SEXUALLY TRANSMITTED DISEASE (STDs)

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Sexually Transmitted Diseases (STDs)

➢ Sexually transmitted infections (STIs) are group of infections that are primarily transmitted via sexual intercourse and intimate physical contact.

➢ some of most common STIs include **HPV infection**, **chlamydia infection**,**gonorrhea**

➢ uretheral or vaginal discharge,painfull or painless genital lesions and pelvic pain are the most common presenting symptoms in symptomatic patients.

➢ In addition to treating the patient, simultaneous treatment of the partner is often necessary **to prevent recurrent infections**.

➢ Patients with an active STD have an increased risk of coinfection with additional STIs

STDs includes :

- Syphilis
- Herpes
- HIV/AIDs
- Genital Warts
- Hepatitis B
- Chlamydia
- Gonorrhea

Trichomonas vaginalis

1-Genital warts (Condyloma acuminatum) :

- The **Most common** sexually transmitted disease (STD)
- **Pathogen**: Human papillomȧ virus , commonly associated with HPV 6 and 11.
- **Appearance**: flat, papular, or pedunculated exophytic, cauliflower-like lesions.
- **Located** on any part of the anogenital mucosa (e.g., glans penis, vagina, cervix, anal canal) and/or perineal skin .
- **Clinical features** : Typically asymptomatic; occasionally cause pruritus or pain.
- **Diagnosis** : Primarily clinical

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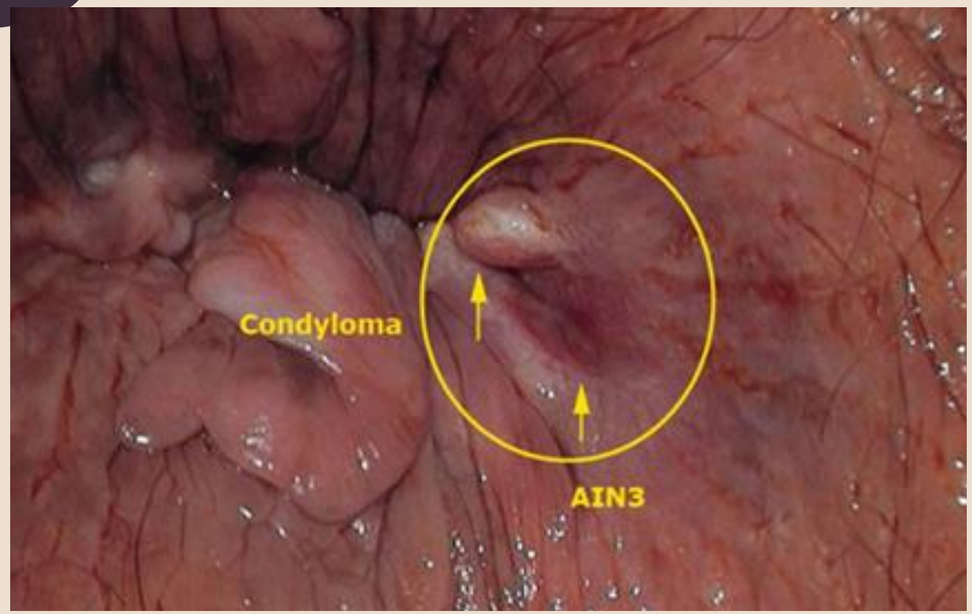
Condyloma acuminatum



• Treatment :

-The goal is the removal of the warts , it's not possible to eradicate the viral infection . Warts sometimes resolve without treatment within 1 year.

- First line is typically salicylic acid or cryotherapy (freezing with liquid nitrogen)

- For refractory warts, options include 5-FU , intralesional bleomycin , topical or intralesional immunotherapy , surgical therapy "curettage" , laser therapy and imiquimod

HPV prevention with HPV vaccine is the most effctive preventive measure.
HPV16&18 can lead to cervical cancer
(Pap smear is important)

2. CHLAMYDIA (GENITOURINARY)

- The most common bacterial sexually transmitted disease
- Pathogen: Chlamydia trachomatis serotypes D–K , it's an intracellular pathogen .
- The incubation period is 1 – 3 weeks.
- Clinical features : The majority of infected individuals are asymptomatic.

- Patients of any gender may present with urethritis (dysuria or polyuria) or proctitis .

-Female patient may additionally present with purulent vaginal discharge , abnormal uterine bleeding , postcoital bleeding , dyspareunia .

