CASE REPORT

A Rare Case of Congenital Syphilis Presented with *Pneumonia alba*

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Abstract

Congenital syphilis is an infectious disease primarily caused by the hematogenous transmission of *Treponema pallidum*, a spirochete bacterium, from an infected mother to the fetus through the placenta during pregnancy. In the present era, congenital syphilis manifests as prematurity intrauterine growth retardation (IUGR) and can develop as acute systemic illness (*Pneumonia alba*, nonimmune hydrops), bone deformities, developmental disabilities, blindness, or deafness immediately or later in life. We report an infant diagnosed with congenital syphilis with IUGR and pneumonia at birth. This case reveals that there is an incidence of missed prevention and the importance of awareness and maternal screening for syphilis in the antenatal period.

Keywords: Case report, Congenital syphilis, Intrauterine growth retardation, *Pneumonia alba*, *Treponema pallidum*.

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Introduction

Congenital syphilis is an infectious disease resulting mainly from hematogenous transmission of *Treponema pallidum*, a spirochete bacterium, through the placenta of an infected mother to the fetus during pregnancy.[1] When syphilis remains untreated in pregnant women, the bacteria can penetrate the placenta, leading to infection in the developing fetus. The infection can disrupt placental function, leading to a reduction in the supply of oxygen and nutrients to the developing fetus. This disruption can result in early fetal death, low birth weight, preterm delivery, neonatal death, or infection or disease in newborns. The rate of vertical transmission from an untreated mother significantly decreases over time. The longer the interval between infection and conception, the better the outcome, a phenomenon known as Kassowitz's law/Diday's law 2."

It is categorized as early congenital syphilis when clinical manifestations occur before the age of 2 and as late congenital syphilis when signs and symptoms appear after the 2nd year 3. Although most infants with congenital syphilis are asymptomatic at birth, among those who do exhibit symptoms, early congenital syphilis presents with clinical manifestations such as skin rash, snuffles, jaundice, hepatomegaly (with or without splenomegaly), fever, generalized lymphadenopathy, and failure to thrive.[2–4]

Clinical manifestations of late congenital syphilis include perioral fissures (rhagades), saddle nose deformity, frontal bossing, Hutchinson's triad (peg-shaped, notched, and widely spaced permanent upper central incisors and interstitial keratitis and eighth cranial nerve deafness), mulberry molars, mental retardation, perforation of the hard palate, and prognathism. Syphilis can invade the central nervous system, leading to neurosyphilis in infants; this can result in serious neurological impairments, including cognitive delays, seizures, hearing loss, and visual impairment. The long-term consequences can extend into adulthood, hampering educational attainment and quality of life.

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Case Description

This term male neonate was born to a 32-year-old P3L2D1 mother. The first pregnancy was uneventful, with no comorbidities and delivered a term male neonate with a birth weight of 3000 gm; the child is 7 years old now and healthy. The second pregnancy was uneventful and delivered a term male neonate with a birth weight of 2500 gm; the infant died at 3 months of age with jaundice, but further evaluation of the infant was not done. During the first and second pregnancies, venereal disease research laboratory (VDRL)/rapid plasma regain (RPR) was not reactive in the mother. During the third pregnancy (the current pregnancy) mother conceived spontaneously, and regular antenatal follow-up was done at a government hospital. VDRL/RPR was nonreactive during the first trimester. The antenatal period was uneventful, with no comorbidities. There is no history of itching or lesions over the vulval/genital region or history suggestive of syphilis in the mother and the father during the antenatal period or any time prior to this conception. At 37 weeks of gestation

(3 days before the delivery) mother was evaluated, and she was VDRL/RPR reactive (1:8 dilutions) and *Treponema pallidum* hemagglutination (TPHA) reactive. Neonate was delivered at 38 weeks of gestation with a birth weight of 2070 grams through elective lower segment cesarean section (LSCS), indicating two previous LSCS in labor. The mother's placenta was normal on examination. Neonate cried immediately after the birth, with Apgar scores 8 and 9 at 1 and 5 minutes after birth, respectively. The neonate received essential newborn care along with an injection of vitamin K. As the neonate had a low birth weight, the blood sugars of the neonate were checked at 30 minutes of life, and it was 50 mg/dL (capillary blood glucose). Neonate was immediately started on feeds (expressed breast milk), and sugars were rechecked after 30 minutes. After 30 minutes neonate presented with a symptomatic hypoglycemic episode with blood sugar of 36 mg/dL and jitteriness, for which the neonate was admitted and further evaluation and management were planned accordingly. Intravenously, 2 mL/kg bolus of 10% dextrose along with adequate expressed breast milk was given. Neonate had further hypoglycemic episodes and jitteriness till the 5th day of life, for which neonate received intravenous fluids with glucose infusion rate adjusted to the blood sugar levels along with expressed breast milk. On physical examination, there was no rash over the body, no nasal discharge, no bulging of anterior fontanelle with head circumference (HC) = 32 cm (10th centile), and no hypotonia. No hepatosplenomegaly and no visible musculoskeletal abnormalities were noted. Neonate had no clinical manifestations of congenital syphilis and was hemodynamically stable.

Initial hemogram revealed hemoglobin: 15.5 gm/dL; total leukocyte count: 16,600 × 10^9 and platelet count: 150,000/mm^3. C-reactive protein (CRP) at 12 hours of life was normal (4.8 mg/L). The liver function test revealed normal transaminases and proteins.

