Sexually Transmitted Infections

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OBJECTIVES

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.
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 discharge.
   - genital ulcer
   - anogenital wart
6. **Recognize** latent syphilis and able to order screening tests for it.
7. **Recognize** the common complications of common STIs.
8. **Discuss** the natural history of HIV, interpret the results of HIV tests, and manage a patient with a positive result.
9. **Manage** a spouse of a patient who is HBsAg +ve.

OUTLINES

- Questions
- Introduction
- History
- Physical Examination
- Investigations
- Management
- HIV & Hepatitis B
- Role Play
- Answers to Questions

Question 1

What types of HPV that are detected in around 90% of anogenital warts?

a) HPV 6 and/or 11
b) HPV 16 and/or 18
c) HPV 1 and/or 2
d) HPV 7 and/or 10

Question 2

A 20 y/o woman who reports unprotected sex with a new partner 2 weeks ago, develops fever and left lower quadrant abdominal pain with onset in association with her menstrual period. Neisseria gonorrhoeae is cultured for her endocervix. The diagnosis is gonococcal pelvic inflammatory disease.

What is the common complication of this infection?

a) Cancer of the cervix
b) Infertility
c) Urethral strictures
d) Vaginal-rectal fistula

Question 3

Which ONE of the following is the most infectious phase of syphilis disease?

a) Latent phase.
b) Secondary phase.
c) Primary phase
d) Tertiary phase

Question 4

Which of the following provides a 100% protection from STIs?

a) Avoiding alcohol and drugs
b) Condom
c) Abstinence from sexual activity
d) All of the above

Question 5

A male patient, who was recently tested for HIV, came to check his results. The ELISA test for anti-HIV antibody and p24 antigen was positive.

What would be the best next step?

a) Reassure the patient.
b) Perform a confirmatory test (western blot).
c) Check the viral load.
d) Repeat the same test.

Introduction

Epidemiology

- There are a lot of infections that are considered STIs.
- **More than 30 different** bacteria, viruses and parasites are known to be transmitted through sexual contact.

Causative Organisms

bacteria	Chlamydia Trachomatis
	Neisseria Gonorrhoeae
	Bacterial Vaginosis
	Treponema Pallidum
	Chlamydia trachomatis serovars L1, L2, or L3 (Lymphogranuloma Venereum LGV)
viruses	HIV
	Hepatitis B
	Hepatitis A
	Hepatitis C
	Human papilloma virus (HPV)
	Herpes simplex virus (1&2)
	Molluscum contagiosum
Parasite	Trichomonas Vaginalis
	Sarcoptes scabiei (scabies)
Insect	Pediculosis pubis (lice)

Routes of Transmission

- STIs can be transmitted through vaginal, anal, oral, and skin contact.

STI	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.

Route of Transmission (HIV*)

Sexual exposure	Risk per 10,000 exposures to an infected source (risk)
Receptive anal intercourse	138 (1/72)
Insertive anal intercourse	11 (1/900)
Receptive penile-vaginal intercourse	8 (1/1250)
Insertive penile-vaginal intercourse	4 (1/2500)
Receptive or insertive penile-oral intercourse	0-4

*HIV transmission is less among circumcised males.

Epidemiology of STIs in KSA

Table 1. Total number and annual incidence of sexually transmitted infections per 100,000 population in Saudi Arabia from 2005 to 2012.

Infection	Total number of infections (%)	Annual incidence of infection per 100,000 population
Nongonococcal urethritis	35,613 (51.7)	25.4
Trichomoniasis	12,679 (18.4)	9.1
HIV	9,843 (14.3)	7.0
Syphilis	1,769 (2.6)	1.3
Human papillomavirus (genital warts)	4,018 (5.8)	2.9
Neisseria gonorrhoeae	3,006 (4.4)	2.1
Genital herpes	1,508 (2.2)	1.1
Chancroid	450 (0.7)	0.3
Total	**68,886**	**92.1**

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)

Asymptomatic Infections

Infection	Percentage of asymptomatic infection	
	Men	Women
Chlamydia trachomatis	70%	85%
N. Gonorrhea	60%	70%
Trichomonas vaginalis	75%	70-85%
HSV	75-80%	

HISTORY APPROACH OF STI

Establishing Proper Communication

- Explain the rationale for some of the questions asked.
- Using clear and understandable language which both the clinician and patient are comfortable (for example: you can use slang).
- Awareness of the signs of anxiety and distress from the patient.
- Recognizing non-verbal cues from the patient.
- It is important to ensure privacy and confidentiality to the patient during history taking of a patient with a suspected STI.

Complaints where an STI is very likely

1-Urethral discharge or vaginal/endocervical discharge:

- Most common cause is NGU.
- most common organism responsible for NGU is chlamydia thachomatis, followed by Mycoplasma genitalium.
- Another common organism responsible for NGU is trichomonas vaginalis.
- Also neisseria gonorrhoeae is a common cause for urethral/vaginal discharge (gonococcal urethritis).

Please note that vaginal discharge can be caused by:

- non-sexually transmitted infections such as bacterial vaginosis and vulvovaginal candidiasis.
- other non-infectious causes such as: the use of spermicides and soap on genital area, might irritate the urethra causing non-infectious urethritis.

History of presenting illness

- **Consistency of the discharge:** can range from mucoid or watery to frankly purulent, and can be associated with mucus threads.
- **Amount:** copious or scant (Sometimes the discharge is so scant that patient only notice stained underwear in the morning).
- **Timing:** may be present throughout the day or may be scanty and only present on the first morning void.
- **Smell:** odorless or malodorous.
- **Associated symptoms in both genders:** dysuria, polyurea,
- **Associated symptoms in males:** testicular pain or swelling.
- **Associated symptoms in females:** vaginal pruritus, intermenstrual or post coital bleeding or menorrhagia.

2-Ulcer in the sexual contact area:

- The majority of genital ulcers are caused by sexually transmitted infections (STIs), although there are noninfectious etiologies that should be considered once STIs have been ruled out.
- The most common STI cause is herpes simplex viruses (HSV) 1 or 2.
- Syphilis caused by *Treponema pallidum*.
- Lymphogranuloma venereum (LGV) caused by L1, L2, and L3 serovars of *Chlamydia trachomatis*.
- Chancroid caused by *Haemophilus ducreyi*.
- Genital ulcers increase the risk of acquiring HIV.

History of presenting illness

1) The number of lesions.
2) Whether the lesions are painful, Painful ulcers tend to be more typical of HSV and chancroid, while ulcers associated with syphilis, LGV are usually painless.
3) The presence of swelling in the inguinal area (lymphadenopathy).
4) Constitutional symptoms.
5) 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.
6) Are the ulcers recurrent? A history of recurrent ulcers would suggest HSV infection.
7) If the ulcers are recurrent, are they proceeded by any prodromal symptoms such as local mild tingling or shooting pains in the buttocks, legs, and hips?

3-Anogenital warts (condyloma acuminate):

- External anogenital warts are typically found on the vulva, penis, groin, perineum, anal skin, perianal skin, and/or suprapubic skin
- The warts are typically asymptomatic (painless) but occasionally can be pruritic.

What is the organism responsible for anogenital warts?

- Anogenital warts are caused by genital HPV which are divided into low-risk and high-risk types based upon associated risk for cancer in any body area.
- There are more than 200 types of HPV, The low-risk types HPV 6 and/or HPV 11 are detected in around 90% of anogenital warts.

Associated symptoms

1-dysurea.

2-lower abdominal/pelvic/peri anal/anal/inguinal/penile/scrotal pain.

3-Scrotal/inguinal swelling.

4-Dysparunia (in females).

5-Post coital and intermenstrual bleeding (suggestive of cervicitis).

6-rectal discharge or bleeding.

7-fever.

What is the 5Ps mnemonic that you should ask any patient with a suspected STI?

1. Partners
2. Practices
3. Prevention of Pregnancy
4. Protection from STDs
5. Past History of STDs

What should ask in social history in a patient with a suspected STI?

- Married or single?
- History of sexual contact in the last 90 days?
  - If yes marital or extra-marital?
  - When did it exactly happen? (in order to determine the incubation period).
  - How many partners?
  - Homosexual, heterosexual, or both?
  - Sites of sexual contact (oral, genital, rectal).
  - Was protection used or not?
- Does the partner have a known STI?
- Travel history: visiting suspicious places (massage parlors, night clubs…etc) or dealing with suspicious people (private dancers, sex workers).
- Use of alcohol or illicit drugs.

Why Drug history is important in a patient with a suspected STI?

