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Original Research Paper

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A SILENT THREAT: MULTISYSTEM CONGENITAL SYPHILIS IN A PRETERM NEONATE- A CASE REPORT AND CALL FOR ENHANCED PRENATAL SCREENING

Dr. K Keerthana* NNF Fellow, Paramitha Hospital for women and child, Hyderabad. *Corresponding Author

Dr Jagan Mohan Varakala Paramitha Hospital for women and child, Hyderabad.

Dr Rukesh Chary Paramitha Hospital for women and child, Hyderabad.

ABSTRACT

Background: Congenital syphilis a preventable disease, continue to pose a significant public health challenge globally. Despite advancements in maternal healthcare, inadequate screening and treatment during pregnancy have led to resurgence of this condition, resulting in severe neonatal complications.

Case Presentation: A preterm female neonate, born at 33 weeks of gestation with birth weight of 1470 grams presented with respiratory distress requiring CPAP support. Clinical examination revealed distinctive copper-red maculopapular lesions over palms and soles with desquamation and significant hepatosplenomegaly. **Investigations:** Laboratory studies showed anemia (Hb 10 g/dL), thrombocytopenia (platelets 75,000/ L), leukocytosis (WBC 84,000/ L), and cholestatic jaundice (total bilirubin 10.7 mg/dL, direct 4.1 mg/dL). Radiographs demonstrated metaphyseal demineralization. cerebrospinal fluid analysis confirmed neurosyphilis with a reactive VDRL titer (1:4). Auditory assessment revealed bilateral hearing loss. **Diagnosis and Treatment:** The constellation of clinical and laboratory findings confirmed early congenital syphilis with neurosyphilis. Treatment with intravenous aqueous crystalline penicillin G was initiated according to standard guidelines. **Conclusion:** This case underscores the critical importance of maternal syphilis screening during pregnancy, particularly in high incidence areas. Early diagnosis and treatment within the first three months of life are essential to prevent long term sequelae and complications.

KEYWORDS : Congenital syphilis; Preterm neonate; Hepatosplenomegaly; Cholestatic jaundice; Hearing loss, neurosyphilis

INTRODUCTION

Congenital syphilis (CS) remains a significant public health concern globally despite being entirely preventable with adequate maternal screening and treatment. The incidence of congenital syphilis has increased dramatically in recent years, with 1,870 cases reported in the United States in 2019, including 94 stillbirths and 34 infant deaths. This represents a 477% increase compared to 2012 rates. This resurgence highlights significant gaps in antenatal care and screening protocols.

Congenital syphilis occurs through transplacental transmission of Treponema pallidum from an infected mother to her fetus or through contact with infectious lesions during delivery. The risk of vertical transmission is highest during primary and secondary maternal syphilis and decreases with latent infection. The clinical manifestations of congenital syphilis range from asymptomatic infection to severe multisystem disease, with symptoms possibly emerging within the first weeks of life or delayed for months or years.

This case report details the presentation of a preterm neonate with classic signs of early congenital syphilis, emphasizing the need for heightened clinical suspicion and robust prenatal screening to prevent this devastating condition.

CASE PRESENTATION

Patient Information

A preterm female neonate, born at 33 weeks of gestation with a birth weight of 1470 grams, was admitted to the Neonatal Intensive Case Unit (NICU) for respiratory distress. The baby was born delivered by emergency caesarean due to preterm onset of labour on June 15, 2024.

Clinical Findings

Upon admission, the neonate exhibited respiratory distress with a Silverman Anderson score of 3/10. Physical examination revealed copper-red maculopapular lesions on the palms and soles, desquamation, and significant hepatosplenomegaly (liver palpable 2 cm below the costal margin, spleen 4 cm below). Anthropometric measurements indicated growth restriction, with weight at the 10th percentile and occipitofrontal circumference and length at the 3rd percentile.

