

Lecture no Eleven

Spirochetes

Treponema pallidum

Disease

Syphilis

T. pallidum has not been grown on bacteriologic media or in cell culture. Non pathogenic treponema, which are part of the NF of human MM, can be cultured. T.pallidum grow very slowly. The medical important of that fact is that antibiotics must be present at an effective level for several weeks to kill the organism and cure the disease. The antigen of T. pallidum induce specific antibodies which can be detected by immunofluorescence or haemagglutination tests in the clinical laboratory. They also induce nonspecific antibodies (RPR), which can be detected by the flocculation of lipid cardiolipin extracted from normal mammalian tissue e.g beef heart.

Pathogenesis

1-Primary syphilis local chancre

2-Secondary syphilis rash on palm and soles or genital are called condylomata.

3-latent

a-early

b-late

4-Tertiary show granulomas gummas especially of skin and bones . CNS involvement or cardiovascular lesions

5-Congenital : The organism across the placenta typically after the third month of pregnancy and fetal infection can occur. In the infected neonates, skin and bone lesions, hepatosplenomegaly, interstitial keratitis.

L.D

There three important approaches

1-Microscopy

Spirochetes are demonstrated in the lesion of primary or secondary syphilis, such as chancres or condylomata , by darkfield microscopy or by direct fluorescent antibody (DFA) test. They are not

seen on G stained smear. In biopsy specimens, such as those obtained from the gum mass seen in tertiary syphilis, histologic stain such as silver stain or fluorescent antibody can be used.

2- Non specific serologic test

These tests involve the use on non-treponemal antigens.

Extract of normal mammalian tissue e.g. cardiolipin from beef heart react with antibodies in serum sample from patients with syphilis. Flocculation of these antibodies. The titer of these nonspecific antibodies decreases with effective use of treponemal antigen treatment. tests

3- Specific serologic tests

These tests involve the use of treponemal antigens and therefore are more specific than those above.

In these tests *T. pallidum* reacts in immunofluorescence (FTA, ABS or haemagglutinin assay with specific treponemal antibodies in the patient's serum .

Treatment

Penicillin is effective in the treatment of all stages of syphilis

Borrelia burgdorferi

Disease: Lyme disease

By the bite of tick

Important properties

Is a flexible, motile spirochete that can be visualized by darkfield microscopy and by Giemsa stain and silver stains. Culture of the organisms from the tick vector is positive.

B. recurrentis cause relapsing fever

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The diagnosis is typically made serologically by detecting either IgM antibody or rising titer of IgG antibody with ELISA, PCR that detect the organism DNA is also

Treatment

Amoxicillin

Leptospira interrogans

Are coiled, fine spirochetes that are non-stained with dyes but are seen by dark field microscopy.

Diagnosis

1-is based on history of possible exposure , suggestive clinical signs

2-Marked rise an agglutination antibody titers.

3- Occasionally are isolated from blood and urine culture.

Human infection results when leptospiras are ingested or pass through MM or skin. They circulate in the blood and multiply in various organs, producing fever and dysfunction of the liver jaundice, kidney uremia haemorrhage CNS meningitis.

Treatment pencillin G