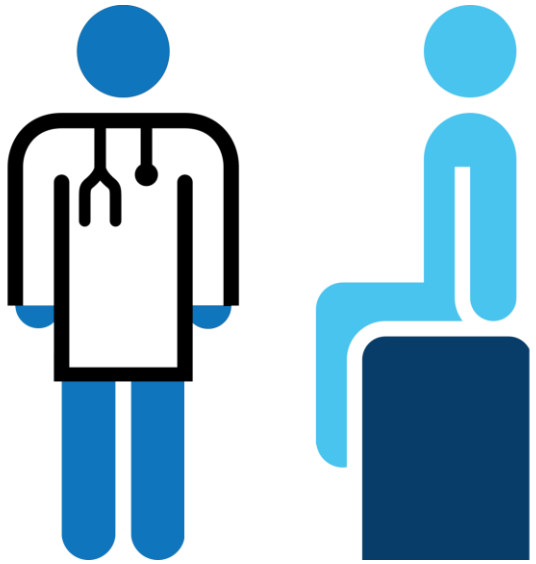
- Patients should be questioned about medication use since reactions to medications, systemically or locally (e.g. over-the-counter products such as antibacterial ointments), may cause genital ulcers.

What should ask in the past medical history in a patient with a suspected STI?

- Past history of other STIs and prior STI testing.

➢ **Don’t forget to ask female patients about their last menstrual period.**

PHYSICAL EXAMINATION



1-Vital Sings:

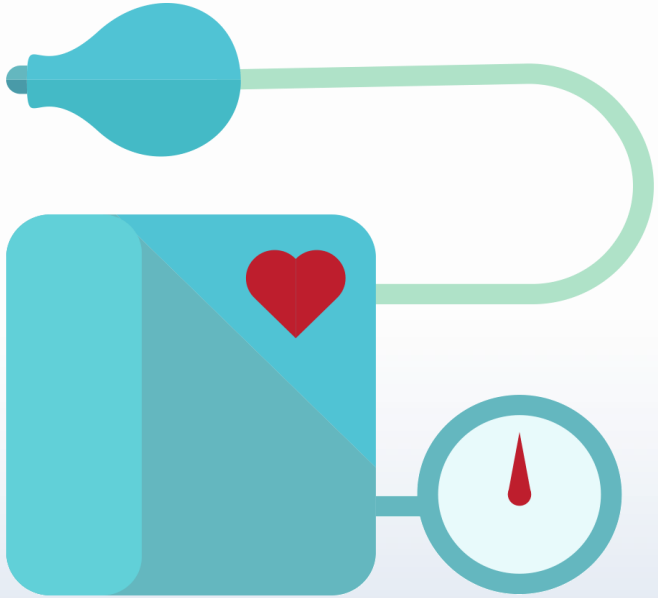
1-Body temperature

2-Pulse rate

3-Respiration rate

4-Blood pressure

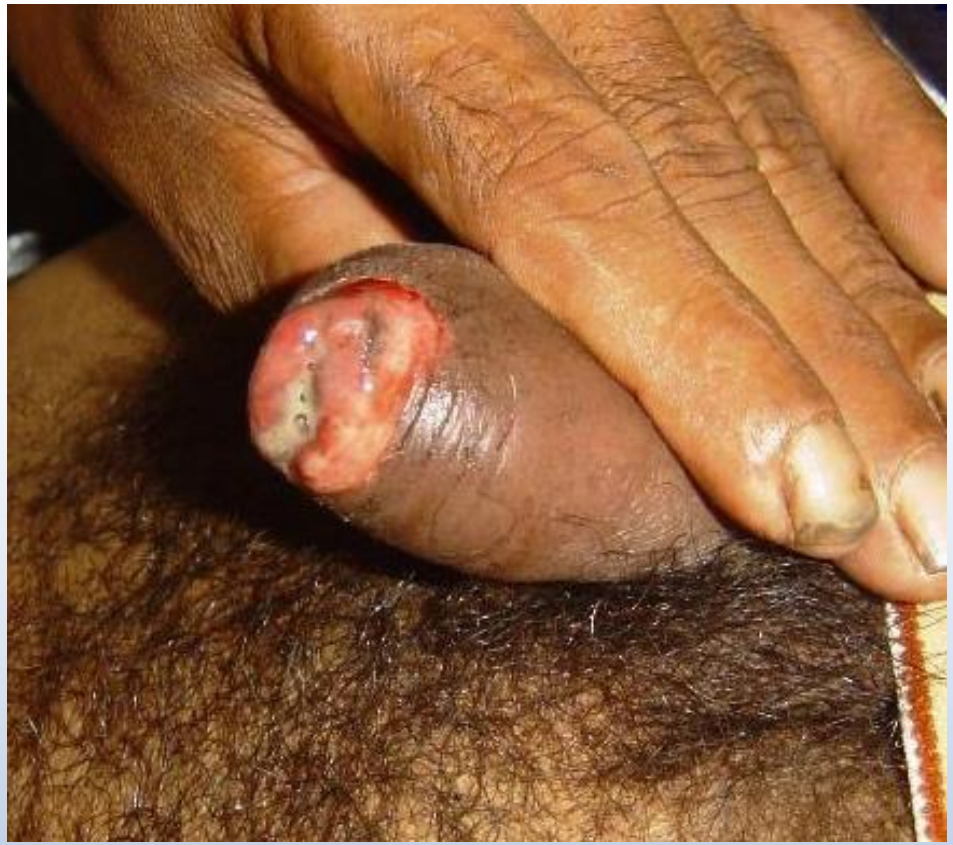
5-SpO2



2-EXAMINATION RELATED TO URETHRAL/VAGINAL OR CERVICAL DISCHARGE

In men:

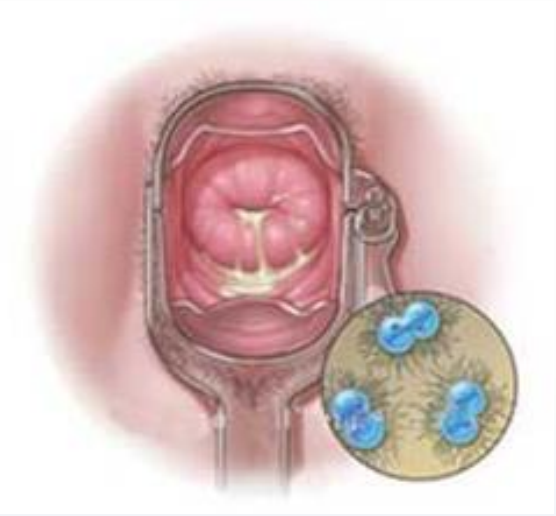
- may be grossly evident or May only be detectable after ”stripping” or “milking”.
- Mucopurulent or purulent discharge confirms urethritis diagnosis in a symptomatic male patient.
- Examine the scrotum for swelling and tenderness as epididymitis is one of the possible complications.
- Digital rectal examination should be done in those who have symptoms that may indicate underlying prostatitis.

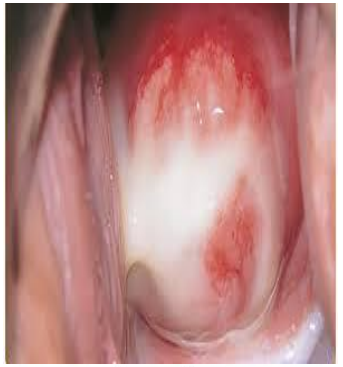


2-EXAMINATION RELATED TO URETHRAL/VAGINAL OR CERVICAL DISCHARGE

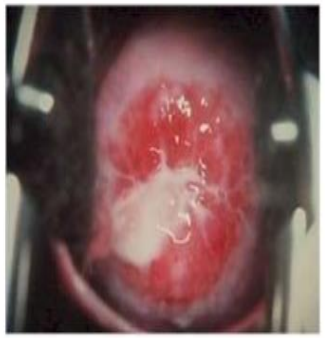
In women:

- Gonorrhea and chlamydia most commonly affect the cervix.
- You will need to do a speculum examination.
- You should look for swelling, erythema and mucopurulent discharge at the cervical opening.
- endocervical bleeding is easily induced by gentle passage of a cotton swab through the cervical opening in case of cervicitis.





