

Congenital syphilis: How long do we have to deal?

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ABSTRACT

Congenital syphilis is a preventable disease and its presence reflects a failure of prenatal care delivery system, as well as syphilis control programs. Adequate antenatal screening is a boon to prevent cases of congenital syphilis. There have been sporadic case reports of congenital syphilis in our country, but the exact disease burden is not very clear. We present a neonate born to a mother, who was venereal disease research laboratory (VDRL) reactive and treated before delivery. This neonate was asymptomatic after birth, but serum VDRL was reactive with a 4-fold rise in titer and cerebrospinal fluid (CSF) VDRL was also reactive. *Treponema pallidum* hemagglutination assay was detected for both the mother and baby. Neonate was treated with intravenous sodium benzylpenicillin G for 10 days. During follow-up, the patient was asymptomatic and CSF and serum VDRL were non-reactive after 6 months.

Key words: *Congenital Syphilis, Antenatal screening*

Congenital syphilis is a rare and serious disease that although preventable continues to be a major health-care problem [1]. Its presence reflects a failure of prenatal care delivery system, as well as syphilis control programs. It is an infectious disease caused by *Treponema pallidum* transmitted through sexual contact and newborn babies through transplacental route to an infected mother. Untreated pregnant women with primary and secondary syphilis and spirochetemia are more likely to transmit infection than women with latent infection. Transmission can occur throughout pregnancy and 40% of affected fetuses die in the intrauterine or perinatal period [2]. Clinical manifestations of congenital infections are varied and involve multiple organ systems. Majority of the infants are asymptomatic at the time of birth, but if untreated; symptoms develop within weeks or months [3]. We present a neonate with congenital syphilis, asymptomatic at birth, and diagnosed with laboratory investigations.

CASE REPORT

A male neonate born to a G3P1A1L1 mother by full-term normal vaginal delivery. He was born to a non-consanguineous parents, with a birth weight of 3.8 kg. Mother had an uneventful pregnancy, however, found to be venereal disease research laboratory (VDRL) positive. During her first pregnancy, mother was VDRL positive, the female baby was born, who was asymptomatic and VDRL negative at the time of birth and continued the same status till date. During the second pregnancy, the outcome was abortion. This time during the third pregnancy; VDRL was positive, but quantitative titers were not available. She was treated with Inj. benzathine penicillin before this pregnancy but repeat VDRL titer post-treatment was not available. No treatment was taken during the pregnancy.

The baby cried immediately after birth. On examination, vitals were stable; cry, tone, and activity were normal and no markers of syphilis were found on the clinical examination. The baby was taking breastfeeds normally and passing urine and stools adequately. On laboratory investigation, serum VDRL was reactive (1:256), *T. pallidum* hemagglutination assay (TPHA) was detected (1:160), and cerebrospinal fluid (CSF) VDRL was also reactive. After delivery, maternal VDRL was reactive (1:32) and TPHA was detected (1:1280). There was a 4-fold rise in neonatal VDRL titers. Other investigations in the neonate revealed normal hemogram, negative sepsis screen, normal liver, and renal function tests and negative results for hepatitis B surface antigen, anti-hepatitis C virus, and human immunodeficiency virus. Radiological investigations were normal with normal ultrasonography abdomen.

Diagnosis of congenital neurosyphilis was made based on positive serological tests. Neonate was managed with intravenous sodium benzylpenicillin G-50,000 U/kg/dose twice daily for 7 days, then thrice daily for next 3 days and supportive therapy. During follow-up, the patient was asymptomatic, and CSF and serum VDRL were non-reactive after 6 months. Later, the mother was treated with Inj. benzathine penicillin as per guidelines and VDRL became non-reactive.

DISCUSSION

Diagnosis of congenital syphilis is made when the mother of an infant has a reactive treponemal test or non-treponemal serologic test with 4-fold higher titers than mother's titers or characteristic clinical findings in the infant or when *T. pallidum* is demonstrated by dark-field microscopy or immunofluorescence from placental, skin, or

umbilical lesions. Non-treponemal test such as VDRL test is useful for correlating disease activity. Titers rise when the disease is active and fall when treatment is adequate as in our case neonatal titers were 4-fold higher than the maternal titers before treatment. VDRL usually becomes non-reactive in 1 year for treated primary syphilis and in 2 years for treated secondary syphilis. In this case, it became non-reactive after 6 months. False-positive VDRL can occur in an uninfected infant due to passively transferred maternal antibody and is suggested when neonatal titers are less than maternal titers, but these passively transferred antibodies disappear by 3 months of age. Treponemal tests such as fluorescent treponemal antibody absorption test (FTA-ABS) are used for confirmation of positive results of VDRL. These tests remain positive for life, even when the patient is treated and hence cannot be used for monitoring treatment [4].