- Male patient may additionally present with epididymitis or prostatitis .

CHLAMYDIA

● Diagnosis :

- Preferred test: Nucleic Acid Amplification Test (NAAT)

- Other diagnostic tests: not routinely recommended; a culture may be preferred over NAAT in select circumstances.

● Treatment :

- Start antibiotic therapy (even if asymptomatic), e.g., doxycycline or azithromycin.

- Evaluate and treat sexual partners .

Doxycycline is contraindicated in pregnancy>pregnant shoud be treated with Azithromycin

CHLAMYDIA

- **Complication :**

  -In men : epidydmitis and proctitis.

  -In women : Pelvic Inflammatory Disease (PID) , Salpingitis, Tubo-ovarian abscess ,ectopic pregnancy and Fitz-Hugh Curtis Syndrome (fever, N/V, RUQ pain or Pleuritic chest pain).

  -Chlamydia is a leading cause of infertility due to tubal scarring.

3. GONORRHEA

- Pathogen : Neisseria gonorrhoeae (a gram-negative , intracellular diplococcal organism).
- The incubation period of 2–8 days
- Clinical features :

Men:

a. Gonorrhea is **asymptomatic** in up to **10%** of carriers

b. Most men have **symptoms involving the urethra** (anterior urethra is commonly infected,)—**for example :** purulent discharge, dysuria, erythema and edema of urethral meatus, and frequency of urination .

GONORRHEA

- **Women :**

a- Most women are asymptomatic or have few symptoms , about 80% of women who have gonorrhea are asymptomatic.

b- Women may have symptoms of cervicitis or urethritis—for example, purulent discharge, dysuria , intermenstrual bleeding, and dyspareunia, these symptoms are often due to additional infections, such as chlamydia, trichomoniasis or candidiasis, making full investigation essential .

c- Lower abdominal pain, dyspareunia and intermenstrual bleeding may be indicative of PID.

d- It may also involve the rectum and bartholin's gland

Gonorrhea

- **Diagnosis :**

- NAAT and/or culture are most commonly used to diagnose gonorrhea.

- **NAAT: Preferred test for diagnosis and screening due to higher sensitivityn compared to culture.**
- **SPECIMEN COLLECTION : Swab of an affected site or first-void urine**
- **Culture :Performed in combination with NAAT, and results take ~ 48 hours. Method:The swab is plated on Thayer-Martin agar .**

GONORRHEA

- **Gram stain :**
  - **Indication: can be used in place of NAAT for individuals with male genitalia who present with symptomatic urethritis**
  - **Specimen collection: swab of urethral discharge or secretions**
  - **Findings: polymorphonuclear leukocytes and intracellular gram-negative diplococci**
- **Treatment :**

1. Ceftriaxone (IM, one dose) is preferred because it is also effective against syphilis. Other options are oral cefixime, ciprofloxacin, or ofloxacin.

2. Also give azithromycin (one dose) or doxycycline (for 7 days) to cover coexistent chlamydial infection.

3. If disseminated, hospitalize the patient and initiate ceftriaxone (IV or IM for 7 days).

“Sexual partners must be treated simultaneously to avoid reinfections”

SYPHILIS

SYPHILIS :

¾ Treponema pallidum, a spirochete

¾Asystemic illnesswith fourstages,

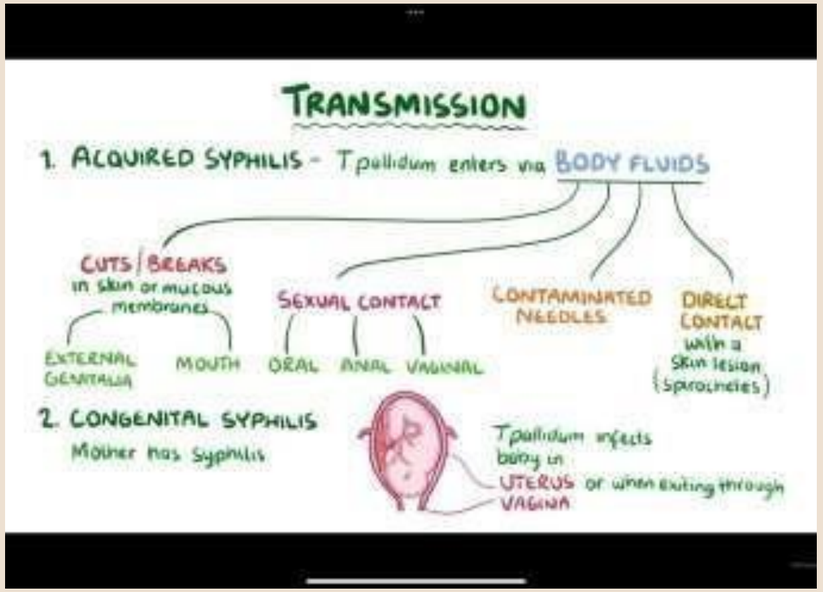
latestages can be prevented by early treatment.

