

Sexually Transmitted Diseases

(6)

STD → More than 20 different infections are transmitted through the exchange of body fluids like semen & blood.

- They are also called as venereal diseases.

Ex: syphilis, Gonorrhoea, lymphogranuloma venereum

Viral infections such as Hepatitis B, AIDS are also sexually transmitted.

Gonorrhoea is a highly contagious sexually transmitted disease caused by bacterium *Neisseria gonorrhoeae*.

Mucous membrane of genital region may inflame and develop symptoms -

Etiology : Caused by N. Gonorrhoea .

Gram -ve bacillus .

Can grow in warm moist areas of reproductive tract

<ul style="list-style-type: none"> → Cervix Uterus Fallopian tubes Urethra in men . 	}	Women
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Can also grow in the mouth

- Throat
- Eyes
- Anus .

Can be transmitted from Mother to baby through Normal delivery during birth .

- Causes blindness .
- Joint infection
- blood infection

Symptoms : Most of the women have NO symptoms .
If symptoms appear after 10 days of infection

They have

- pain during Micturition
- Vaginal discharge yellowish
- Pain during sex
- bleeding b/w menstrual cycles .

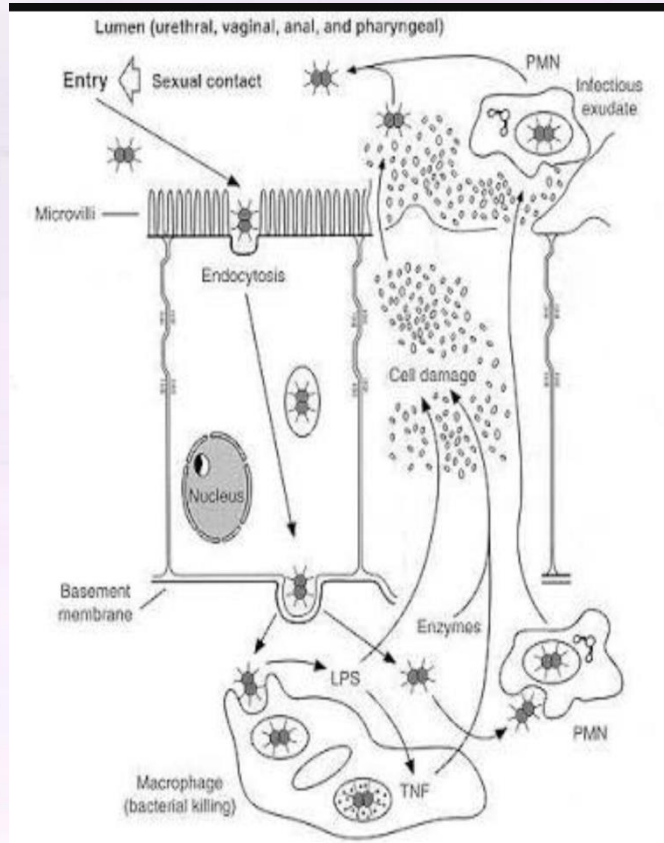
~~the~~ anal symptoms → Include
Itching around the anus

⑤
Soreness
bleeding
discharge

If eyes are involved
Symptoms include

⑧
Redness
Itching
Discharge from
eyes.

Pathophysiology



PATHOGENESIS:

MODE OF TRANSMISSION:

- SEXUAL CONTACT (STD)

VIRULENCE FACTOR:

- PILI: ATTACHMENT AND ANTIPHAGOCYTTIC.
 - CELL WALL: 2 FACTORS
 - ENDOTOXIN - TOXIGENICITY.
 - OUTER MEMBRANE PROTEINS(OMP) - ATTACHMENT
 - IgA PROTEASE - DESTROYS SECRETORY IgA.
- REPEATED GONOCOCCAL INFECTION DUE TO CHANGES OF PILI AND OMP

①
Soreness
bleeding
discharge

of eyes, all involved
Symptoms include

②
Redness
Itching
Discharge from
eyes.

