



GENITOURINARY SYSTEM

SUBJECT : Microbiology 4

LEC NO. : 4

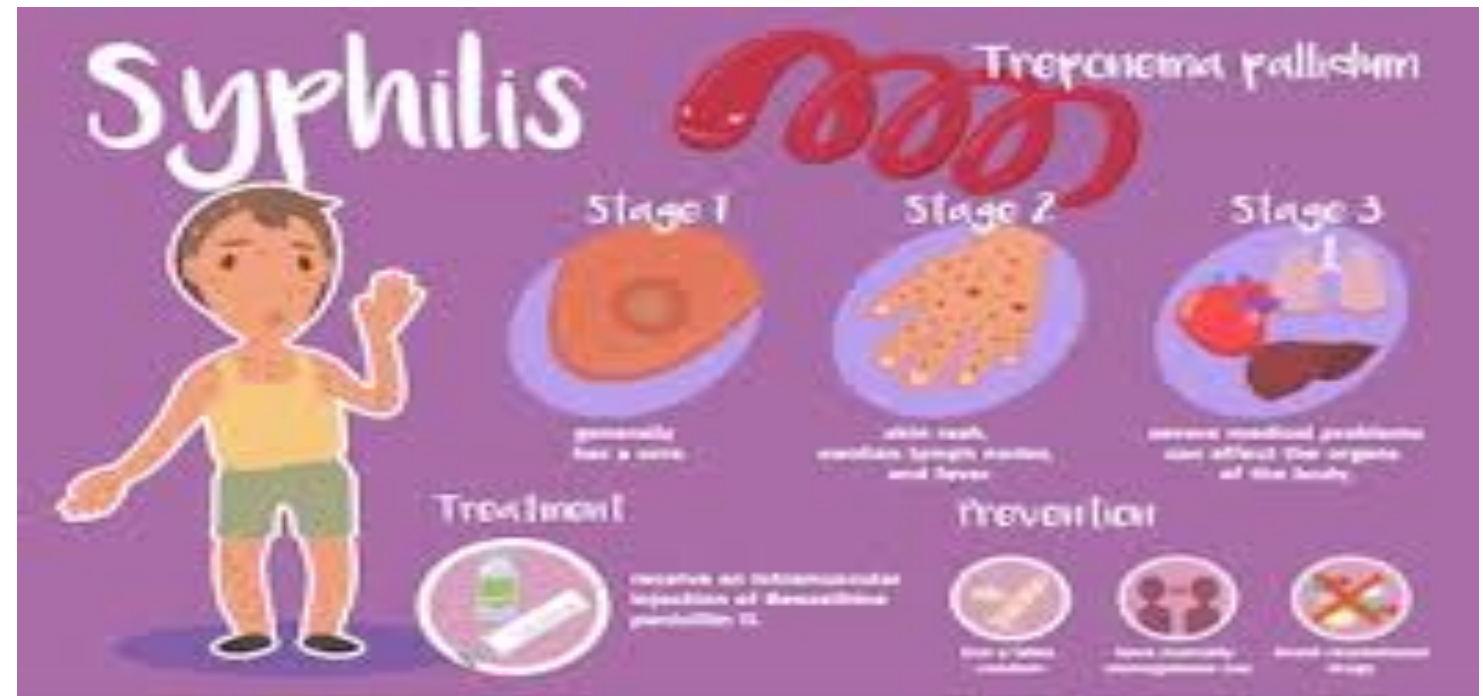
DONE BY : Rama omoush

وَقُلْ رَبِّ زِدْنِي عِلْمًا

Genito-Urinary System

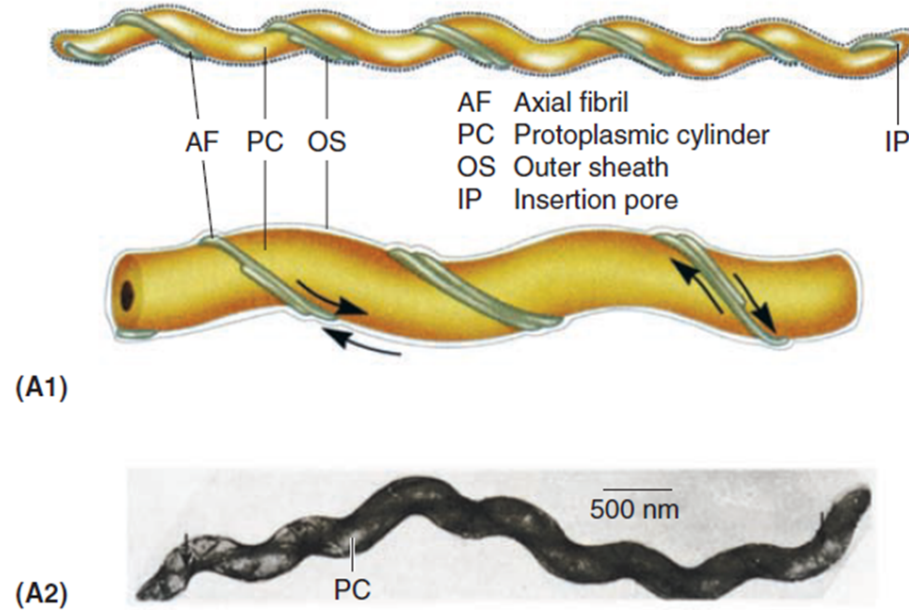
Syphilis

يعطيكم العافية اليوم ان شاء الله رح نكمل
موضوعنا بال STI



- Spirochetes are bacteria with a spiral morphology
 - Small, motile, gram –ve, slender, helically coiled, flexible
 - Intracellular flagella(endoflagella)

اول اشني بلشنا نحكي عن
الخصائص تبعونها زي اي