On day 2 of life, the child developed respiratory distress, with a chest X-ray showing diffuse haziness in the left lower zone. Neonate was started on oxygen (2 L/minute) by nasal prongs for 2 days, and suspecting early-onset sepsis, a blood culture was sent before starting intravenous antibiotics, ampicillin and amikacin. Repeat CRP at 48 hours of life was 72.8 mg/L. Antibiotics were upgraded to piperacillin-tazobactam and continued for 3 days. Blood for culture and sensitivity showed no bacterial growth after 72 hours. On investigating further, VDRL was reactive in the neonate; the rapid plasma regain (RPR) test was positive at a dilution of (1:32), and the TPHA was also reactive. The cerebrospinal fluid (CSF) analysis revealed an elevated cell count of 200 cells/mm^3, consisting entirely of lymphocytes, along with increased sugar levels at 12.5 mg/dL and elevated protein levels at 800 mg/dL. Concomitant blood sugar was 61 mg/dL. CSF for Gram stain did not show any bacteria. CSF for culture and sensitivity did not grow any organism. CSF RPR and TPHA were nonreactive. Arterial blood gas analysis was normal. Further evaluation, including two-dimensional echocardiography, ophthalmology, neurosonogram, and ultrasonography of the abdomen, showed a normal study. Long bone radiography was normal, and the screening test for sensory neural hearing loss was normal. According to the Centers for Disease Control criteria for diagnosis of congenital syphilis, the neonate had fourfold higher RPR titers compared to the mother's RPR titers and the diagnosis was confirmed as congenital syphilis, with a high degree of certainty.

Management and Outcomes

The neonate received an injection of benzylpenicillin (50000 units/kg/dose) intravenously every 12 hours during the first 7 days of life and every 8 hours thereafter for a total of 10 days and was discharged on the 14th day of life. On follow-up, the infant was thriving well at 1 month and 3 months of life.

Discussion

Congenital syphilis is a preventable infection that can be effectively treated when pregnant women receive early testing and treatment during antenatal care. In the present era, congenital syphilis can manifest as prematurity intrauterine growth retardation (IUGR) and can lead to acute systemic illness such as pneumonia or nonimmune hydrops. It may also result in bone deformities, developmental disabilities, blindness, or deafness either immediately after birth or later in life. Our newborn was diagnosed with congenital syphilis and presented with IUGR and pneumonia at birth. In congenital syphilis, IUGR is frequently observed, and it is believed to be a consequence of syphilitic placentitis, which leads to insufficient nutrition for the fetus. This emphasizes the importance of antenatal screening and treatment for syphilis in pregnant women.

In the World Health Organization Southeast Asia Region, in 2012, there were 103,960 cases of maternal syphilis in India, with estimation of 16,324 cases of congenital syphilis, in 2015 the incidence of congenital syphilis was 60 per 100,000 live births.[5,6]

Congenital syphilis remains a significant healthcare challenge despite being a rare and preventable disease. We present the case of an infant diagnosed with congenital syphilis who exhibited IUGR and pneumonia at birth. This case underscores the occurrence of missed preventive measures and highlights the crucial importance of maternal screening for syphilis during the antenatal period.

Conclusion

Congenital syphilis poses a significant threat to the health and well-being of the affected infants, with long-term consequences that can extend into adulthood. Prevention and early detection play an important role in combating this disease. Timely prenatal care, routine screening and prompt treatment are paramount to safeguard the health of both mothers and unborn children. By raising awareness, improving access to healthcare and implementing comprehensive prevention strategies, we can work towards eradicating the disease and ensuring healthier future generations to come.

References

1. Patel NU, Oussedik E, Landis ET, et al. Early congenital syphilis: recognising symptoms of an increasingly prevalent disease. J Cutan Med Surg 2018;22(1):97–99. DOI: 10.1177/1203475417728360
2. Vashisht D, Baveja S. Eponyms in syphilis. Indian J Sex Transm Dis 2015;36(2):226–229. DOI: 10.4103/0253-7184.167197
3. Cooper JM, Sanchez PJ. Congenital syphilis. Semin Perinatol 2018 42(3):176–184. DOI: 10.1053/j.semperi.2018.02.005
4. Lago EG, Vaccari A, Fiori RM. Clinical features and follow-up of congenital syphilis. Sex Transm Dis 2013;40(2):85–94. DOI: 10.1097/OLQ.0b013e31827bd688
5. Elimination of new paediatric HIV infections and congenital syphilis in Asia Pacific 2011–15: conceptual framework, monitoring and evaluation guide. Bangkok: UNICEF East Asia and Pacific Regional Office; 2011 (http://www.unicef.org/eapro/PPTCT_CF_and_ME_guide_17Aug11. pdf, accessed 16 November 2015).

6. The national strategy and operational guidelines towards elimination of congenital syphilis 2015. New Delhi: National AIDS Control Organisation; 2015 (http://www.searo.who.int/india/publications/elimination_of_congenital_syphilis_part1.pdf, http://www.searo.who.int/india/publications/elimination_of_congenital_syphilis_part2.pdf, http://www.searo.who.int/india/publications/elimination_of_congenital_syphilis_part3.pdf, accessed 16 November 2015).