Gonorrhea



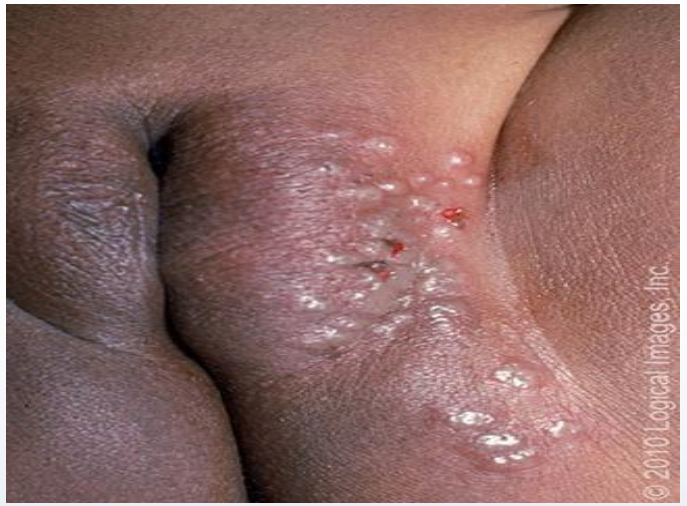
Chlamydia

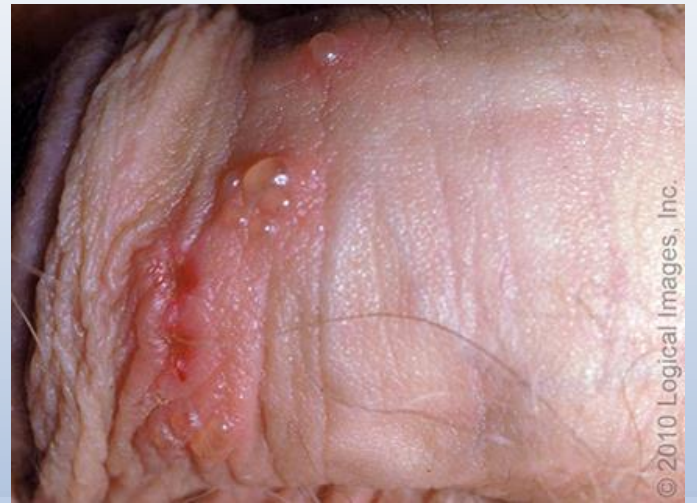
3-EXAMINATION RELATED TO GENITAL ULCER:

The number and appearance of lesions can help with the diagnosis.

❖ **Herpetic lesions:**

- can begin as one or a group of vesicles an erythematous base.
- These vesicles subsequently open, resulting in shallow ulcers/erosions that may coalesce.
- In areas under the foreskin or around the labia and rectum, vesicles often break prior to being noticed





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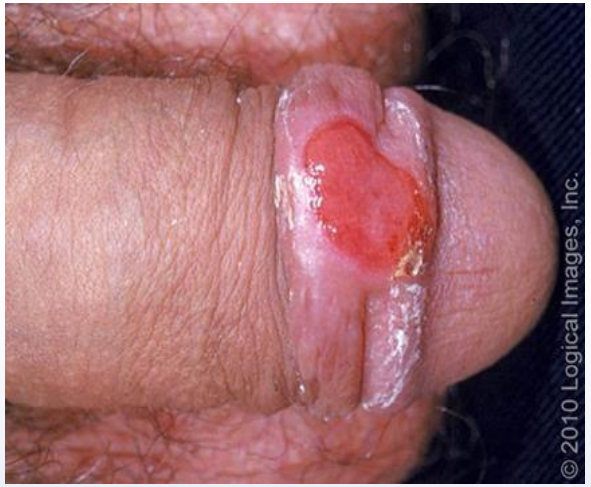
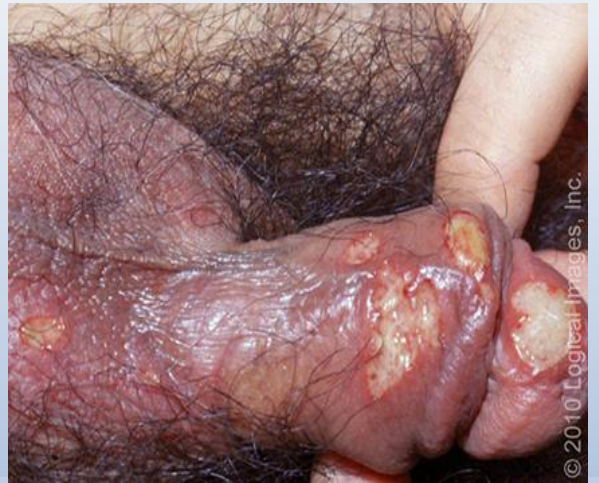


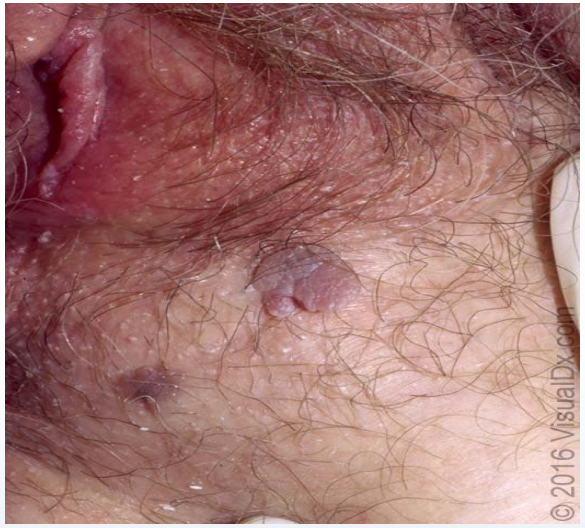


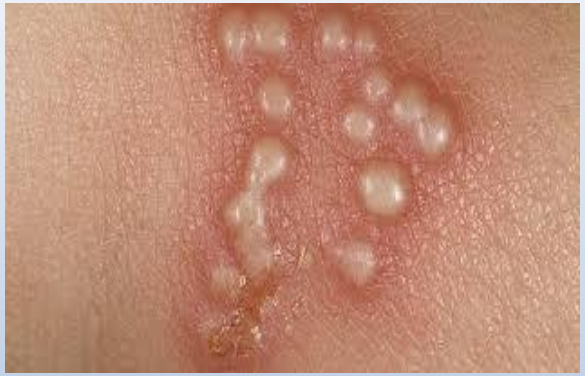
❖ **Syphilitic lesions:**

- is classically a single, indurated, well-circumscribed painless ulcer on a clean base (please note that the chancre can be painful if it develops a secondary infection), the chancre will heal spontaneously.
- The ulcers associated with chancroid begin as papules that go on to ulcerate. The ulcers are characteristically deep and ragged with a purulent, yellow-gray base, and an undermined, violaceous border.

4-EXAMINATION RELATED TO ANOGENITAL WARTS:

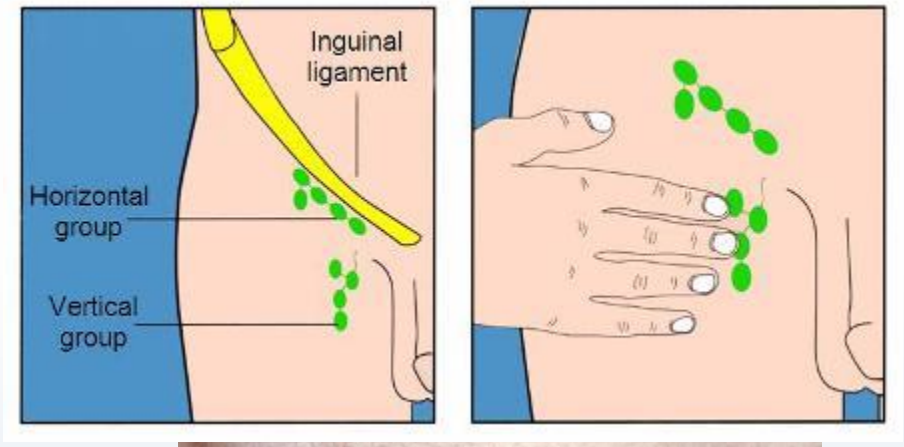
- Anogenital warts can be single or multiple.
- The shape can be flat, dome-shaped, pedunculated amongst other various shapes.
- The surface can be smooth, verrucous, or lobulated.
- The color can be white, erythematous, skin colored, violaceous, brown or hyperpigmented.
- They are usually soft to palpation and can range in the diameter from 1mm to several centimeters.