¾ Clinically, most common presentations for syphilis include:

- Genital lesion (chancre)

- Inguinal lymphadenopathy

- Maculopapular rash of secondary syphilis



1. Primary stage

a.Chancre—a painless, crater-like lesion (indurated, painless ulcer with clean base). that appears on the genitalia 3 to 4 weeks after exposure

b. Heals in 14 weeks, even without therapy

c. Highly infectious—anyone who touches the lesion can transmit the infection

2. Secondary stage

a. This may develop 4 to 8 weeks after the chancre has maculopapular rash is the most healed. A characteristic finding in this stage

b. Other possible manifestations: flu-like illness, aseptic meningitis, hepatitis

c. Patients are contagious during this stage

d. About one-third of untreated patients with secondary syphilis develop latent syphilis

Chancre of primary syphilis

Maculopapular rash in secondary syphilis

Condylomata lata in secondary syphilis

3 Latent stage

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- Latent stage is defined as the presence of positive serologic test results in the absence of clinical signs or symptoms.
- It is called early latent syphilis if serology has been positive for less than 1yr.

  During this time, the patient may relapse back tothe secondary phase.
- It is called late latent syphilis if serology has been positive more than 1 year. Patients are not contagious during this time

4.Tertiary stage

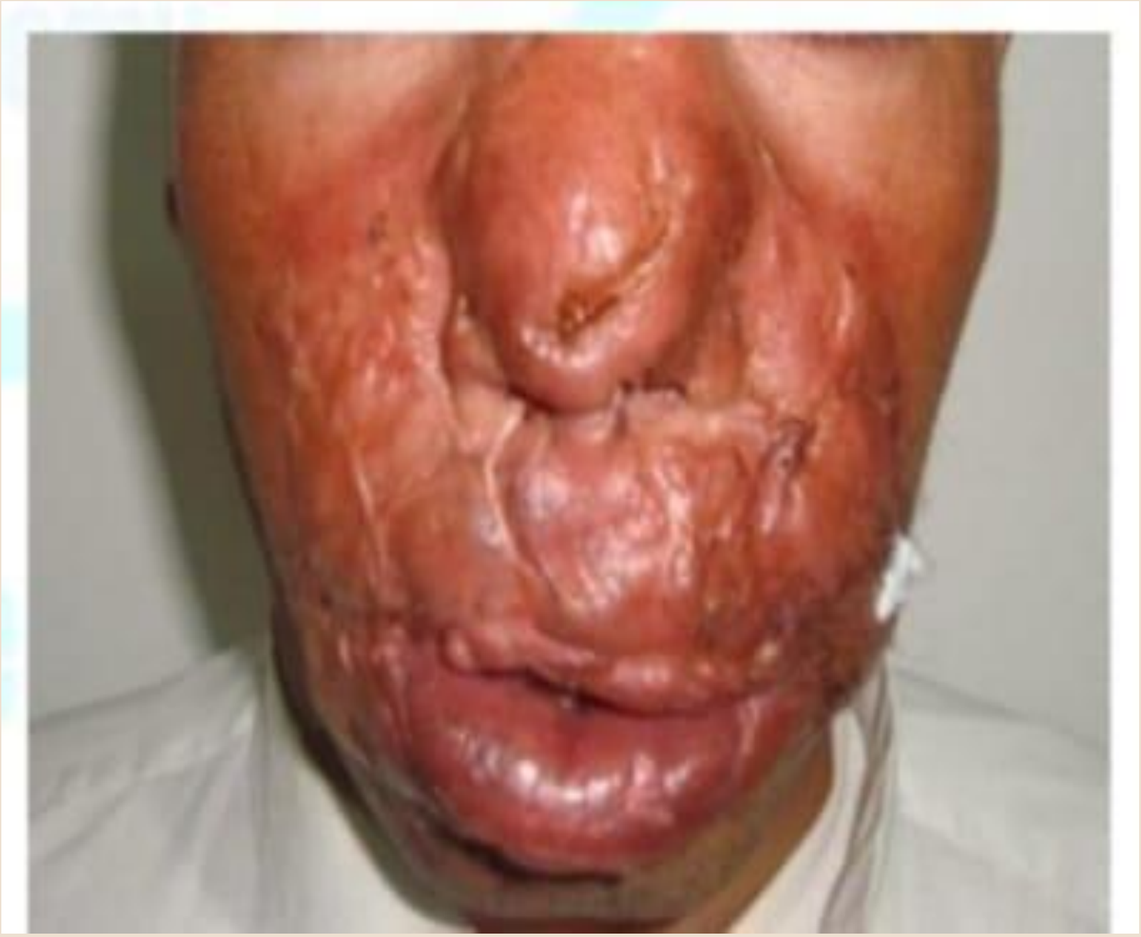
a. One-third of untreated syphilis patients in the latent phase enter this stage b. It occurs years after the development of the primary infection (up to 40 years later)