بكتيريا



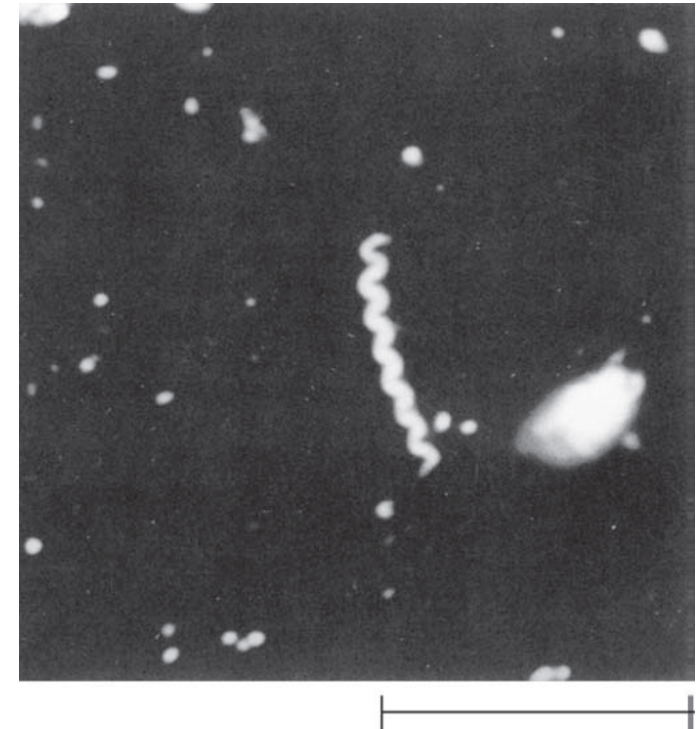
طبعاً عنا منها انواع كثير و كل واحد بسوي مرض شكل و احنا اليوم حنركز
عمرض واحد منهم فقط الي بخص
سيسيتنا

- Syphilis
 - **Treponema pallidum subspecies pallidum**
- yaws (chronic skin infection characterized by papillomas (noncancerous lumps) and ulcers
 - treponema pallidum pertenue
- Lyme disease (It is transmitted to humans through the bite of infected blacklegged ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system)
 - Borrelia bacterium