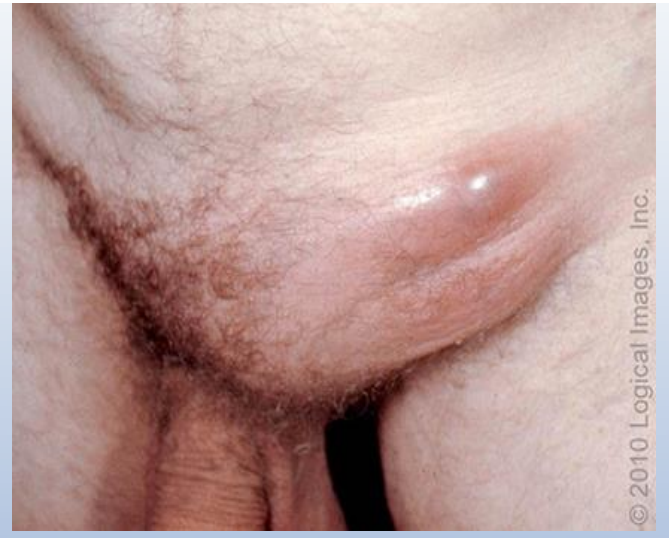




5-EXAMINATION OF THE LYMPH NODE:

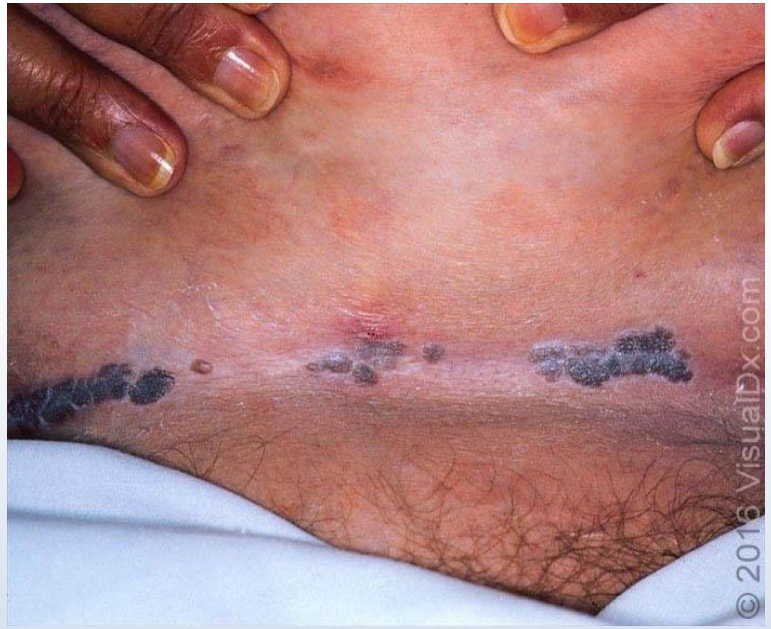
- You should examine the inguinal lymph nodes for lymphadenopathy and tenderness.
- Inguinal lymphadenopathy is commonly seen in patients with infectious causes of genital ulcers.
- The lymph nodes are **often tender** in patients with HSV, chancroid, and LGV.
- **Rubbery, non-tender nodes** are often seen in late primary syphilis





What is the differential diagnosis of anogenital warts?

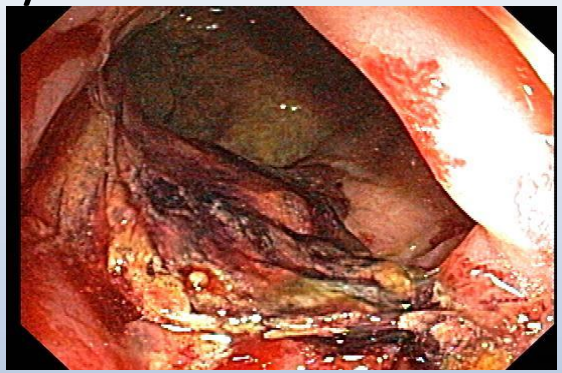
- Common benign papular cutaneous condition (seborrheic keratosis)
- STDs (Condyloma latum of secondary syphilis)
- Inflammatory conditions (papulosquamous lesions of lichen planus)
- Premalignant or malignant disorders (Bowenoid papulosis)

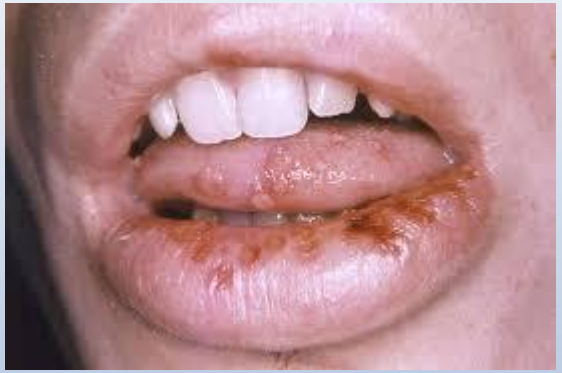


6-GENERAL EXAMINATION

- 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.

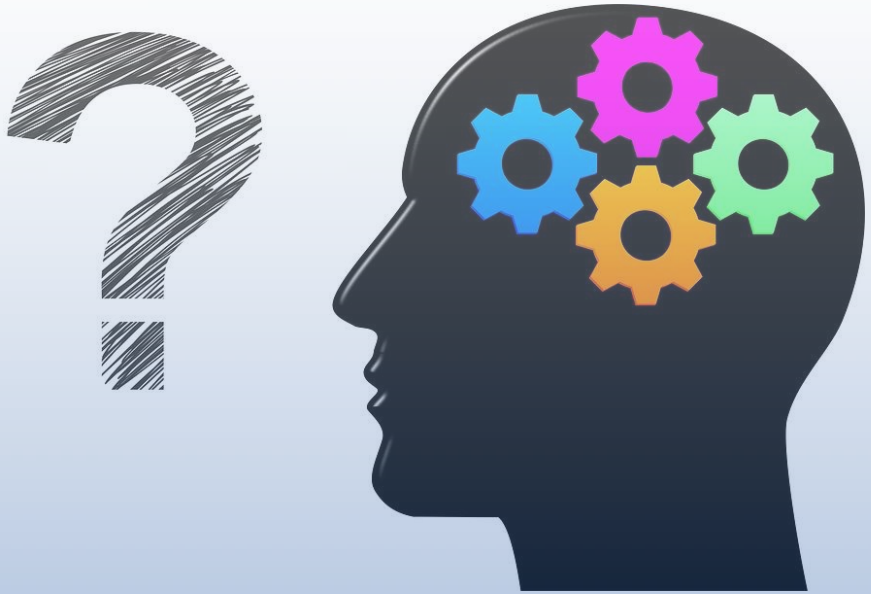
*if the patient is presenting with any of the three complaints you have to check him/her for the other two during examination.





Are history and physical examination enough to determine the etiology of a genital ulcer?

- No, because it may lead to a false diagnosis and treatment.
- The symptoms, signs and appearance my vary due to individual pathogens and a presence of a coinfection.
- Immunocompromised patients may have atypical presentations, such as a widespread and severe disease.



Investigations

What should be your general approach to testing in a patient with a genital ulcer?

- Patients should be tested for common STIs regardless of the clinical presentation, Patients with an ulcerative sexually transmitted infection (STI) are at increased risk for coinfection with other STIs.
- Thus, individuals should also be tested for HIV, gonorrhea, and chlamydia.
- Also, testing for hepatitis B and hepatitis C may also be considered.
- Some patients may have a known cause for their STI (e.g. they know the infection their partner has or have recurrent herpes simplex virus [HSV] infection).
- For such patients, we still test for other common STIs because more than one infection may be present.

What if initial testing for STI causes of genital ulcer came back negative?

If initial testing for STIs is negative:

- test for non-sexually transmitted infections and noninfectious causes.

What should be included in the baseline testing of a patient with a genital ulcer or urethral/vaginal discharge?

- Patients who present with **genital ulcers** should undergo testing for common causes of genital ulcers, such as HSV 1&2 and syphilis.
- Patients who present with **urethral/vaginal** or endocervical discharge should undergo testing for common causes of urethritis/vaginitis or cervicitis such as chlamydia and gonorrhea.
- As well as other STIs (e.g. HIV, hepatitis B, and hepatitis C).

What tests can you order for a patient presenting with urethral/vaginal discharge?

1- Gram stain and culture of urethral (men), endocervical swab:

- The Gram stain should be examined for the presence of WBCs (specifically polymorphonuclear neutrophils [PMNs]) and any organisms:
  - The presence of PMNs without any visible organisms is consistent with NGU.
  - whereas gonococcal urethritis may be diagnosed by the demonstration of gram-negative intracellular or extracellular diplococci in the urethral exudate.
- A Gram stain has low sensitivity in women compared with men ?