Pathophysiology :

Gonococcal infection

SLIDE :

↓
Sexual & Perinatal transmission

↓ Reach
Reproductive tract or systemic spread.

↓
- Females Endocervicitis

In Males → urethritis

↓
Epididymitis

or
Epididymo-orchitis

↓
Spread of organism
in 20% results PID.

↳ Salpingitis

Endometritis

Tubo-ovarian abscess &

frank abdominal peritonitis

Conjunctivitis can occur in adults | children on direct
inoculation of organisms to the eyes & can lead to
blindness.

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Diagnosis : by Identification of gram -ve diplococci in leukocytes in Gram stained smears. Obtained from discharge / culture.

There are 3 types of tests of Gonorrhoea :

Swab sample : Swab sample from the part of body likely to be infected e.g., urethra or throat can be sent to lab.

Urine test : Gonorrhoea in e.g. or urethra can be diagnosed in a urine sample sent to lab.

Gram stain : Sample from urethra or cervix placed on a slide and stained in dye. Examined for bacteria under microscope.

Treatment :

Combination of antibiotics used for treatment as they may be associated in other STD infection.

Antibiotics : Ceftriaxone - Injectable.

Combination in Azithromycin or doxycycline taken orally.

Partners must be treated at same time even if they don't have signs or symptoms. In same treatment.

(10). For Newly born babies Medication in their eyes to
Prevent Eye infection.

Syphilis %

It is Ch. Contagious Venereal and often
Congenital disease,
caused by a spirochete treponema
Pallidum

→ If left untreated produces rashes & lesions.

Clinical course is 3 stages continue for many years.

Primary syphilis

Secondary syphilis

Tertiary syphilis.

Route of transmission of syphilis by sexual contact

Examples : of direct contact → Congenital syphilis
from Mother to child
in utero.

Stages of Syphilis

Primary:

Marked by development of chancre at site of infection vulva, cy / penis

→ with one wk to 3 months after exposure.

→ Painless Non specific regional lymphadenopathy.

→ Swelling of local lymph node

— Lesion persists for 4 to 6 wks then heal spontaneously

Secondary: Skin rash appears 1-6 months after primary infection

Symmetrical reddish pink rash, Non itchy on trunk & Extremities

Mucous patches may appear in genital / mouth.

Secondary syphilis is most contagious

Other symptoms :-

Fever

Sore

throat

Malaise

wt loss

Headache

Meningitis

Enlarged lymph nodes.

Tertiary Syphilis : Can occur from 1 to 10 yrs to develop

Characterized by soft tumor like growth called
Gumma seen in skin & mucous membrane
Can occur any where in the body often in skeleton

Other symptoms : Charcot's joints ^{Degeneration of joint surfaces}
Clutton's joints → bilateral knee effusion.

← Neurosyphilis
Cardiovascular syphilis

Latent syphilis is defined as having serologic
proof of infection without sign or symptoms

It may be either early / late.

Early latent : having syphilis for one yr or less
of initial infection
without sign & symptoms

Late latent syphilis : infection greater than 1 yr
but having NO clinical evidence of disease

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congenital syphilis : Present in uterus at birth
Occurs when a child is born to mother w/ sec or tertiary syphi

Symptoms : Abnormal X-rays → Frontal bossing
Saddle nose
Poorly developed Maxilla
Enlarged liver, spleen
Skin rash
Anemia
Lymph node enlargement
Jaundice
Pseudo paralysis

→ Death due to conge syphilis is due to pulmonary H'age.

→ Affected children are highly infectious until 2 yrs age.

Neurosyphilis : Can occur at any stage of syphilis
35-40% of prim & sec syphilis have asymptomatic CNS involvement

Ac syphilitic Meningitis : Occurs within the first 2 yrs of infection
Symptoms

1. Headache
2. Meningeal irritation
3. Cranial nerve abnormalities
When cranial nerves involved at base of brain

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Pathophysiology : → T. pallidum can survive only for short time outside the body
→ Transmission almost requires direct contact & infectious lesions.