c. Major manifestations include: cardiovascular syphilis, neurosyphilis, and gummas (subcutaneous granulomas)

d. Neurosyphilis is characterized by dementia, personality changes, and tabes dorsalis (posterior column degeneration)

e. It is very rare nowadays due to treatment with penicillin

Gumma : Chronic, destructive granulomatous lesions with a necrotic center that tend toulcerate .• May affect any organ, e.g., skin, internalorgans, bones.



Diagnosis:

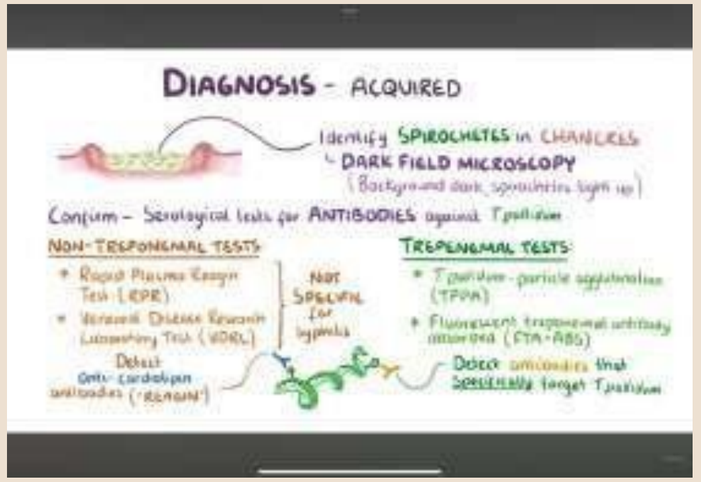
1.Dark-field microscopy(definitive diagnostic test)—examinesasample of the cancre with visualization of spirochetes.May be required in patients presenting with chancre because serology might not be positive yet.

2. Serologic tests (most commonly used tests).

a. Nontreponemal tests—RPR, VDRL (most commonly used).

• High sensitivity—ideal for screening. • Specificity is only around 70%. If positive, confirmation is necessary with the specific treponemal tests.

¾I False positive in SLE



b.Treponemal tests—FTA-ABS,MHA-TP.

• More specificthan nontreponemal tests

• Not for screening, just for confirmation of a positive nontreponemal test.

3. All patients should be tested for HIV infection.

Darkfield micrograph of Treponema pallidum.

Treatment :

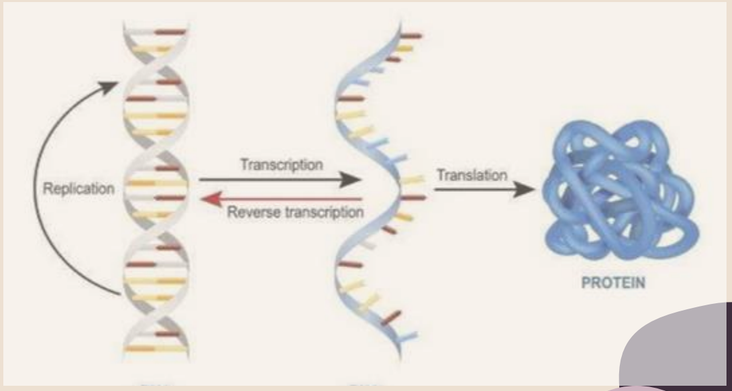
- Antibiotics are effective in early syphilis but less so in late syphilis.
- Benzathine penicillin is the preferred agent If the patient is allergic to
- penicillin, use doxycycline, tetracycline.