What tests can you order for a patient presenting with urethral/vaginal discharge?

2- In men First-void or first-catch urine:

- First-void urine: the initial portion of the first urinary stream after awakening ?
- First-catch urine: the initial portion of any urinary stream. (ideally at least one hour after the previous micturition).

Cont.

Both can be examined using the following:

- Dipstick: positive leukocyte esterase (this is diagnostic of urethritis).
- microscopy: the presence of ≥10 WBC/hpf (this is diagnostic of urethritis).
- Nucleic acid amplification testing (NAAT) for identification of the causative organism:
  - Can detect: n. gonorrhea, chlamydia t., trichomonas vaginalis, Mycoplasma genitalium, and ureaplasma urealyticum
  - There are several ways of amplification including polymerase chain reaction (PCR), strand displacement assay (SDA), or transcription mediated assay (TMA).

What tests can you order for a patient presenting with urethral/vaginal discharge?

3- In women self- or clinician-collected vaginal swab or a clinician-collected endocervical swab or a urine sample (urine sample NAAT is less sensitive in women) can be examined using:

- Nucleic acid amplification testing (NAAT) for identification of the causative organism.

Why is it important to identify the organism causing the urethral/vaginal discharge?

- For accurate diagnosis and notification to ministry of health in order to monitor the epidemiology of STIs.
- For partner treatment.

What tests can you order to diagnose herpes simplex 1 or 2?

1-The lesion should be swabbed and directly tested for HSV.

- Nucleic acid amplification methods (NAATs), including polymerase chain reaction (PCR) assays, are now commercially available and are the test of choice, as they have a higher sensitivity than culture or direct immunofluorescent antibody testing.

2-If HSV PCR is not available:

- A viral culture of the base of the ulcer can be obtained.
- If a vesicle is present, vesicular fluid is preferred because of its higher diagnostic yield.

What are the types tests done to screen for or diagnose syphilis?

There are Direct methods and serological tests:

- Direct methods:
  - such as Darkfield microscopy and direct fluorescent antibody (DFA) testing.
  - They are not routinely available in clinical settings because these methods require special equipment to perform the test, as well as considerable experience and expertise to properly interpret the results.

Cont.

- Serological tests which are divided into:

1-Nontreponemal tests:

- rapid plasma reagin (RPR) test and the Venereal Disease Research Laboratory (VDRL) test.

2-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:

  Are based on the detection of treponemal antibody—the antibody that attacks T. pallidum, the spirochete that causes syphilis—in the blood.

In a patient with a suspected primary syphilis (chancre) which type of test should I order and why?

- The definitive method for diagnosing syphilis is visualizing the *Treponema pallidum* bacterium via darkfield microscopy of a swab from the ulcer. (this technique is rarely performed today).
- Serologic testing to diagnose syphilis should include the use of both nontreponemal and treponemal tests.
  - Either type of test can be used as the initial screening test (please note that treponemal tests Becomes reactive earlier in primary syphilis than nontreponemal tests).
  - Confirmatory testing using the other type is necessary due to the potential for a false positive screening test result.
- **In other words if you use nontreponemal for screening, confirm with treponemal and vice versa.**

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.

What if both nontreponemal and treponemal tests came back negative in a patient suspected to have primary syphilis?

- If there is a high clinical suspicion for primary syphilis, treat the patient and repeat serologic testing at a later time point (e.g. two to four weeks later) in order to confirm the diagnosis.

stage	symptoms	occurrence
primary	chancre (painless ulcer), regional lymphadenopathy	7 to 90, median is 21 days
secondary	rash and flu-like symptoms, meningitis, headache, uveitis, retinitis, condyloma lata, mucus lesions, alopecia if primary syphilis is untreated 25% will develop 2ry syphilis.	• 2 weeks to 3 months following exposure • 1-8 weeks following resolution of chancre (primary syphilis)
Latent	asymptomatic	Occur any time between 2ry and 3ry syphilis
Tertiary	neurologic, cardiovascular, and other complications 25-40% of untreated patients with syphilis will develop 3ry syphilis.	may appear at any time from 1 to 30 years after primary infection

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 fourfold or greater increase from the last nontreponemal test titer.

Latent syphilis is classified into 2 types, what are they and what is the difference between them?

- Early latent syphilis:
  - Asymptomatic syphilis acquired within preceding year
  - Infectious
- Late latent syphilis
  - Asymptomatic phase of syphilis acquired > 1 year previously
  - Not thought to be infectious

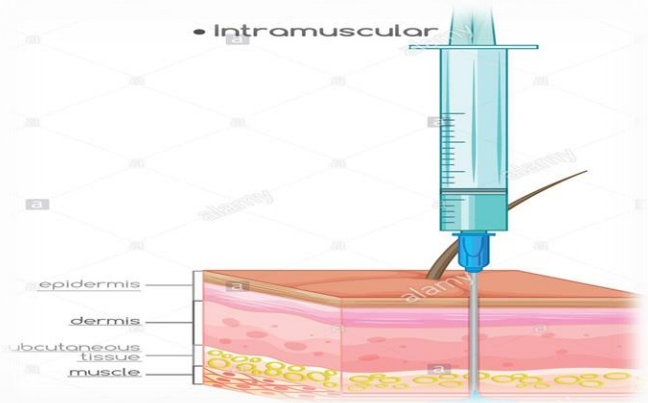
I am not sure from history and clinical examination that the wart is caused by HPV, what should I do to confirm the diagnosis?

- Excise the wart and biopsy it to confirm the diagnosis and rule out malignancy

- Women with reproductive potential and an STI should undergo pregnancy testing.

TREATMENT OF SEXUAL TRANSMITTED INFECTION

TREATMENT FOR STI CAUSING URETHRITIS/VAGINITIS OR CERVICITIS



Gonococcal infections:

Dual therapy:

Ceftriaxone:

- For gonococcal infection
- Intramuscular
- Single dose
- 250 mg

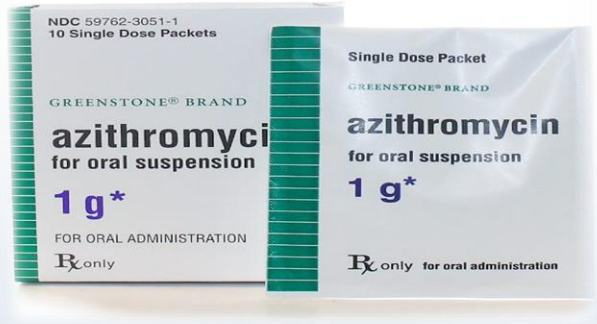
Azithromycin:

- For treatment of potential chlamydia coinfection and for possible additional activity against N.Gonorrhea
- Oral
- Single dose
- 1 gram

TREATMENT FOR STI CAUSING URETHRITIS/VAGINITIS OR CERVICITIS

Non-Gonococcal infections:

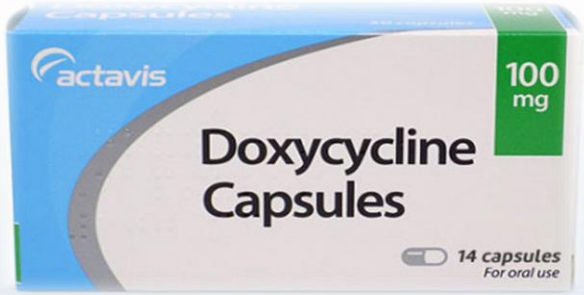
Targeted against C. trachomatis as the most likely pathogen



Azithromycin:

- Oral
- Single dose
- 1 gram

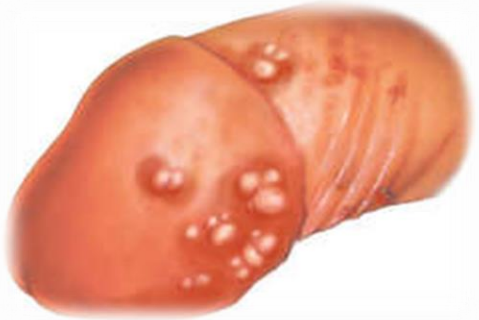
OR



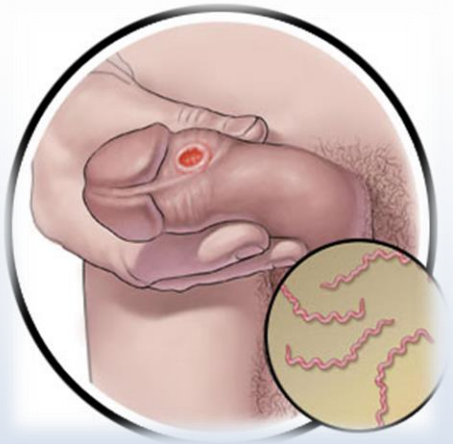
Doxycycline:

- Oral
- Twice daily for 7 days
- 100 mg

EMPIRICAL TREATMENT FOR GENITAL ULCER IF:



- ❖A known exposure to an STI
- ❖Genital ulcers suggestive of HSV (multiple or panful ulcer)
- ❖Genital ulcers suggestive of syphilis (single or painless ulcer) in patients who are at high risk for infection such as:



- ➢ Sexually active men who have sex with men (MSM)
- ➢ Commercial sex workers
- ➢ Individuals who exchange sex for drugs
- ➢ HIV patients

Infection	Medication	Dose	Frequency	Duration	Route	Note
Syphilis	penicillin G benzathine	2.4 million units	One dose		IM	-Don't forget to order serological tests prior to giving therapy,use nontreponemal tests to follow up response.
HSV 1&2	acyclovir	400 mg	three times daily	7-10 days	Oral	-Ideally antiviral therapy should be started ASAP after lesion appearance & within 72 hours. -Antivirals will decrease duration and severity of symptoms.
	famciclovir	250 mg	three times daily			
	valacyclovir	1000 mg	twice daily			

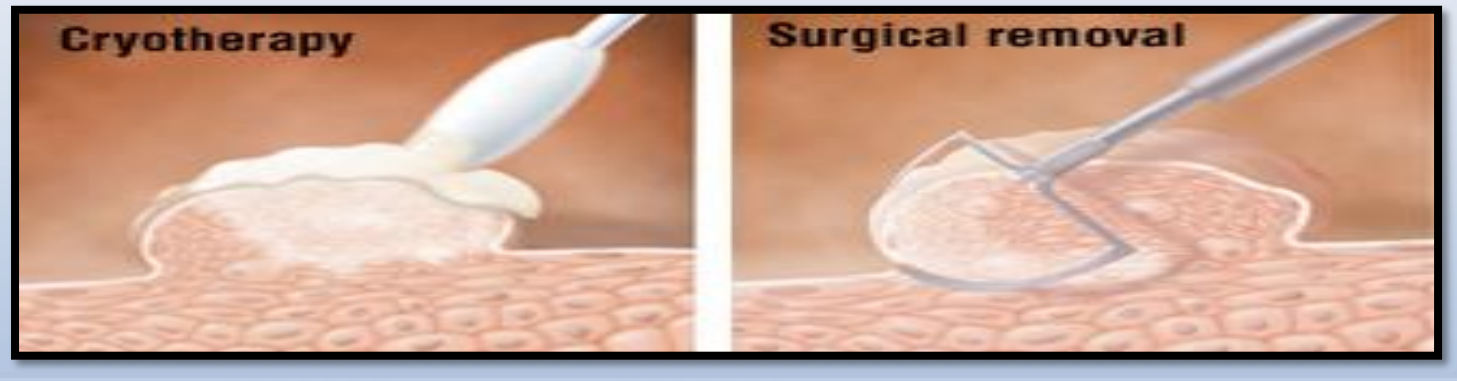
TREATMENT OPTIONS FOR ANOGENITAL WARTS

❖First-line patient-applied therapies include:

- Topical Imiquimod.
- Topical Podophyllotoxin

❖First-line clinician-administered therapies include:

- Cryotherapy
- Surgical removal (excision, electrosurgery,or laser)



How long should a patient treated or suspected to have an STI abstain from sexual activity?

- All patients should be advised to refrain from sexual activity while awaiting test results and, if empiric therapy was initiated, for at least 7 days after both the patient and his/her partner are treated.

What should be included in your counseling to a patient with an STI?

- Counseling regarding partner/contact testing and treatment.
- if the patient was exposed to an STI during an extramarital relationship, he/she should be advised to avoid extramarital sexual activity.

PREVENTION

Behavior:

- Abstinence: it is the only way to avoid STIs 100%.
- Condom use: reduce STI transmission significantly but not 100% effective.
- Avoiding alcohol and illicit drug use: these affects mental status and might lead to risky sexual practices.
- Avoid suspicious places during travel, massage parlors, night clubs, sex workers…etc.

PREVENTION

Vaccines:

- Hepatitis A & B.
- HPV vaccine.

PREVENTION

Instruction:

Avoid sexual contact at least for 7 days after starting treatment and until symptoms have resolved.

Retesting:

Repeat testing to confirm cure is recommended for all pregnant women with an STI.

PARTNER MANAGEMENT

1. All individuals who have had sexual contact with patients diagnosed with **N. gonorrhoeae** or **C. trachomatis** within the 60 days prior to the diagnosis should be evaluated and treated.
2. Contacts of a patient with **primary syphilis** within the preceding 90 days, even if their serologic test for syphilis is negative.
3. Contacts of a patient with **chancroid** within the preceding 10 days.
4. No need to empirically treat contacts of patients with genital herpes simplex virus (**HSV**) but:
   - should be counseled and educated about the symptoms and presentation of HSV
   - And can be offered Type-specific antibody testing (IgM & IgG) to assess their HSV status and potential risk for HSV transmission.

FOLLOW UP

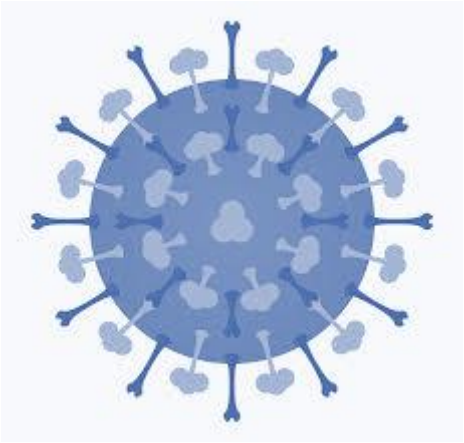
Scheduled within 1 week of the initial visit to check for:

- Resolution of symptoms
- Results of tests.

Common complications of common STIs:

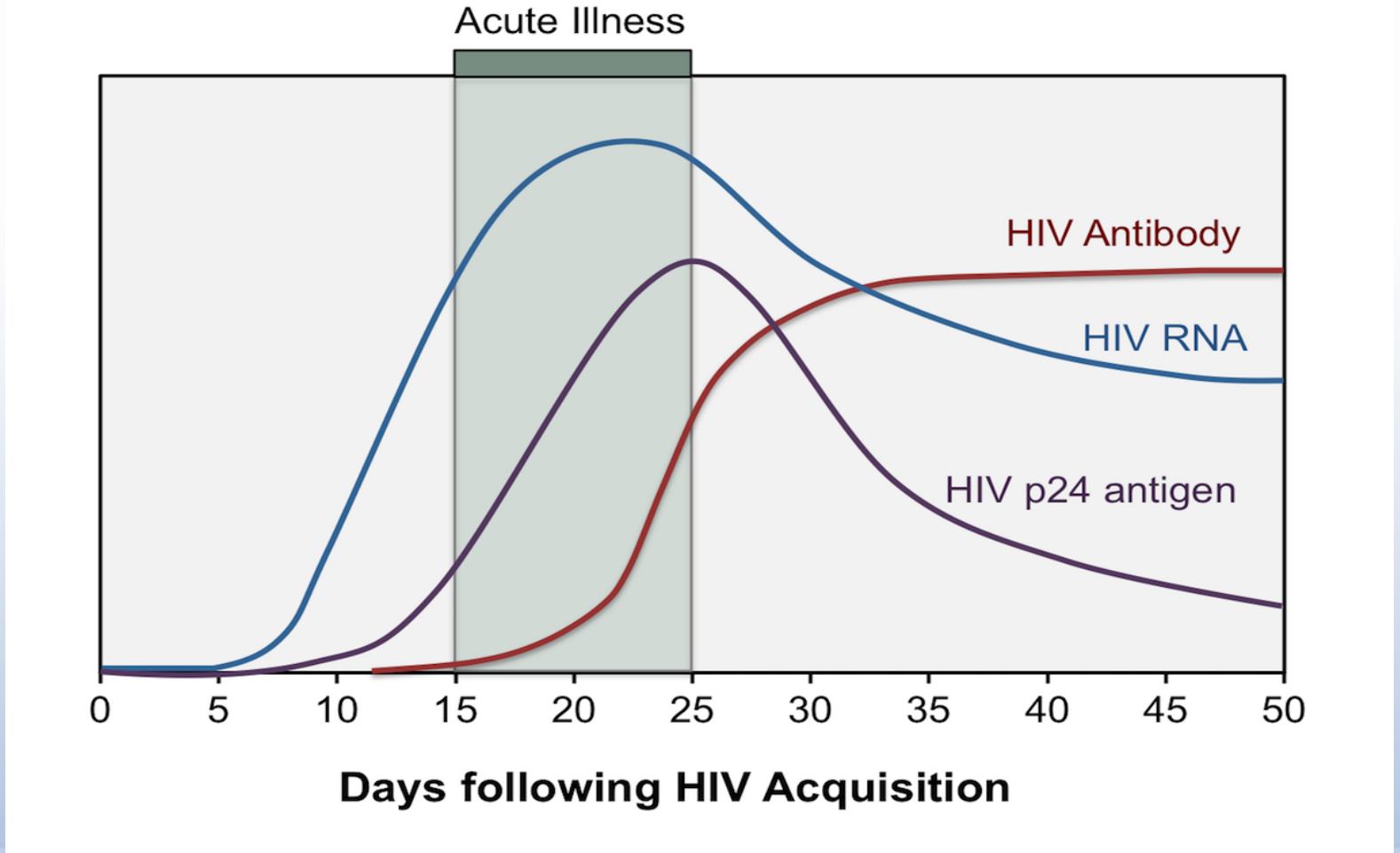
Infection	Gender	Complications
Chlamydia and gonorrhea	Men	urethral strictures, epididymitis, infertility.
	Women	Pelvic inflammatory disease (PID), infertility, ectopic pregnancy, perinatal infection, chronic pelvic pain.
	Both	reactive arthritis or Reiter syndrome (arthritis, uveitis, and urethritis), increased risk of acquiring and transmitting HIV.
Genital Herpes (HSV-1 and -2)	Both	Recurrent episodes, vertical transmission to the baby during delivery, increased risk of acquiring and transmitting HIV.
Syphilis	Both	2ry, latent, & 3ry syphilis, congenital syphilis (mother to baby transmission), increased risk of acquiring and transmitting HIV.
HPV	Women	Cervical, vulvar, and vaginal cancer.
	Men	Penile cancer.
	Both	Rectal cancer.

