Sub: Syphilis

- Syphilis is a systemic, sexually transmitted disease (STD) caused by the Treponema pallidum bacterium. The three means of syphilis transmission are:
  - person to person via vaginal, anal, or sex through direct contact with a syphilis chancre.
  - person to person during foreplay, even when there is no penetrative sex.
  - Pregnant mother with syphilis to fetus.
- Named from poem published by the italian physician and poet girolamo fracastoro - shepherd from Hispaniola named Syphilis who angered apollo and was given the disease as punishment.

Treponema pallidum:

- Described in 1905 by Schaudinn and Hoffman, in chancres and in inguinal lymph nodes of the patients.

Syphilis Introduction:

- Caused by Treponema pallidum.
- Transmission: Sexual maternal - fetal blood tranfusion and rarely by other means of both transmitting and getting infected with HIV.
- Introduction to spirochetes:
  - Long, slender, helically tightly coiled bacteria.
  - Gram - negative.
  - Aerobic, microaerophillic or anaerobic.
  - corkscrew motility.
  - can be free living or parasitic.

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- Best-known are those which cause disease - Syphilis and Lyme's disease.

Treponema pallidum:

- Spiral spirochete that is mobile of spirals. varies from 4 to 14 length 5 to 20 microns and very thin 0.1 to 0.5 microns. Can be seen on fresh primary or secondary lesions by dark field microscopy or fluorescent-antibody techniques.

~~Congen~~ congenital syphilis:

Congenital syphilis usually occurs following vertical transmission of T. pallidum from the infected mother to the fetus in utero, but neonates may also be infected during passage through the infected birth canal at delivery.

Morphology:

- Have axial filaments, which are otherwise similar to bacterial flagella.
- Filaments enable movement of bacterium by rotating in place.
- T. pallidum cytoplasm is surrounded by trilaminar cytoplasmic membrane.
- peptidoglycan provides rigidity and shape.
- It has lipid rich membrane layer.
- Three to four endoflagella originate.

Mode of transmission:

- Organism is very fragile, destroyed rapidly by heat cold and drying.
- Sexual transmission most common, occurs when abraded skin or mucous membranes come in contact with open lesion.
- can be transmitted to fetus.
- Rare transmission from needly stick and blood ~~trans~~ transfusion.

pathology:

penetration →

T. pallidum enters the body via skin and mucous membranes through abrasions during sexual contact.

Also transmitted transplacentally

- Dissemination →

- Travels via the lymphatic system to regional lymph nodes and then throughout the body via the blood ~~stre~~ stream.

- Invasion of the CNS can occur during any stage of syphilis.

Stages of Syphilis:

1. primary.
2. Secondary.
3. Latent.
    - Early latent.
    - Late latent.
1. Late or tertiary –
    - May involve any organ, but main parts are.

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- Neurosyphilis.
- cardiovascular syphilis.
- Late benign (gumma)

Primary → chancre.

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Secondary → Palmar, rash.
- Lymphadenopathy.
- condyloma latum.

↓

Tertiary →
- Neurosyphilis
  - meningovascular
  - Tabes dorsalis
  - General paresis.
- Aortitis.
  - Aneurysms
  - Aortic regurgitation
- Gummas
  - Hepar lobatum
  - Skin, bone, others.

Primary Syphilis:

- Incubation period 9-90 days, usually ~21 days.
- Develops at site of contact / inoculation.
- Multiplies at the site of entry, a small painless primary lesion called called chancre is formed.

CHancre:

- Appears on external genitilia corona of the penis labia, vaginal wall.
- Also occurs in cervix, perianal area, mouth, anal canal.
- It possesses a hard ridge covered by thick, glairy exudate rich in spirochaetes.
- Serological tests are positive in 80% individuals at this stage.

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Secondary Syphilis:

① Secondary syphilis at 2-10 weeks after primary lesion - diffuse.

Symptoms →

① Fever.
① Headache.
① Skin pustules.

① usually disappears even without treatment.

① Skin rashes, nucleus patches in oropharynx.

① Multipication of spirocheates and their dissemination through blood.

e) Headache, anorexia, malaise, weight loss, nausea and vomitting, sore throat and slight fever.

f) Temporary alopecia may occur.

g) Nails become brittle and pitted.

Latent Syphilis:

① After several weeks, secondary lesions disappear and disease becomes latent.

① Not infections at this stage,

① Except for transmission from mother to foetus (congenital syphilis)

Mother to child Transmission:

① Infection in utero may have serious consequences for the fetus. Rarely syphilis has been acquired by transfusion of infected fresh human blood.

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Tertiary Syphilis:

- Develops after many years in persons with untreated secondary syphilis.
- Appearance of degenerative ~~syphilis~~ lesions called Gummas in skin, bone and nervous system.
- Reduction in number of spirocheates observed.
- Affects 2/3 of untreated cases →

  Gummata → rubbery tumors.

  Bone deformities.

  - Blindness.
  - loss of coordination.
  - paralysis.
  - Insanity

Diagnosis of syphilis:

1. clinical examination by serological tests.
2. Dark-field microscopy → Special technique-use to demonstrate the spirochete as shiny motile spiral structures with a dark background.

- The specimen includes oozing from the lesion or sometimes L.N. aspirate. It is usually positive in the primary and secondary stages and it is most useful in the primary stage when the serological tests are still negative.
- Evaluation based on three factors.
  - clinical findings.
  - Demonstration of spirochetes in clinical specimen
  - present of antibodies in blood or cerebrospinal fluid.

- More than one test should be performed.
- No serological test can distinguish between other Treponemal infections.

Laboratory testing:

- Direct examination of clinical specimen by dark-field microscopy or fluoresent antibody testing of sample.
- Non-specific or non-treponemal serological test to detect reagain, utilized as screening test only.
- Specific treponemal antibody tests are used as a confirmatory test for a positive reagin test.

Provisional Diagnosis of syphilis:

- A presumptive diagnosis is possible with sequential serologic tests (e.g -> VDRL, RPR) using the same testing method each time confirmatory tests should be performed.