T. Pallidum

↓ Penetrates easily,

defective skin

or
Intact Mucous Membrane

↓ Disseminates

rapidly via blood vessels & lymphatics

Initial lesion of Primary Syphilis develops at site of transmission after incubation period of 10-90 days (Average of 21-28 days)
→ heals spontaneously in 3-7 wks.

↓
Secondary Syphilis develops 4-10 wks after primary lesion

& produce symptoms
→ During sec syphilitic the immune reaction is at its peak & antibody titres are high-

Tertiary syphilis is defined as seroreactivity greater than 2 yrs & symptoms in all organs.

→ 40% of untreated infections can develop into tertiary disease.

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Testing : ~~cases as~~ Rapid Plasma Reagin of Venereal Disease Research Laboratory based on Monoclonal antibodies and immunofluorescence.
 Treponema pallidum Hemagglutination assay.
 Fluorescent treponemal Antibody absorption (FTA-ABS)

Simple → Microscopy of chancere fluid using dark ground illumination provides a quick & effective test.

Treatment : Benzathine penicillin G → [Primary, sec. & Early latent] 2.4 gm as single dose

Those who are allergic → Treated w/ Tetracyclines (oral) 100mg bd for 14 days.

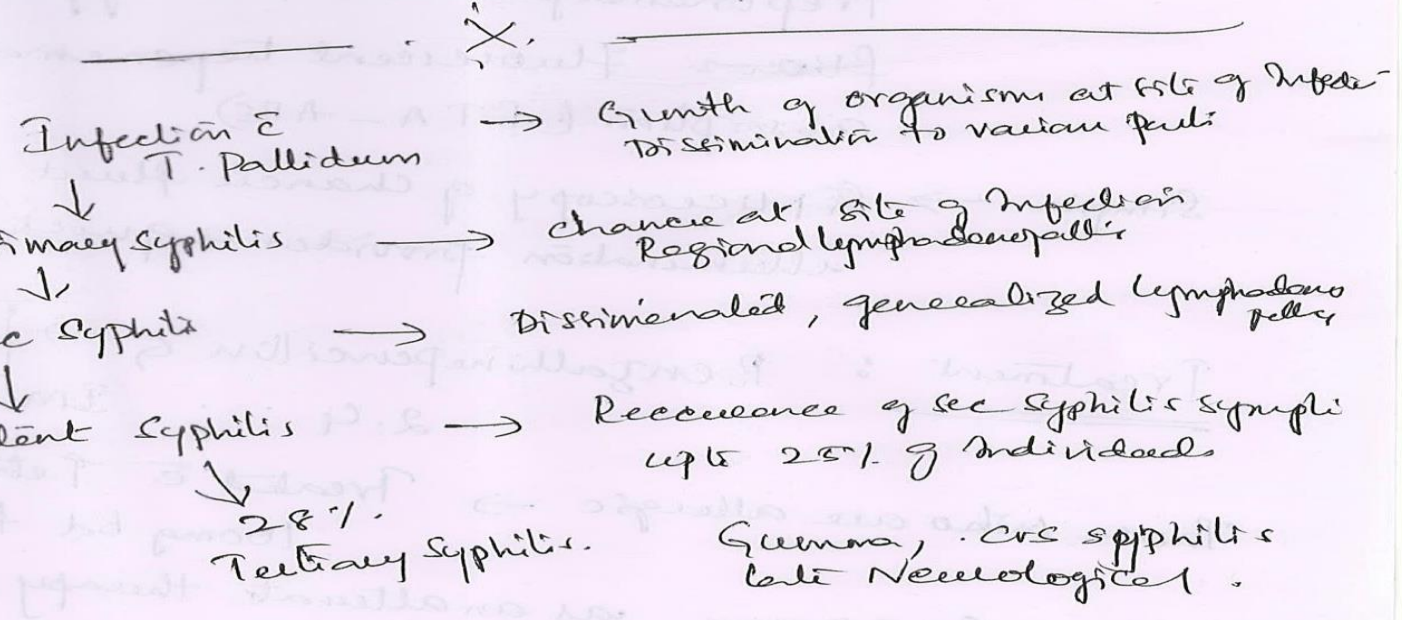
Ceftriaxone as an alternate therapy - 1gm IM/IV daily for 8-10 days