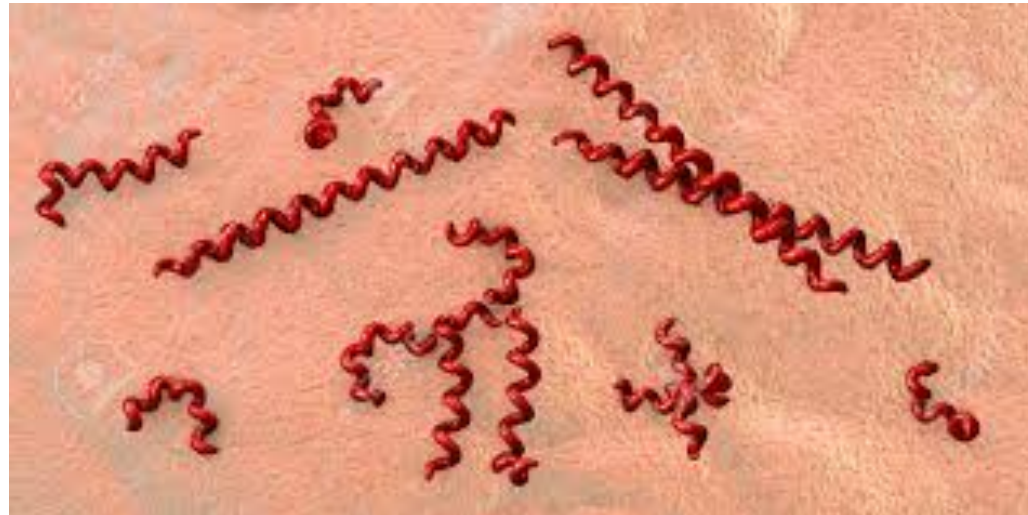
- Many spirochetes are difficult to see by routine microscopy.
 - Gram negative, many either take stains poorly or are too thin (0.15 μm or less) to fall within the resolving power of the light microscope.
- Only darkfield microscopy, immunofluorescence, or special staining techniques can demonstrate these spirochetes.

ما بنقدر نشوفها بال light ابدًا بس ينقدر نشوفها
darkfield microscopy, immunofluorescence,
or special staining فيهم و بتشوفوها زي كانها
درييل بتحرك



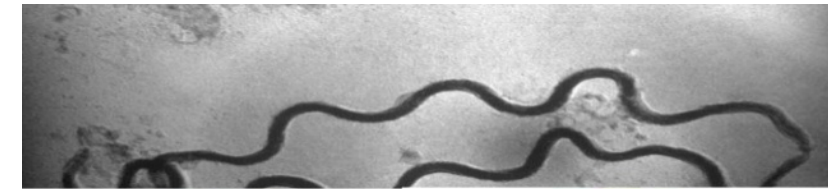
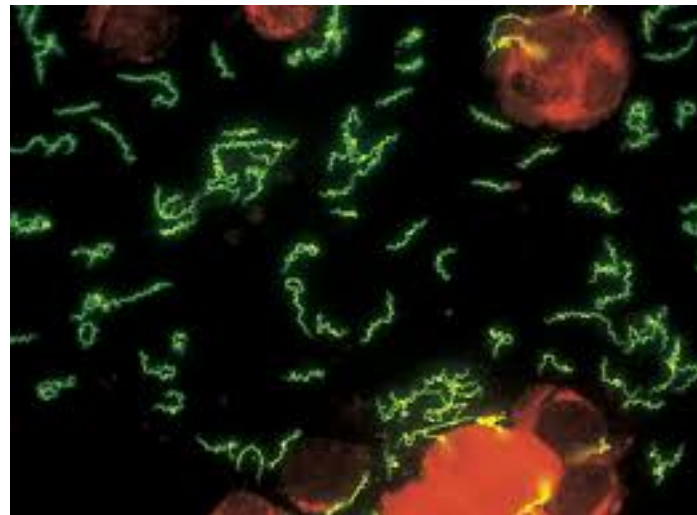
Treponema pallidum

- *T. pallidum* is the causative agent of syphilis, a venereal disease first recognized in the 16th century.
- *T. pallidum* is a slim (0.15 μm) spirochete 5-15 μm long with regular spirals that resemble corkscrews .