HIV & Hepatitis B



Natural History of HIV

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



Indications for Testing

1. In KSA it is part of pre-marital screening and some pre-employment screening (for example Health care providers)
2. In case of suspected exposure and a symptomatic manifestations of an early HIV infection (fever, lymphadenopathy, sore throat, rash, myalgia/arthralgia, diarrhea, weight loss, and headache) also called (**retroviral syndrome**):
   - perform the most sensitive screening immunoassay available (ideally, a combination antigen/antibody immunoassay) in addition to an HIV virologic (viral load) test using PCR.
3. In case of suspected exposure and no symptoms (this is the common scenario).

HIV Testing

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

- initial screening test (3rd generation antibody test):
  - enzyme linked immunosorbent assay (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%

	Enzyme linked Immunoassay (3rd or 4th gen)	confirmatory test (western blot or line immunoassay)	viral load	interpretation
Scenario 1	Negative	No need	No need if the patient is asymptomatic	HIV negative
Scenario 2	Positive	Negative or intermediate	Negative	If the patient is at low risk for HIV: ➢ reassure that HIV infection is very unlikely. if the patient is not at low risk or you are not sure about his risk level ➢ repeat viral load after 1-2 weeks
Scenario 3	Positive	Negative or intermediate	Weakly positive (RNA level <1000 copies/mL)	• may rarely represent a false positive viral test • the viral load test should be immediately repeated on a new blood specimen
Scenario 4	Positive	Negative or intermediate	Positive	HIV positive
Scenario 5	Positive	Positive	Not needed for diagnosis	HIV positive

Rapid HIV screening tests:

- Designed to provide results in less than 20 minutes.
- Although these tests can be performed in the laboratory (using serum or plasma), they can also be performed in community-based settings supervised by trained personnel, or at home, using whole blood or oral secretions.
- The accuracy of most rapid tests is quite high (>99% sensitivity and specificity) for patients with **chronic infection**.
- In one study, rapid antibody tests missed approximately 12 percent of **acute HIV infections**.
- In addition, testing on oral fluids appears to be **less sensitive** than testing on finger stick blood samples.

Managing a patient with a positive HIV screening test:

1. Breaking bad news.
2. MOH notification.
3. Referral to infectious diseases specialist.
4. Screening of sexual contacts and family member.

Hepatitis B

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.

a) If the partner is immune:
   - they can have normal sexual intercourse without need for condom.

b) 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.

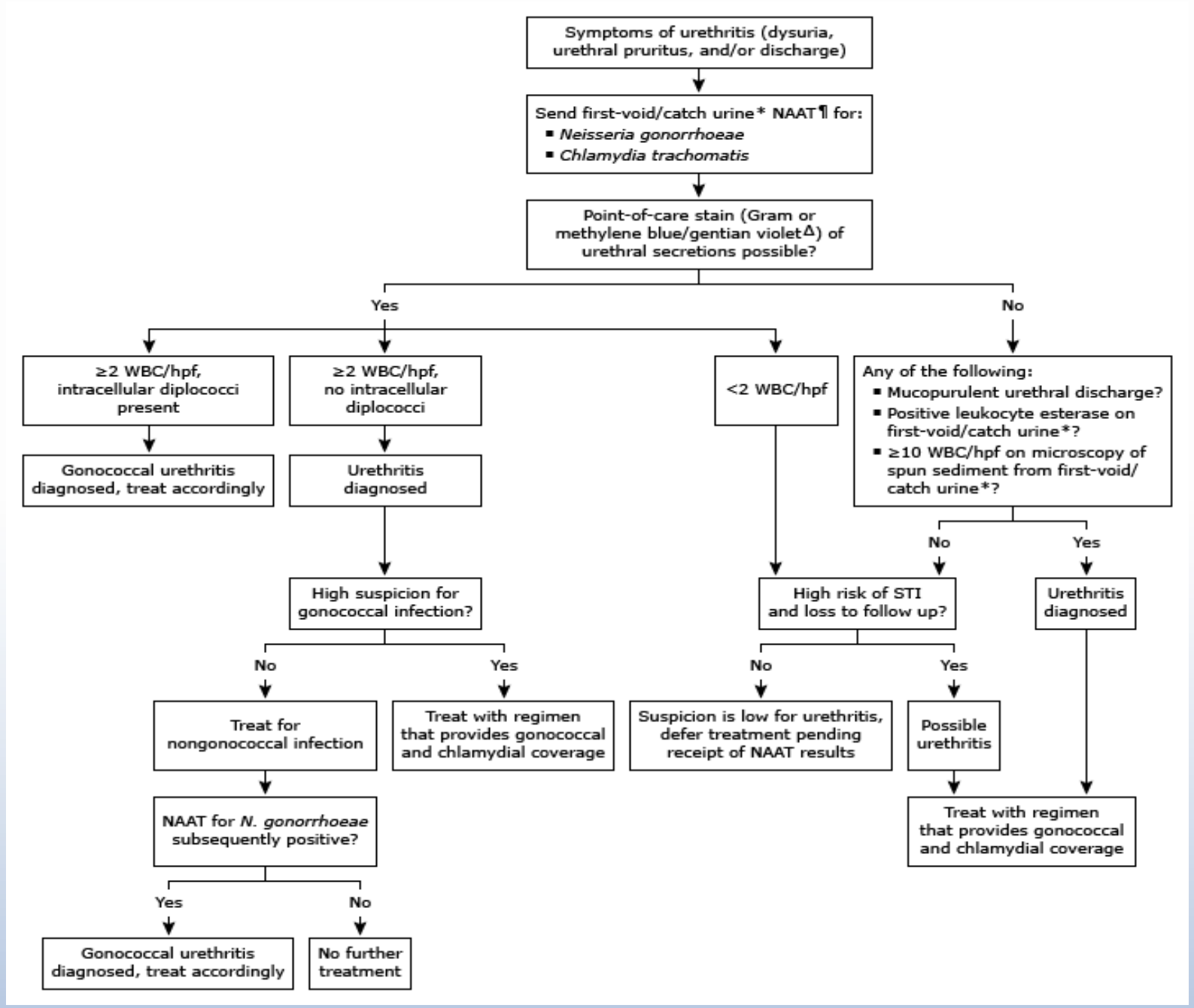
Hepatitis B

When can we say the patient is immune after vaccination?

