (therefore 3 months window period).

- **Initial screening test**

  (ELISA) detects serum antibody to HIV; sensitivity >99.5%. Increasingly, combination p24 antigen/HIV antibody
  tests (4th generation) used for screening; improved sensitivity in early or acute infection and sensitivity/specificity approach 100% for chronic infection.
- **confirmatory test:**

  If the screening test was positive, an HIV-1/HIV-2 antibody differentiation using western blot or line immunoassay is performed; specificity >99.99%

HBV

10. **Manage** a spouse of a patient who is HBsAg +ve.

A patient who is a HBsAg +ve married or planning to marriage came to you asked you is it safe to have sexual intercourse with his/her partner?

Yes, people who are HBsAg +ve can have sexual intercourse with their partners.

- If the partner is immune, they can have normal sexual intercourse without need for condom.
- If the partner is not immune: they can have sexual intercourse using condom.

  The partner should receive a hepatitis B vaccination series (3 doses at 0, 1 month, & 6 months), then 1-2 months
  after finishing the series he/she should be tested for immunity against Hep B, if immune they can have intercourse without condom (anti-HBs serologic test result of. >10mIU/mL indicates immunity)

Manage a patient with a positive result:

1. Breaking bad news
2. Screen family members
3. Referral to infectious disease
4. Reporting to MOH

Common complications of STIs :

11. **Recognize** the common complications of common STIs.

- Sexually acquired reactive arthritis
- Epididymo-orchitis (in male)
- Pelvic inflammatory disease (PID)
- Endometritis
- Salpingitis
- Ectopic pregnancy
- Tubal infertility
- Perihepatitis (with chlamydia and PID)