HIV INFECTION

HIV

Human Immunodeficiency Virus

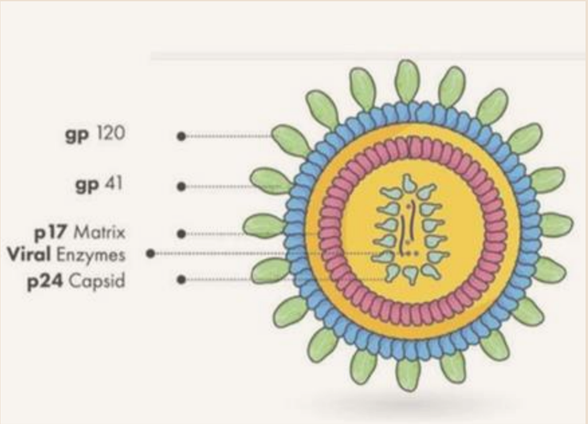
- Sexually-transmitted infection
- RNA retrovirus
- Uses reverse transcriptase: RNA → DNA → more virus
- Infects CD4+ T-cells and macrophages
- Acquired immunodeficiency syndrome (AIDS)
- Susceptibility to unique opportunistic infections



HIV

Viral anatomy

- Protein core (capsid) surrounded by lipid envelope
- Viral p24 protein: major capsid protein
- Viral p17 protein: matrix protein
- Virus gp120 envelope protein
- Binds CD4 protein on T cells or macrophages
- Virus gp41 protein
- Mediates fusion of viral envelope with cell membrane
- Allows virus to enter cells



HIV

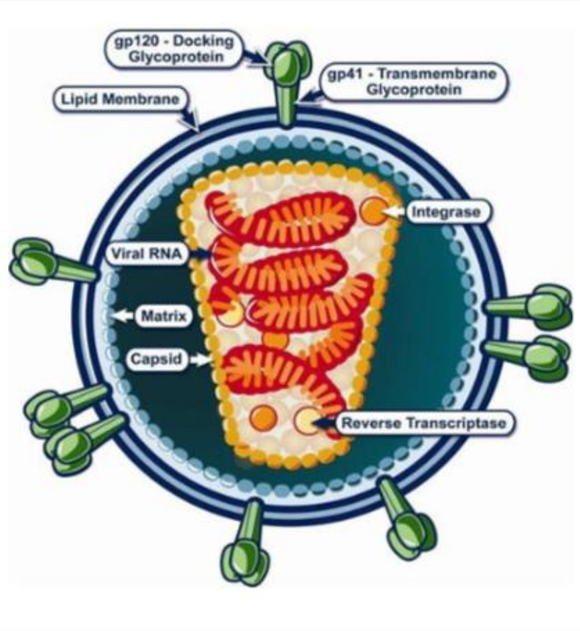
Human cellular targets

- Virus initially infects macrophages after exposure
- Binds to CCR5 on macrophages
- Used by HIV to enter cells
- Later infects CD4+ T-cells

HIV

Key viral enzymes

- Reverse transcriptase: makes DNA from RNA
- Aspartate protease: cleaves proteins
- Integrase: integrate HIV DNA into host cell DNA

