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CONGENITAL TUBERCULOSIS: A RARE BUT SERIOUS NEONATAL DIAGNOSIS

Respiratory Medicine

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KEYWORDS

INTRODUCTION

Congenital tuberculosis is an uncommon yet serious condition in which a fetus acquires infection from the mother, either while in the womb or during delivery. The transmission occurs when a mother with active TB develops a bacillemic state, leading to infection of the placenta or genital tract. The fetus can become infected either through direct hematogenous spread via the umbilical vein or by swallowing/aspirating infected amniotic fluid. Hematogenous transmission often results in primary lesions in organs such as the liver or lungs. Rarely, the infection may also be acquired after birth through environmental exposure. Clinical suspicion must be high, especially in infants with suggestive symptoms and a maternal history of tuberculosis. Confirmatory tests such as CBNAAT or culture of gastric aspirate aid diagnosis. Early initiation of anti-TB medications significantly improves outcomes. This case underlines the need for thorough maternal evaluation and neonatal screening in high-risk cases to facilitate timely treatment.

Epidemiological Insight

The first documented case of congenital TB dates back to 1955 in China. From 1946 to 1994, about 358 cases were recorded, followed by 110 cases from 1994 to 2009, and 20 more between 2011 and 2017. Research indicates that if the mother remains undiagnosed and asymptomatic during pregnancy, the risk of neonatal mortality is approximately doubled.

Case Summary

A female infant, aged 1 month and 14 days, presented to the emergency department with complaints of abdominal distension and labored breathing. She was delivered via cesarean section at 37 weeks and 4 days of gestation due to breech presentation, with a birth weight of 2.25 kg. The infant first showed symptoms on day 3 of life and had a fever up to 103°F by day 6, along with reduced activity and poor feeding.

Initial management at a local clinic involved IV fluids, but the condition persisted. She was then shifted to another hospital where she received antibiotics and supportive care for 18 days. A platelet count of 36,000 warranted transfusion. After temporary recovery, symptoms reappeared 12 days later, prompting admission to a tertiary care center.

Clinical Evaluation and Management

1. Neonatal Sepsis

With features of infection, including raised white cell counts (TLC 28,000, neutrophils 63%), thrombocytopenia (88,000), and elevated CRP, sepsis was suspected. A lumbar puncture revealed raised CSF proteins. Empirical antibiotics (cefataxime and amikacin) were administered.

2. Respiratory Symptoms

Chest radiograph displayed bilateral infiltrates. The child required nasal oxygen for 4 days, along with nebulization and gentle chest physiotherapy.

3. Organomegaly

Ultrasound of the abdomen revealed hepatosplenomegaly with scattered echogenic foci in the spleen. Screening for congenital infections (TORCH) and inborn errors of metabolism returned negative.

4. Microcephaly

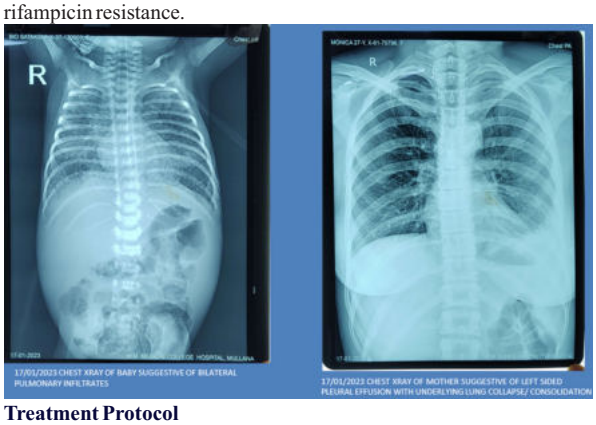
The head circumference was measured at 32 cm, below the 3rd percentile for age.

5. Anemia

Hemoglobin levels were 7.2 g/dL, necessitating packed red cell transfusion.

6. Suspicion of Congenital TB

Based on maternal history of cough in the second trimester, hepatosplenomegaly, and radiological findings, tuberculosis was considered. Gastric aspirate from the infant tested positive for acid-fast bacilli, and CBNAAT detected *Mycobacterium tuberculosis* without rifampicin resistance.



Treatment Protocol

The baby was started on first-line anti-tubercular treatment (ATT) on January 18, 2023:

- **Isoniazid:** 25 mg once daily
- **Rifampicin:** 37.5 mg once daily
- **Pyrazinamide:** 75 mg once daily
- **Ethambutol:** 30 mg once daily
- **Pyridoxine:** 10 mg once daily

The mother's Montoux test was positive, and her chest X-ray revealed mild pleural effusion. Her sputum was CBNAAT-positive for TB with no drug resistance, leading to initiation of ATT on January 25, 2023. Exclusive breastfeeding was encouraged throughout.

Diagnostic Criteria – Cantwell's Guidelines (1994)

A confirmed TB lesion in an infant must be accompanied by at least one of the following:

1. Symptom onset within the first week of life
2. Primary hepatic complex present
3. TB detected in maternal genital tract or placenta
4. No evidence of postnatal TB exposure after detailed contact tracing

Discussion Points

- The risk of fetal TB transmission increases if the mother remains undiagnosed or untreated during pregnancy.
- In this case, symptoms began by day 3 of life, supporting congenital origin.

- Abdominal imaging for suspected maternal TB should be considered with fetal shielding.
- Histological examination of the placenta may provide additional diagnostic clues in suspected cases.
- Neonates born to mothers with TB risk should be carefully assessed and followed up by pediatricians.

CONCLUSION

Congenital TB, though rare, is a life-threatening condition that requires prompt recognition and treatment. This case emphasizes the importance of maternal screening during pregnancy, especially when TB is suspected or confirmed. Early diagnosis through gastric aspirate and radiographic evaluation, along with immediate initiation of ATT, was instrumental in the positive outcome of this child. Both mother and baby showed improvement and were discharged in stable condition, continuing on appropriate anti-TB therapy.

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