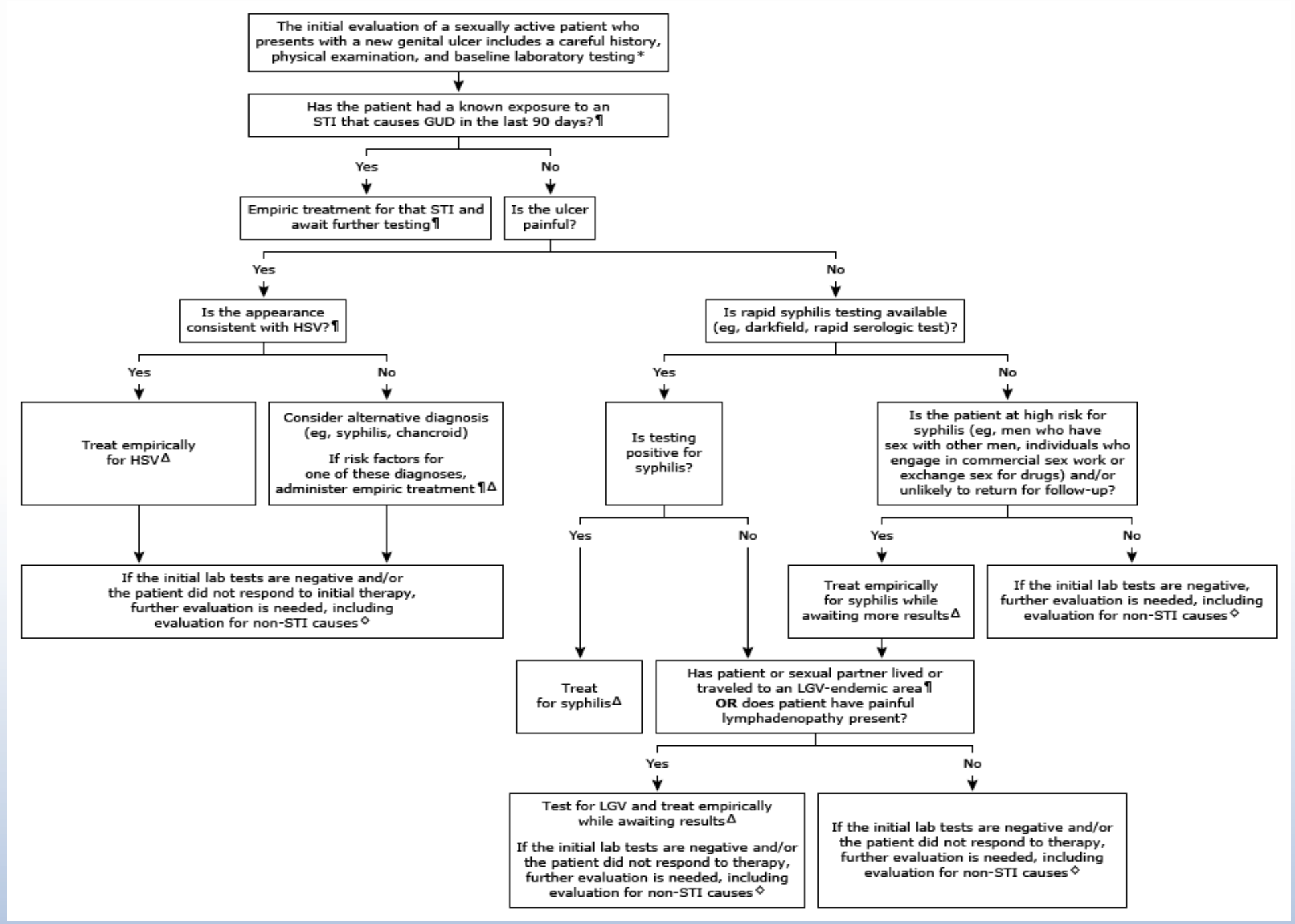
- anti-HBs ≥10 milli-international units/mL

❖**<u>When an STI is detected in a child, evaluation for sexual abuse is mandatory.</u>**

Approach to a male patient with suspected urethritis


Symptoms of urethritis (dysuria, urethral pruritus, and/or discharge)
Send first-void/catch urine* NAAT¶ for:
Neisseria gonorrhoeae
Chlamydia trachomatis
Point-of-care stain (Gram or methylene blue/gentian violetΔ) of urethral secretions possible?
Yes
No
≥2 WBC/hpf, intracellular diplococci present
≥2 WBC/hpf, no intracellular diplococci
<2 WBC/hpf
Any of the following:
Mucopurulent urethral discharge?
Positive leukocyte esterase on first-void/catch urine*?
≥10 WBC/hpf on microscopy of spun sediment from first-void/ catch urine*?
Gonococcal urethritis diagnosed, treat accordingly
Urethritis diagnosed
High suspicion for gonococcal infection?
No
Yes
Treat for nongonococcal infection
Treat with regimen that provides gonococcal and chlamydial coverage
NAAT for N. gonorrhoeae subsequently positive?
Yes
No
Gonococcal urethritis diagnosed, treat accordingly
No further treatment
High risk of STI and loss to follow up?
No
Yes
Suspicion is low for urethritis, defer treatment pending receipt of NAAT results
Possible urethritis
Urethritis diagnosed
Treat with regimen that provides gonococcal and chlamydial coverage

Approach to a patient with a genital ulcer


The initial evaluation of a sexually active patient who presents with a new genital ulcer includes a careful history, physical examination, and baseline laboratory testing*
Has the patient had a known exposure to an STI that causes GUD in the last 90 days?¶
Yes
No
Empiric treatment for that STI and await further testing¶
Is the ulcer painful?
Yes
No
Is the appearance consistent with HSV?¶
Yes
No
Treat empirically for HSVΔ
Consider alternative diagnosis (eg, syphilis, chancroid)
If risk factors for one of these diagnoses, administer empiric treatment ¶Δ
If the initial lab tests are negative and/or the patient did not respond to initial therapy, further evaluation is needed, including evaluation for non-STI causes◇
Is rapid syphilis testing available (eg, darkfield, rapid serologic test)?
Yes
No
Is testing positive for syphilis?
Yes
No
Treat for syphilisΔ
Is the patient at high risk for syphilis (eg, men who have sex with other men, individuals who engage in commercial sex work or exchange sex for drugs) and/or unlikely to return for follow-up?
Yes
No
Treat empirically for syphilis while awaiting more resultsΔ
If the initial lab tests are negative, further evaluation is needed, including evaluation for non-STI causes◇
Has patient or sexual partner lived or traveled to an LGV-endemic area¶ OR does patient have painful lymphadenopathy present?
Yes
No
Test for LGV and treat empirically while awaiting resultsΔ
If the initial lab tests are negative and/or the patient did not respond to therapy, further evaluation is needed, including evaluation for non-STI causes◇
If the initial lab tests are negative and/or the patient did not respond to therapy, further evaluation is needed, including evaluation for non-STI causes◇

Role Play

Answers to Questions

Q1:What types of HPV that are detected in around 90% of anogenital warts?

a) HPV 6 and/or 11
b) HPV 16 and/or 18
c) HPV 1 and/or 2
d) HPV 7 and/or 10

Answers to Questions

Q2: A 20 y/o woman who reports unprotected sex with a new partner 2 weeks ago, develops fever and left lower quadrant abdominal pain with onset in association with her menstrual period. Neisseria gonorrhoeae is cultured for her endocervix. The diagnosis is gonococcal pelvic inflammatory disease.

What is the common complication of this infection?

a) Cancer of the cervix
b) Infertility
c) Urethral strictures
d) Vaginal-rectal fistula

Answers to Questions

Q3:Which ONE of the following is the most infectious phase of syphilis disease?

a) Latent phase.
b) Secondary phase.
c) Primary phase
d) Tertiary phase

Answers to Questions

Q4: Which of the following provides a 100% protection from STIs?

a) Avoiding alcohol and drugs
b) Condom
c) Abstinence from sexual activity
d) All of the above

Answers to Questions

Q5: A male patient, who was recently tested for HIV, came to check his results. The ELISA test for anti-HIV antibody and p24 antigen was positive.

What would be the best next step?

a) Reassure the patient.
b) Perform a confirmatory test (western blot) .
c) Check the viral load.
d) Repeat the same test.

Thank you

Reference

- A suggested approach to STIs for family physicians in KSA, prepared by Dr. Haytham AlSaif from the following resources: UpToDate, Dynamed, Toronto notes, CDC, WHO, and local studies.