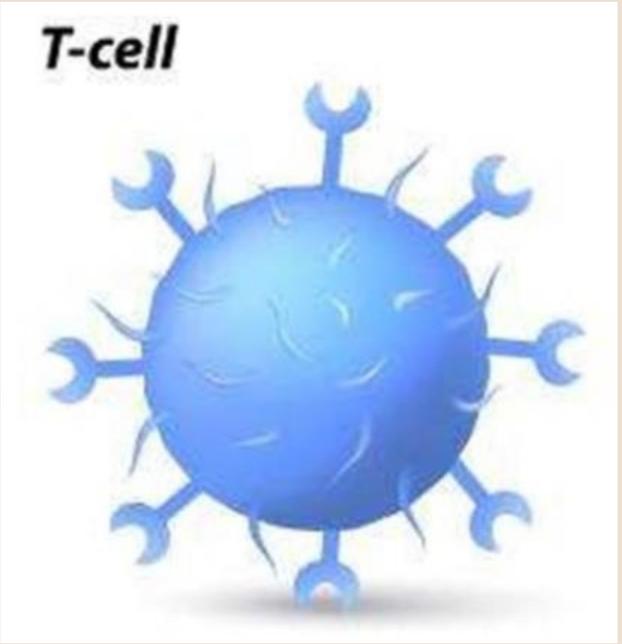


Transmission

- Sexual contact
- Higher risk of acquisition among uncircumcised males
- Exposure to contaminated blood
- Blood transfusion
- Shared needles
- Needle stick
- Perinatal transmission
- HIV mother → baby
- Higher viral load in source patient = ↑ risk transmission

HIV Markers of disease progression

- CD4+ T-cell count
- Determined by flow cytometry
- Normal ~1000 cells/mm3
- AIDS < 200
- Viral load
- Determined by RT-PCR testing
- Quantification of HIV RNA



AHIV

Clinical features

Acute HIV infection

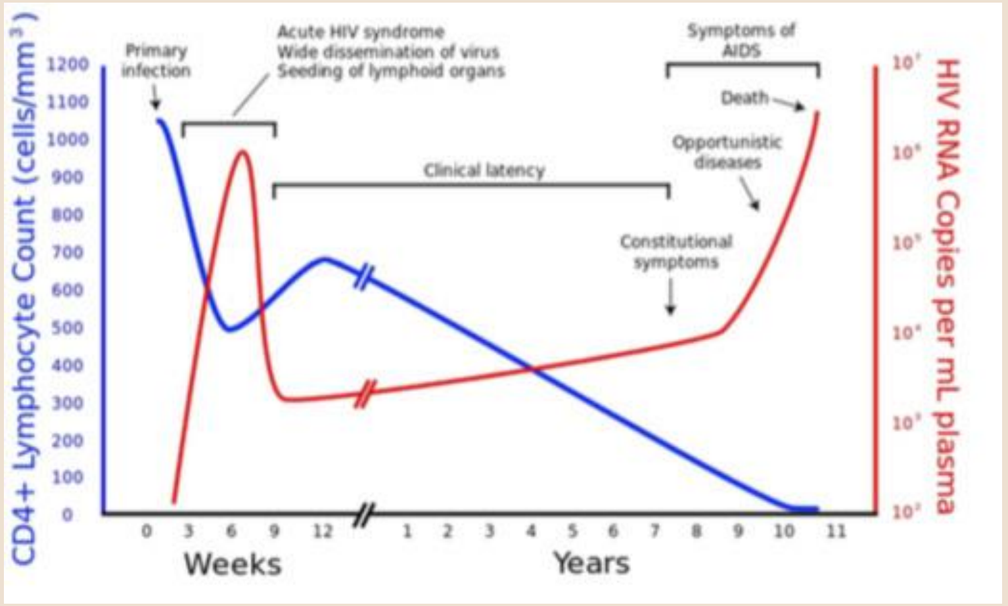
- Shortly after exposure
- Rapid increase in viral RNA