DIAGNOSTIC ASSESSMENT

Laboratory tests confirmed anemia (Hb 10 g/dL), thrombocytopenia (platelets 75,000/ L), leukocytosis (WBC 84,000/ L), and cholestatic jaundice (total bilirubin 10.7 mg/dL, direct 4.1 mg/dL). Radiographs revealed metaphyseal demineralization, and lumbar puncture confirmed neurosyphilis with a reactive CSF VDRL titer (1:4). Auditory assessment identified bilateral hearing loss.

THERAPEUTIC INTERVENTION

The neonate was started on intravenous aqueous crystalline penicillin G therapy. The treatment regimen consisted of 50,000 units/kg per dose administered every 12 hours during the first 7 days of life and then every 8 hours for a total of 14-days. Respiratory support was provided via CPAP, later transitioning to high-flow nasal cannula as the infant's condition improved.

Follow-up And Outcomes

Clinical improvement was observed following antibiotic therapy, with resolution of anemia and thrombocytopenia. Long-term follow-up was arranged with infectious disease, neurology, audiology, and ophthalmology specialists to monitor for potential sequelae.

DISCUSSION

This case illustrates several important aspects of congenital syphilis that merit discussion. First, the maternal history revealed a concerning scenario in which the mother, despite undergoing routine screening, might have had false-negative VDRL results during pregnancy. This phenomenon, known as the prozone effect, occurs in approximately 1-2% of cases, particularly during pregnancy, and can lead to missed diagnoses if not recognized. The prozone phenomenon occurs when there is an excess of antibodies relative to antigen, preventing the formation of visible agglutination in non-diluted specimens.

The case also underscores the wide spectrum of clinical manifestations of early congenital syphilis. The classic triad of Hutchinson (interstitial keratitis, Hutchinson teeth, and eighth nerve deafness) is typically associated with late congenital syphilis, while early manifestations include hepatosplenomegaly, cutaneous lesions, osteochondritis, pseudoparalysis, and hematological abnormalities. Our patient demonstrated several of these early manifestations, including the characteristic rash on palms and soles, hepatosplenomegaly, bone changes, anemia, and thrombocytopenia.

The diagnosis of congenital syphilis can be challenging, as maternal IgG antibodies can cross the placenta, making interpretation of serological tests difficult in neonates. The reactive CSF VDRL in our patient was particularly significant as it indicated neurosyphilis and necessitated a full 14-day course of intravenous penicillin therapy. The bilateral hearing loss detected in our patient is a known complication of congenital syphilis and highlights the importance of comprehensive evaluation and long-term follow-up of affected infants.

The resurgence of congenital syphilis globally, despite being entirely preventable, highlights significant gaps in antenatal care and syphilis screening protocols. Risk factors for maternal syphilis include multiple sexual partners, substance abuse, late entry to prenatal care, homelessness, and incarceration. Enhanced screening protocols, particularly for high-risk pregnancies, could significantly reduce the incidence of congenital syphilis.

This case also emphasizes the importance of considering congenital syphilis in the differential diagnosis of neonates presenting with multisystem involvement, even in settings where routine maternal screening is practiced. The prozone phenomenon, as well as seroconversion late in pregnancy, can lead to false-negative maternal test results, as potentially occurred in this case.

Recent surveillance data from the European Centre for Disease Prevention and Control indicates an increasing trend in congenital syphilis cases, highlighting that this remains a significant public health concern not limited to developing countries. The CDC recommends serological testing for syphilis during the first prenatal visit, at 28 weeks' gestation, and at delivery for women at high risk or in high-prevalence areas.

CONCLUSION

This case report serves as a stark reminder of the ongoing threat posed by congenital syphilis and the importance of maintaining a high index of suspicion in neonates with multisystem involvement. Early diagnosis and treatment are crucial to preventing severe complications and long-term sequelae. Robust prenatal screening, timely treatment of infected mothers, and comprehensive follow-up care are essential components of a multifaceted approach to eradicating this preventable disease.

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