Treponema pallidum

- It is readily seen only by immunofluorescence, darkfield microscopy, or silver impregnation histologic techniques.
- Live *T. pallidum* cells show characteristic slow, rotating motility with sudden 90-degree angle flexion.



Dark Field
Microscopy

Fontana's Method

- inability to grow the organism in culture.
- It multiplies for only a few generations in cell cultures and is difficult to subculture.
 - cultured mammalian cells.
- Small genome
- Few structures or product
- The sluggish growth (mean generation time more than 30 hours)
- lacks lipopolysaccharide (LPS) and contains few proteins.

حتى انو نشوفها ب culture كثر صعب
لانها بطيئة بلكشي بال
growth ,metabolism

- extremely susceptible to any deviation from physiologic conditions.
- It dies rapidly on drying
- is readily killed by a wide range of detergents and disinfectants.
- The lethal effect of even modest elevations of temperature (41° to 42°C) was the basis of fever therapy early in the last century.

و زي م حكيئا بالمحاصرات الماضية انو البكتيريا الي
بتسوي STI هي بكتيريا حساسة لاي تغير او اشئ
ممکن ياذيها زي الحرارة و الجفاف و عشان هيئ
حكيئا انو صعب تنتقل ب route اخرى لانها بدها
ظروف خاصة

- Bacterial
- Spiral
- Darkfield microscopy
- Slow, rotating motility
- Not grow in culture
- Slow grow
- Few structure
- Small genome
- Few protein
- No lipopolysachraide
- Sensitive

مراجعة لاهم خصائصها

EPIDEMIOLOGY

- Treponema pallidum is an **exclusively human pathogen**
- Infection is acquired from **direct sexual contact** with a person who has an **active primary or secondary syphilitic lesion**

ليش مش tertiary? لانه خلص وقتها لا
رح يكون موجود بالمنطقة الي حيسوي فيها
sexual contact ولا بال blood لانها
بتكون استقرت بمكان واحد فقط و حنفهم
شو كمان شوي

Sex

Genital ulcer
(lesion at the point of entry)

Secondary syphilis

Generalized
maculopapular rash

Tertiary syphilis

Focal lesions

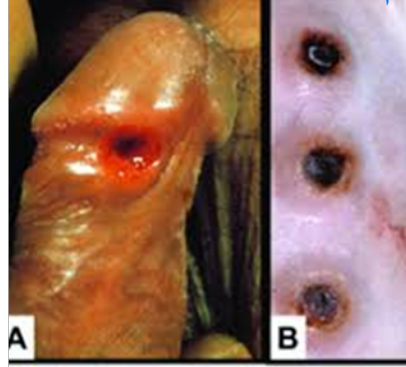
Sex

Genital ulcer

(point of entry)

- Papule...ulcer,,indurated and ulcerates but remains painless
- (chancere) heals spontaneously after 4 to 6 weeks.
- Firm, nonsuppurative, painless enlargement of the regional lymph nodes
- 1 week of the primary lesion and may persist for months.

