

Syphilis (Lues)

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Abstract: *Syphilis is caused by Treponema pallidum. It is a bacterial infection usually spread by sexual contact. The disease starts as a painless sore, typically on the genitals, rectum or mouth.*

Keywords: Gummatous lesion, Hutchinson triad, Chancre, Wasserman test

1. Introduction

Syphilis is a centuries-old infectious disease that has protean clinical features.

The name has been derived from a handsome and wealthy shepherd who was affected by the disease. Syphilis is caused by *Treponema pallidum*, a gram positive bacteria. The route of transmission of syphilis is usually sexual contact, although there are examples of congenital syphilis via transmission from mother to child in utero. It may be acquired or congenital. It is seen more in males than females due to homosexuality. The most common age group to be affected is from 15-30 years. For persons such as dentists, working on infected patients is contagious as blood of syphilitic patient is infectious. Incubation period is for 21 days. Primary lesion presents chancre (painless genital ulcer) which persists for 2-8 weeks but resolves on its own. Secondary lesions are mucocutaneous lesions that lasts for 6-8 weeks after primary lesion. Course of primary lesion is highly variable, after which the patient enters the latent stage. Tertiary syphilis has benign gummatous lesions. Gammas are uncommon these days. Quaternary syphilis are irreversible lesions involving brain and heart.

It is classified into

- I. Congenital
 - a) Early
 - b) Late
- II. Acquired
 - a) Early
 1. Primary
 2. Secondary
 - b) Latent
 1. Early
 2. Late
 - c) Late
 1. Tertiary
 2. Quaternary

Clinical features for I. Congenital also known as prenatal syphilis is transmitted to the offspring only by an infected mother and is not inherited. Congenital syphilis is totally preventable. If treatment with antibiotics begins in infected pregnant women before their fourth month of pregnancy, approximately 95% of the offspring of these mothers will be free of the disease. Keeping in note that not all infected pregnant women deliver children with congenital syphilis. Persons with congenital syphilis manifest a great variety of lesions, including frontal boss, short maxilla, high palatal arch, saddle nose, irregular thickening of the sternoclavicular portion of the clavicle, relative protuberance of mandible and bowing of tibia. Occurrence of Hutchinson triad: hypoplasia of the incisor (screw driver-shaped permanent upper central incisors) and molar teeth (mulberry molars), eighth nerve deafness, and interstitial keratitis. Further divided into early and late presents mucocutaneous lesions, anaemia, jaundice, hepatosplenomegaly, lymphadenopathy and gummatous lesions, mulberry molars and hutchinson triad, respectively.

Symptoms of early congenital syphilis usually appear at three to fourteen weeks of age but may appear as late as age five years. Symptoms may include inflammation and hardening of the umbilical chord, rash, fever, low birth weight, high levels of cholesterol at birth, aseptic meningitis, anemia, monocytosis (an increase in the number of monocytes in the circulating blood), enlarged liver and spleen, jaundice (yellowish color of the skin), shedding of skin affecting the palms and soles, convulsions, mental retardation, periostitis (inflammation around the bones causing tender limbs and joints), rhinitis with an infectious nasal discharge, hair loss, inflammation of the eye's iris and pneumonia.

II. Acquired syphilis is contracted primarily as a venereal disease, after sexual intercourse with an infected partner. The disease, if untreated, manifests three distinctive stages throughout its course, so that it is customary to speak of primary, secondary and tertiary lesions of acquired syphilis. In primary stage, a lesion known as chancre develops at the site of inoculation approximately 3-90 days after contact with the infection. Chancre is usually solitary but may be multiple at times. It occurs most commonly on the penile in the male and on the vulva or cervix in the female. An increase in the occurrence of extragenital syphilis has been seen as a result of an increase in altered sexual activity and increased contact among infected male homosexuals. Of particular interest to the dentist are those lesions occurring on the lips, tongue, palate, gingiva and tonsils. The usual primary lesion is an elevated, ulcerated nodule showing local induration and base is clear. Scar may be left due to secondary bacterial infection. Producing regional lymphadenitis-inguinal lymph node enlargement, non-tender, painless and rubbery in consistency. Such lesions on the lip may have a brownish, crusted appearance. Very rarely, it appears vascular, mimicking a pyogenic granuloma. Intraorally, chancre is an ulcerated lesion covered by a greyish-white membrane, which may be painful because of secondary infection. It is easily demonstrable by dark-field examination of smear and is highly infectious. *Treponema microdentium*, found in non syphilitic patients is often confused with *Treponema pallidum*. Therefore, lesions contaminated by saliva should not be diagnosed by dark-field examination of the lesion but by examining it from the affected regional lymph node. An enlarged lymph node is always seen near the area of the chancre. The chancre appears microscopically as a superficial ulcer showing a rather intense inflammatory infiltrate. Plasma cells are particularly numerous. The microorganisms are present in the tissue and may be demonstrated by silver stain. Of considerable importance is

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the fact that not every patient with a primary lesion exhibits positive serologic reaction despite the presence of the bacteria. The chancre heals spontaneously in 3 weeks to 2 months.