Chronic HIV infection

- Slowly decreasing T cell count
- Lasts many years

AIDS

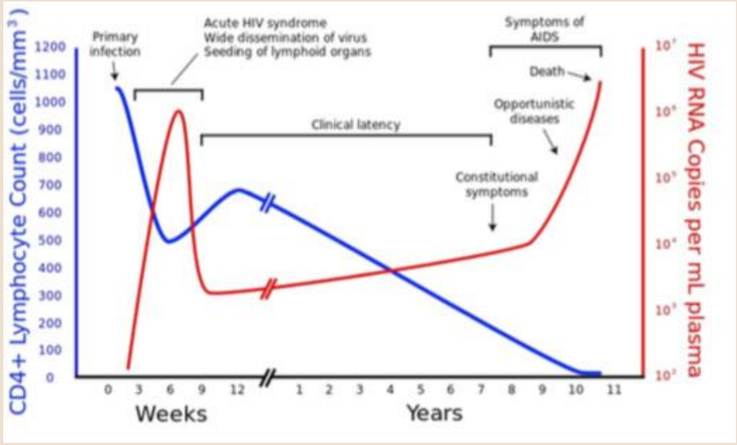
- Acquired immunodeficiency syndrome



HIV

Acute infection

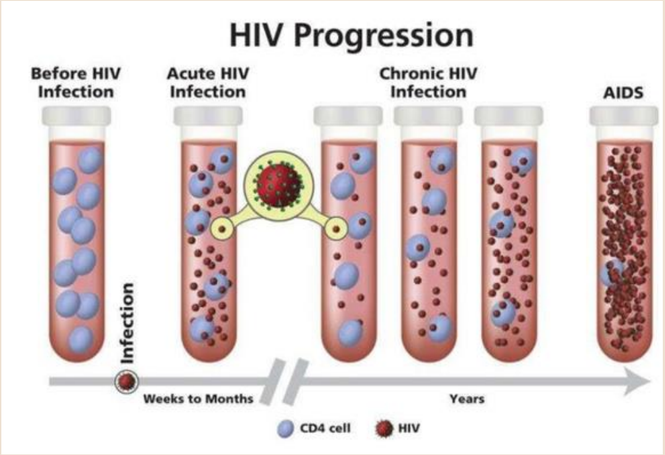
- Initial infection asymptomatic 10 to 60% cases
- Acute HIV syndrome
- 2 to 4 weeks after exposure
- Fever, myalgias, sore throat, cervical lymphadenopathy
- Sometimes maculopapular rash



HIV

Chronic infection

- Viral load stabilizes
- Slowly falling CD4+ T-cell count
- Lasts about 8 to 10 years without treatment
- Possible persistent diffuse lymphadenopathy
- Some patients have fatigue, malaise
- Candida infections may occur (thrush, vaginitis)
- Seborrheic dermatitis common



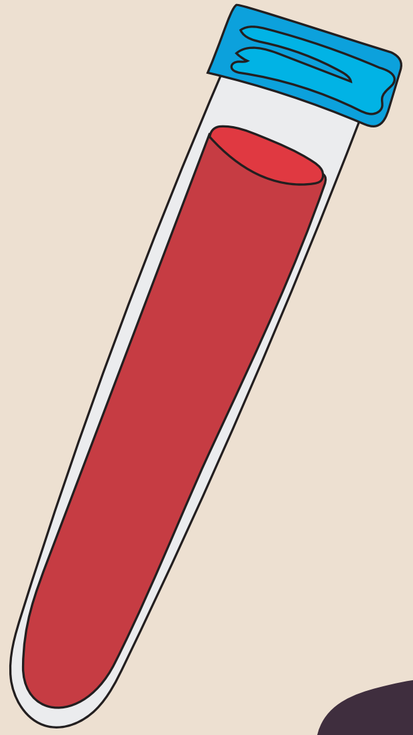
AIDS

Acquired immunodeficiency syndrome

- **Severe immunosuppression**
- **Average time of 8 years from exposure**
- **CD4 < 200 cells/microL or AIDS-defining infection**
- **Clinical features due to opportunistic infections**
- **More common or more severe among patients with advanced HIV**
- **Pneumocystis pneumonia**
- **Cryptococcal meningitis**
- **Toxoplasmosis**
- **Many others**

HIV Diagnosis

- Combination antigen/antibody test
- “4th generation test”
- Identifies p24 antigen and anti-HIV antibodies
- Result is “positive” if antigen or antibodies identified
- Can identify virus ~ 2 weeks after infection
- HIV1-HIV2 antibody differentiation assay
- Confirmatory test after positive combination test
- HIV-1: more prevalent, found worldwide
- HIV-2: mostly confined to West Africa
- Early HIV: combination test plus viral load



HIV Diagnosis

Perinatal HIV

- Maternal HIV antibodies → newborn
- Antibody-based tests will be positive
- HIV virologic tests used
- Detect HIV RNA or DNA
- “Nucleic acid tests” or NATs

treatment

¾ HIV treatment protocols change frequently.

¾ Antiretroviral therapy: antiretroviral drugs are grouped into-

A)Nucleoside Reverse Transcriptase Inhibitors (NRTIs):A

- Zidovudine, Zalcitabine, Lamivudine, Stavudine.

B) Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs):

- Delavirdine, Nevirapine, Efavirenz.

C) Protease Inhibitors (PI):

- Indinavir, saquinavir, Ritonavir

D) Fusion inhibitor:

- Enfuvirtide

E) Integrase inhibitor:

- Raltegravir

¾The combinations of these drugs are effective in increasing CD4 counts and
reducing viral load.

¾combination therapy is known by the acronym HAART (Highly Active Antiretroviral Therap

ANY QUESTIONS ?