For late latent w/ NO CSF involvement : 7.2 million units BP G administered as 3 doses of 2.4 w/ks for 3 successive wks.

If Allergic Tetracyclines — for 28 days

Pat w/ Neurosyphilis : Aqueous crystalline penicillin G 18-24 MU IV / day i.e. - 3-4 million units - Every 4 hrs for 10-14 days

If IV is impossible — Aqueous procaine penicillin G given IM — 2-4 MU/daily — Plus probenecid 500mg by mouth 4 times/daily → 14 days



Systematic Representation of Syphilis

HIV/AIDS

①

Ch. life threatening condition

↓
Caused by HIV

By damaging Immune System

HIV interferes w/ body's ability to fight w/ viruses, bacteria, fungi that cause disease

→ The term AIDS is used to mean later stages of HIV Infection

Symptoms : Symptoms depending on stage of Infection

- when infected first there may be no symp
- but develop to flu like illness 2-6 wks of Infection

Include fever
Headache
Sore throat
Swollen lymph nodes

} gives wrong diagnosis

→ Even if there are no symptoms the transmission of virus may affect others

→ When virus → Enters the body
↓
it attacks Immune System
virus multiplies & destroys Immune System (CD4 lymphocytes) virus destroys

No symptoms for 8 to 9 yrs or more

& develops into Ch. Symptoms like Swollen lymph nodes, Diarrhea, weight loss, fever

~~Disease~~
fever, shortness of breath.

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During last phase of HIV → occurs 10 yrs or more after initial infection
Some serious symptoms appear & the infection then meets the official definition of AIDS

→ Development of an opportunistic infection — Pneumocystis carinii pneumonia.
an infection that occurs when immune sys is impaired

→ e. CD4 lymphocyte count of 200 or less → Normal Range 600 to 1000
where its signs & symptoms include

1. Soaking Night Sweats
2. Fever higher than 100°F & shaking chills. for several weeks.
3. Shortness of breath, ch. diarrhea
4. Persistent white spots on tongue or mouth.
5. wt loss, distorted vision.
6. Swelling of lymph nodes.
7. If there is infection w/ HIV leads to Kaposi's sarcoma
Cervical cancer & lymphoma.

Transmission:

3 main routes for HIV ^{have} been identified

① Sexual route:

↓
Majority HIV infections are acquired through unprotected sexual relations.

② Blood or blood product Route

↓
IV drug users
Hemophiliacs
Recipients of blood transfusions
Reusing Needles.

③ Mother to child transmission

↓
occurs during
last wk of pregnancy
& at child birth.
25% \pm treatment
available can be
reduced to 1%

Pathogenesis:

When HIV virus enters lymphocytes
↓
virus inserts its own genetic material into lymphocytes
↓
And makes new copies of the virus.
↓
break out and enters blood stream & attack the other cells.