رح نحكي عن ال primary اول اشني بتكون بين فترة محدد بعد ال contact من ٣ اشابيع ل ٣٠ يوم ممكن تتطلع له باي وقت و بتحفر زي الدريل ف بتسوي ulcers ما بتوجع و ممكن تنتفخ عنا ال lymph nodes و بنسمي مراحل ال ulcers هون (chancers)بعدين اذا تعالج خلص بروح كل اشني بدون م ينتقل على ال secondary واذا لا رح ينتقل للمرحلة الي بعدها



Primary Syphilis

Sex

Genital ulcer
(lesion at the point of entry)

2 to 8 weeks after the chancre

Generalized maculopapular rash

Secondary syphilis

About 1/3 of patients **condylomata lata**,

- **painless mucosal warty erosions**
- **usually develop in warm, moist sites such as the genitals and perineum.**

- Symmetric non itchy muco-cutaneous maculopapular rash
- generalized non-tender lymph node enlargement
- fever and malaise.
- Skin lesions are distributed on the trunk and extremities, often including the palms, soles, and face.



All the lesions are highly infectious

هون مريضنا ما تعالج من الاول و انتقل للمرحلة الثانية هون البكتيريا بتكون راحت لل blood و بلشت تعمل rash عكل جسمه و اي حدا بمسكها ممكن ينعدي لانه بتكون البكتيريا جواتها هسا بهادي المرحلة ال ulcer بتكون راحت بس ممكن هاي ال rash نفسها تروح على المنطقة ال تسوي اشبي اسمه C وبيهاي المرحلة لسا بتكون قادرين نعالجها ondylomata lata

Sex

Genital ulcer
(lesion at the point of entry)

secondary syphilis

Generalized
maculopapular rash

و هسا هون حنلاقي عنا خيارين اذا ما تعالج يا اما تروح لحالها او تتدخل بمرحلة الليتنسي

1/3: They resolve spontaneously after a few days to many weeks,

2/3: The illness enters the latent state

Latent Syphilis

هسا هون هي يتكون موجودة بس مش شرط
تسوي symptoms

No clinical manifestations
+ serologic tests

Early
1-4y

Relapses of secondary syphilis

هون اول اربع سنين بتضل ترجع كل شوي و تسوي rash زي
ال secondary

Transmission

- From the relapse
- Blood transfusion
- Mother to baby

Late
>4y

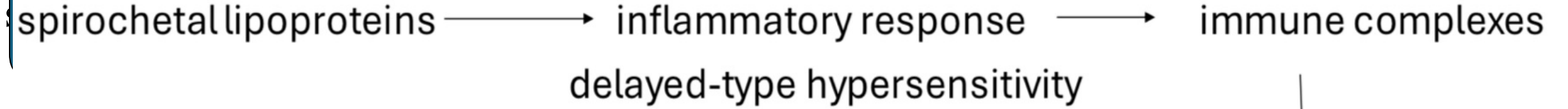
relapses cease

وبرضو هون بس ما يتعالج حيدخل عالثالثة
او ممكن اصلا بعد ال secondary يدخل
عالثالثة دايركت بدون م يمر بهاي