The secondary stage also known as metastatic stage, usually commencing about 6 weeks after the primary lesions, is characterised by diffuse eruptions of the skin and mucous membranes. It involves the trunk, face and extremities results in pink to red maculopapular rash and lymphadenopathy. Rarely presents as arthritis, hepatitis and nephrotic syndrome. The oral lesions, called "mucous patches" are usually multiple, painless, greyish-white plaques overlying an ulcerated surface. They occur most frequently on the tongue, gingiva or buccal mucosa. They are often ovoid or irregular in shape and are surrounded by an erythematous zone. Mucous patches are also highly infectious, since they contain vast numbers of microorganisms. In this stage the serologic reaction is always positive. Secondary syphilis can be present as an explosive and widespread form known as lues maligna, characterised by fever, headache and muscle pain followed by necrotic ulcerations involving the face and the scalp. This form is reported in patients with a compromised immune system, particularly AIDS. After second stage patients are free from lesions and symptoms, they enter the latent stage which may last for 1-30 years till the next stage, the tertiary syphilis, develops.

Tertiary syphilis, also called as late syphilis, does not usually appear for several years. It is gummatous lesion which is slow and progressive. It involves chiefly the cardio-vascular system, the central nervous system and certain other organs. Late syphilis is noninfectious. Classic lesion of the tertiary syphilis is gumma. Gumma occurs most frequently in the skin and mucous membranes, liver, testes and bone. It consists of a focal, granulomatous inflammatory process with central necrosis. The lesion may vary in size from a millimetre or less to several centimetres in diameter. The intraoral gumma most commonly involves the tongue and palate. The lesion appears as a firm nodular mass on the tissue, which may subsequently ulcerate, to form a deep painless ulcer. Lesions of the palate cause perforation by sloughing of the necrotic mass of tissue. Atrophic or interstitial glossitis is the most characteristic and important lesion of syphilis. In syphilitic glossitis, the surface of the tongue gets broken up by fissures due to atrophy "snail track ulcers" and fibrosis of tongue musculature and hyperkeratosis frequently follows. Syphilitic glossitis is found almost exclusively in males.

General population prevalence data on syphilis are mostly limited to high-income countries. Especially among LMICs, currently available data likely underestimate the true burden of syphilis due to poor documentation and underreporting. Most country-representative data come from studies conducted among women at their first antenatal care visit and reported by the WHO. Syphilis infected over 5% of sex workers in 11 of 32 reporting countries for 2019 and over 10% in 4 countries. Among these 32 reporting countries for 2019, an average of 10.8% of sex workers tested were diagnosed with active syphilis. Sex workers include female, male and transgender adults and young people who receive

money or goods in exchange for sexual services, either regularly or occasionally. Sex workers in many places are highly vulnerable to HIV and other sexually transmitted infections (such as syphilis) due to multiple factors, including large numbers of sex partners, unsafe working conditions, and inability to negotiate consistent condom use. Syphilis screening and treatment among sex workers has the potential to both improve the health of individual sex workers as well as their clients.

2. Diagnosis

Wassermann test and Hinton test (based on flocculation) were considered to be effective tests for the diagnosis of syphilis, but the disadvantage is false-positive results. The diagnosis can be made by examining the active lesion under a dark-field microscope. Care should be taken to eliminate salivary contamination since false-positive results are possible due to the presence of *T. microdentium* and *T. macrodentium*. Specific and highly sensitive serological tests are fluorescent treponemal antibody absorption and *T. pallium* hemagglutination assays.

Treatment-Penicillin is the drug of choice erythromycin or tetracycline is used if the patient is allergic to penicillin. Surgical correction of the facial defects gives good esthetic results. Specifically for primary and secondary-Procaïne Penicillin (oxytetracycline for penicillin allergy). For tertiary-Benzathin Penicillin G (oxydoxycycline for penicillin allergy). For quaternary-Procaïne Penicillin G (oxytetracycline for penicillin allergy). Differential diagnosis for primary can be herpes simplex and secondary lesion. For secondary can be lymphadenopathy or infectious mononucleosis

Syphilis Prevention: You can get syphilis again after treatment kills the infection. To reduce your risk of syphilis infection. Don't have intimate contact with someone if you know they're infected. If you don't know whether a sexual partner is infected, use a condom every time you have sex.

3. Conclusion

Syphilis has re-emerged as an important sexually transmitted infection. Timely diagnosis and treatment is necessary to prevent onward transmission and the development of irreversible tissue damage. Suspicion of the infection should prompt serologic testing and referral to a gum physician.

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