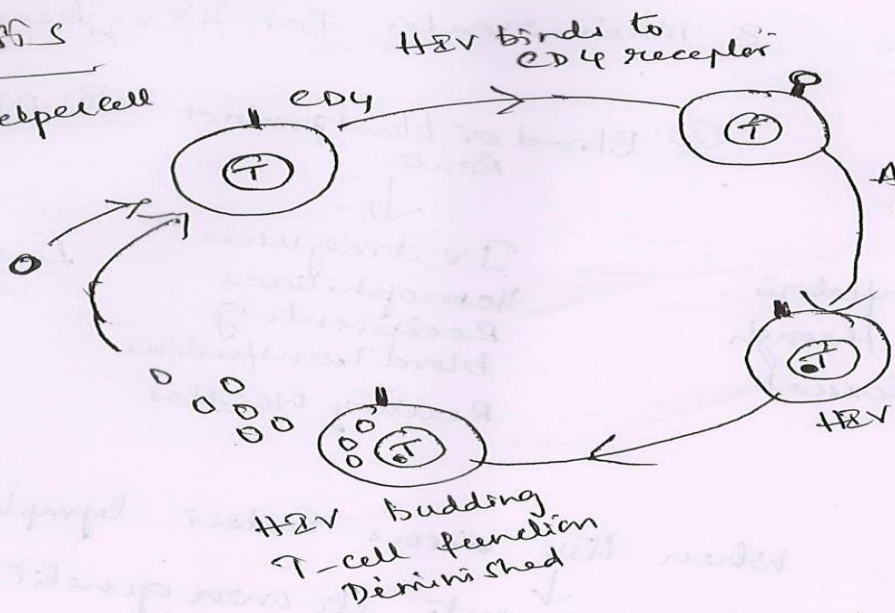
In Mean time old host cells & uninfected CD4 cells → die from effects of virus

This cycle repeats again & again
↓
Eventually CD4 cells in the body decrease
↓ leading
Severe Immune deficiency
So body no longer fight \pm virus & bacteria that cause the disease.

Pathogenesis

1st Step
Infection
HIV

T Helper cell



2nd Step
Activation of T Helper Cells is pre requisite for progressive HIV Infection
Eg. Co-infections

RNA transcribed into T-cell genome reproduction begins

Screening & Diagnosis : Diagnosed by testing the blood or oral mucosa for presence of antibodies to virus.

ELISA → Enzyme linked immunosorbent assay

↓
Detects the antibodies to HIV

- If it is +ve the person is infected & antibodies to HIV.
- another confirmatory blood test called western blot test is done if found +ve for HIV antibodies.
 - Checks for HIV proteins.

HIV tests are not accurate, immediately after infection
because it takes 12 wks time for the body to develop antibodies

Treatment % Five classes of drugs (NRTIs)

- 1. - Zidovudine } Nucleoside analogue reverse transcriptase inhibitors → Inhibit replication of virus.
- Lamivudine
- Stavudine

- 2. Protease inhibitors (PIs) Intercept HIV replication
 - Ritonavir
 - Zidovudine
 - Tipranavir

- 3. Non Nucleoside reverse transcriptase inhibitors (NNRTIs)
 - ↓
 - Inhibit the Enzyme reverse Transcriptase
 - Nevirapine
 - delamanid

- 4. Nucleotide reverse transcriptase inhibitors (NRTIs)
 - Interferes w/ replication of reverse transcriptase & prevents virus from delivering its genetic material into cells.

- 5. Fusion inhibitors = Stop virus from replicating by preventing its membrane from fusing with membrane surrounding healthy cells.
 - Enfuvirtide

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Prevention : No vaccine to prevent HIV infection

- possible to protect from infection.
- By Educating about HIV.



- Protease Inhibitors
- Nucleoside Reverse Transcriptase Inhibitors
- Zidovudine

3. Non nucleoside reverse transcriptase inhibitors (NNRTIs)
 ↓
 Inhibit the Reverse Transcriptase

- Nevirapine
- Delamanvir

4. Nucleoside reverse transcriptase inhibitors (NRTIs)

Interferes to replication of reverse transcriptase & prevents virus from attaching to specific target cells

Examples

Fusion inhibitors

Enfuvirtide

2. Stop virus from replicating by preventing its attachment from fusing with membrane
 blocking viral cell