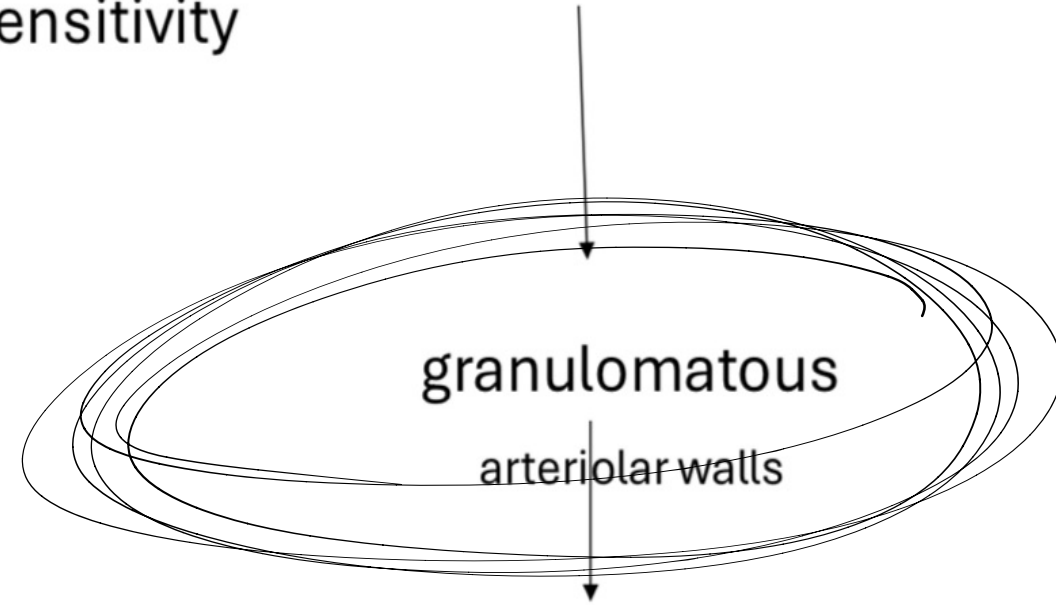
Tertiary Syphilis

- one third of patients with untreated syphilis develop tertiary syphilis.
- The manifestations may appear as early as 5 years after infection but characteristically occur after 15 to 20 years.

Tertiary Syphilis



هسا هون البكتيريا بتتجمع بمكان واحد
و بتصسر يتجمع عليها fibrosis و
lymphocytes و immune cells ف
بتكون granuloma ممكن تكون باي
مكان بالجسم



Gumma

manifestations depend on the body sites

Nervous and Cardiovascular systems.

و بنسميها gumma

Tertiary Syphilis

هسا هون بنبلش ندخل بالمواضيع ال irreversible

- **Neurosyphilis**

- Neurosyphilis is due to the damage produced by a mixture of meningovascularitis and degenerative parenchymal changes in virtually any part of the nervous system.

ممکن یروح علی brain او spinal cord و یبلش یعمل
neurological symptoms

- Cortical degeneration of the brain
 - mental changes ranging from decreased memory to hallucinations or frank psychosis.
- In the spinal cord demyelination of the posterior columns, dorsal roots, and dorsal root ganglia produces a syndrome called **tabes dorsalis**
 - which includes ataxia, wide-based gait, foot slap, and loss of the sensation.

اي اشي يتتخيله ممكن يصير و ممكن يققد التحكم بالحركة تبعته



• Cardiovascular syphilis

- arteritis involving the vasa vasorum of the aorta
- dilatation of the aorta and aortic valve ring leading to aneurysms of the ascending and transverse segments of the aorta and/or aortic valve incompetence.

هون بتروح تهاجم ال CVS و بصير عنا aneurysm
و مشاكل بال valve

- A localized, granulomatous reaction to *T. pallidum* infection called a **gumma** may be found in skin, bones, joints, or other organ.
- Any clinical manifestations are related to the local destruction as with other mass-producing lesions, such as tumors.

زي م حكيتم فوق ممكن تتجمع باي مكان مش
شرط بس بال cvs cvs



Congenital Syphilis

- Untreated maternal infection may result in fetal loss or congenital syphilis.

وهون موضوع كثير مهم هو الام المريضة رح
تنقل المرض لابنها و هي حامل فيه للاسف و
حيصير عنا ما يسمى ب congenital
syphilis و للاسف بيجي لبيبي معها اعراض
سيئة و

و بالنسبة للعدوى زي م حكيتلكم فوق اول و ثاني مرحلة
بعديو و الليتنسي و الثالثة لا

Congenital Syphilis

- Untreated maternal syphilis can result in fetal loss or congenital syphilis.
- Bone involvement produces characteristic changes in the architecture of the entire skeletal system (**saddle nose**, **saber shins**, **Hutchinson teeth**, **hearing loss**). Anemia, thrombocytopenia, and liver failure are terminal events.

و هون بنحكي عن الاعراض الي حيطلع فيها البيبي



- Less commonly,
 - Non-genital contact with a lesion (e.g., of the lip),
 - sharing of needles by intravenous drug users,
- Late disease is not infectious.

