

SYPHILIS

- **Treponema pallidum** – obligate parasite – means they can't survive outside the living body. [gram negative bacteria] [DEPTH OF BIOLOGY]
- Causes syphilis (STD)
- That affect the skin and mucous membrane of external gentiles and also sometimes the mouth.
- Transmit this to others. [DEPTH OF BIOLOGY]

A. First way – Acquired Syphilis (here treponema pallidum)

[DEPTH OF BIOLOGY]

**Enters into body
through body fluid**

- That can happen when there are tiny cuts or break in the skin or mucous membrane of external Genital / mouth and when these sexual contact – including oral, anal, or vaginal sex.
- It can also happen when people share contaminated needles. [DEPTH OF BIOLOGY]
- Direct contact with skin lesions.

B. CONGENITAL SYPHILIS – mother has syphilis – T. pallidum infects baby in uterus or when exiting through vagina. In acquired Syphilis – 3 stages of infection [DEPTH OF BIOLOGY]

1. Primary syphilis -

- 1-3 weeks after pallidum lands on skin on mucous membrane during this stage the spirochetes destroy the soft tissues and skin and that results in the formation of ulcer (syphilitic chancre).
- This chancre have a hard base , raised borders and usually covered by a fluid rich in spirochetes. And this can spread other parts of body as well as to other individual. [DEPTH OF BIOLOGY]

In individual who acquired syphilis through sexual contact or physical touch and now the primary chancre develops around the ext. Genitals hands or other body parts. [DEPTH OF BIOLOGY]


- Syphilitic chancre typically heal on their own few months but during that time some spirocheles nearby lymph nodes where they cause lymphadenopathy and they get into lymph and finally into blood stream.
- If syphilis is acquired through blood transfusion (no primary chancre) . [DEPTH OF BIOLOGY]
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2. Secondary syphilis / Dissemination stage

Occurs about 6-12 weeks after the infection.

During this stage

[DEPTH OF BIOLOGY]

- Spirochetes  enters the blood stream called spirochetemia .This causes generalize lymphadenopathy
- the spirochete attach and infect endothelial cell in small capillaries near the skin

causes non itchy maculo popular rash and spread into palms , soles and other mucous membrane. This rashes sometimes [pustula] filled with white fluidi and this all thing lead to most infectious stage.

[DEPTH OF BIOLOGY]

3. Latent(dormant, asymptomatic)-

Here, Spirochetes is found in capillaries of organ and tissue

There are two phase in it:-

1.Early phase → occurs within a year of infection and during these time the spirochetes re-enter the blood So , they can be found circulating in large number in blood



Causing symptoms of secondary syphils

2.Last phase → After a year of infection spirochetes Generally stay within the tiny capillaries Of various body organs and tissues

[DEPTH OF BIOLOGY]

- But, there is a severe immune response so it causes tremendous damage to the cells and triggers the next phase called (Tertiary syphilis). [DEPTH OF BIOLOGY]
- In tertiary syphilis there is type IV hypersensitivity which means there is an immune response which is mainly led by T-cells and they recruit phagocytes called macrophages and cause the release of pro-inflammatory cytokines [DEPTH OF BIOLOGY]

- All of these lead to local swelling or edema redness and (warmth) as well as fever
- → Treponema palladium has 3 main Antigen :-
- 1. Group specific Antigen (+nt in all treponemes)
- 2. Species- specific antigen (which are specific to T. pallidum)
- 3. Cardiopilin (lipid antigen) → +nt With the spirochetes as well as cell in our body.
- Plasma cells involved in immune rxn by producing antibodies against these antigens. [DEPTH OF BIOLOGY]
- #In tertiary syphilis various organs get damaged like the heart and blood vessels called cardiovascular syphilis the brain and spinal cord called neurosyphilis and also the liver joint, testes.
- In cardiovascular syphilis → there's endarteritis
- Which is (inflammation of tiny arterioles called vasa vasorum Which supply blood to aorta [DEPTH OF BIOLOGY])
- Results in aortitis or inflammation of aorta

- Neurosyphilis → lead to tabes dorsals (wasting of back of spinal cord)
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- Loss of vibration sensation.
- But sometimes spirochetes invade the capillaries supplying the anterior and front of spinal cord. [DEPTH OF BIOLOGY]
- ↓
- Cause loss of sensation, weakness sometime even paralysis mostly in the legs.
- ⇒ If spirochetes transfer into brain ⇒ then cause difficulty in coordinating, memory loss, slurred speech, altered behavior, muscle moments and even paralysis.
- # syphilis also affect eye → here pupil loss its light reflex
- #In congenital syphilis ⇒ the spirochetes can infect baby either via placenta or during child birth in the birth canal.
- ↓↓
- In early 2 (first 2 years) → • snuffles
- ↓ [DEPTH OF BIOLOGY]
- Nose is block

- *Maculo popular rash held of the palms and soles of the feet [DEPTH OF BIOLOGY]
- *Also organ damage to the liver and spleen and damage to the eye as well.
- =>child after (2yearsold) => bony destruction of nose(saddle nose) and Hutchinson teeth and hearing loss [DEPTH OF BIOLOGY]

- *Diagnosis:-*

- #Acquired syp:- starts with indentifying spirochetes in the fluid from Using 1.dark field
- 2.diagnosis is confirmed by serological test and these look for antibody against to pull Antigen.
- 3.non-reponemal(Non specific) test(RPR)
- 4.Trepenemal tests [DEPTH OF BIOLOGY]
- T-palidium particle agglutination (TPPA).

TREATMENT

[DEPTH OF BIOLOGY]

- A. Main treatment penicillin
- => But in some cases DOXYCYCLINE Can be used as well.
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- Now,
- Patients with syphilis (results in sudden fever, sweating, muscles, joint pain few hours to few days)
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- Spirochetes dies
- ↓ [DEPTH OF BIOLOGY]
- Lots of antigen
- ↓
- Now immune system overdrives
- ↓
- Penicillin [DEPTH OF BIOLOGY]