Early congenital syphilis is analogous to the secondary stage of acquired syphilis. Patients may present with hepatosplenomegaly, jaundice, elevated liver transaminases, lymphadenopathy, and Coomb's negative hemolytic anemia may be seen. Thrombocytopenia due to platelet trapping in the spleen is common. The characteristic rash seen is mucocutaneous erythematous maculopapular lesions followed by desquamation over hands and feet. Rhinitis and condylomatous lesions over mucous membranes are common [2]. Bone involvement in the form of painful osteochondritis at wrists, elbows, ankles, and knees occurs frequently. Periostitis of long bones may be seen. CNS involvement, failure to thrive, chorioretinitis, and nephrotic syndrome may also be seen [2].

Late congenital syphilis results primarily from chronic inflammation of bone, teeth, and CNS. The bony prominence of the forehead (Olympian brow), thickening of the sternoclavicular portion of the clavicle, anterior bowing of the mid-portion of the tibia (saber shins), and scaphoid scapula are resulted due to persistent or recurrent periostitis. Peg-shaped upper central permanent incisors and notched enamel (Hutchinson's teeth) are common. Saddle nose due to syphilitic rhinitis and a perforated nasal septum can occur. Other features of late congenital syphilis are Juvenile paresis, Juvenile tabes dorsalis, aortitis, interstitial keratitis, eighth nerve deafness, and Clutton's joints [2]. Hutchinson's triad is composed of interstitial keratitis, eighth nerve deafness, and Hutchinson's teeth.

As already stated, the majority of infants are asymptomatic at the time of birth as in this case report also. Kucinskiene *et al.* (2016) from Lithuania reported clinical variations in early symptomatic congenital syphilis in a case report. In their case report, neonate presented with rashes, blisters, and wound immediately after delivery [5]. Shah I (2005) reported a case with a delayed diagnosis of early congenital syphilis. The infant was diagnosed at 7 months of age due to characteristic skin lesions. The mother was diagnosed to be VDRL positive during pregnancy; however, the child was not investigated for same after birth and was subsequently diagnosed only much later in life [6]. Another case report from New Delhi (2007) reported a case of late congenital syphilis presented at the age of 13 years with palatal perforation [7].

CDC recommends treatment for following infants: (1) Born to mothers who had untreated syphilis at birth, (2) evidence of maternal relapse or reinfection, (3) evidence of active disease in infant, (4) radiologic evidence of syphilis, (5) reactive CSF-VDRL in infants,

and (6) infant's VDRL titer at least 4-fold greater than the mother's titer. If maternal treatment is adequate and more than 1 month before delivery and if infant's VDRL test represents passively transferred antibody, the infant does not require treatment and follow-up VDRL is recommended [7]. Since CSF VDRL is not very sensitive, all infants with a diagnosis of congenital syphilis should be treated with the regimen for neurosyphilis. Treatment consists of crystalline penicillin G (100,000–150,000 U/kg/day 12 h for 7 days and thereafter 8 hourly for total 10–14 days) or procaine penicillin (50,000 U/kg IM daily for 10–14 days). Treated infants should be followed serologically to confirm decreasing VDRL titers [8].

If congenital syphilis is to be targeted for elimination, new approaches are required. The true incidence must be determined, diagnostic measures improved and risk factors controlled. There is a need to reexamine the current policies related to antenatal care and steps must be taken to overcome all administrative and cultural barriers. Control measures must be based on mandatory antenatal screening in the first trimester supported by treatment and partner notification with adequate follow-up. Antenatal care must be strengthened to ensure that there is no reinfection; by treating a sexual partner, promoting condom uses during pregnancy and counseling all women on how to prevent sexually transmitted infection. Only a substantial effort can make congenital syphilis a tragedy of the past.

CONCLUSION

We present a case of congenital syphilis in a neonate born to a VDRL-positive mother which highlights the importance of adequate antenatal screening to prevent the cases of congenital syphilis. There have been sporadic case reports of congenital syphilis in our country, but the exact disease burden is not very clear.

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