DIAGNOSIS

Microscopy

- *T. pallidum* in primary and secondary lesions can be seen by darkfield microscopy.
 - It requires experience and fluid from deep.
 - A negative test does not exclude syphilis.
- Darkfield microscopy of oral and anal lesions is not recommended
 - because of the risk of misinterpretation of other spirochetes present in the normal flora.

Serologic Tests

- Most cases of syphilis are diagnosed serologically using serologic tests that detect antibodies directed at either lipid or specific treponemal antigens.
- The former are called non-treponemal tests, and the latter are referred to as treponemal tests.
- Their use in screening, diagnosis, and therapeutic evaluation of syphilis has been refined over many decades.

هاد النوع رخيص و بالبلاد الي برا بستخدموه ك screening فقط و اذا

طلع ++ بويه يعمل الفحص الثاني

Non-Treponemal Tests

(non-specific test)

Venereal Disease Research Laboratory test (VDRL)

Rapid plasma reagin test (RPR)

Confirmatory Treponemal Tests

Treponemal pallidum particle agglutination test (TP-PA)

Fluorescent treponemal antibody absorbed test (FTA-ABS)

T. pallidum enzyme immunoassay antibody test (TP-EIA)

Chemiluminescence immunoassay (CIA)

Note: The non-treponemal tests (titers) detect antibodies that are not specific for *Treponema pallidum*.

Note: As a group, these tests are based upon the detection of antibodies directed against specific treponemal antigens. Treponemal tests are qualitative only and are reported as "reactive" or "non-reactive".

The use of only one type of serologic test is insufficient for diagnosis.

Non-treponemal tests

- **Antibody directed against cardiolipin (lipid complex) (reagin)**

ليش ينعتهره مش specific للبكتيريا تبعتنا؟
لانه برضو موجود باشياء اخرى زي ال
autoimmune disease

- **Nonspecific**

- **Sensitivity and low cost :preferred for screening**
 - **if positive, they must be confirmed by one of the more specific treponemal tests**

- **following treatment**

- **With successful antibiotic therapy nontreponemal serologies slowly revert to negative.**

□in a variety of auto-immune diseases or in diseases involving substantial tissue or liver destruction, such as lupus erythematosus, viral hepatitis, infectious mononucleosis, and malaria.

False-positive results can also occur occasionally in pregnancy and in patients with HIV infection

Treponemal tests

- **antibody specific to T. pallidum**

- **Specific**

- **not useful for screening**
 - **Positive result confirms RPR and VDRL**

- **They are not useful for following therapy (once positive, they usually remain so for life)**

- **The treponemal IgM tests are useful in establishing the presence of an acute infection in infants (congenital syphilis**

TREATMENT AND PREVENTION

- *T. pallidum* remains exquisitely sensitive to **penicillin**, which is the preferred treatment in all stages.
- In primary, secondary, or latent syphilis persons hypersensitive to penicillin may be treated with **tetracyclines**, **erythromycin**, or **cephalosporins**.

لو كان عنده
حساسية
بنستخدم هذول

طبعاً هو اذا تعالج بكون اشى خفيف وخلص بروح بس السيء لو ما تعالج بنعطيه
بنسلين intramuscular

TREATMENT AND PREVENTION

- In penicillin-hypersensitive patients with neurosyphilis or congenital syphilis be **desensitized** rather than use an alternate antimicrobial.
- Safe sex practices are as effective for syphilis prevention.
- No vaccine is available so far.

13. Tertiary syphilis may cause aortitis resulting in a tree barking appearance of the aorta

14. Congenital syphilis

15. Congenital syphilis may cause hutchinson teeth

16. Congenital syphilis may cause a saddle nose

17. Congenital syphilis may cause saber shins

18. Congenital syphilis can be prevented if the mother is treated with penicillin early during pregnancy

19. Congenital syphilis may cause hearing loss

يعطيكم الف عافية يعتذر عاي
خطأ املائي و بليز شيكو
عكومنتات اول تفريغ عدلت
الاسئلة و يعطيكم الف عافية
يرب 🙏❤❤

