

A Case of Postnatally Acquired Tuberculosis in a 2 Month Old Infant

Anshuman Dhawan

ABSTRACT

Introduction: Postnatally acquired tuberculosis is a serious disease caused by mycobacterium tuberculosis. It is fatal if left untreated. Following case report emphasises the need to consider tubercular infection in newborns and infants presenting with pulmonary infections particularly in India where burden of Tb is high.

Case report: we present a case of 68 days old female infant brought to us with cough & respiratory distress. Investigations revealed tubercular infection, which the patient acquired postnatally from her paternal aunt, who was taking care of the child in the initial few days of her life.

Conclusion: India is a country with high Tb prevalence. Therefore, in our country, physicians need to have a high index of suspicion for congenital or perinatal tuberculosis while evaluating infants with pneumonia. Early diagnosis and treatment improves the prognosis significantly.

Keywords: Tuberculosis, Hepatosplenomegaly, Respiratory Distress, Postnatal Acquisition.

INTRODUCTION

Tuberculosis is a serious public health issue. According to World Health Organization (WHO) statistics, around 10.0 million people fell ill with Tb in 2018¹, of which children accounted for 11% cases. Due to diagnostic difficulties, the actual burden of pediatric Tb is not known. Childhood deaths from Tb are usually caused by meningitis or disseminated disease.² India is the highest Tb burden country in the world. It accounts for roughly one-fourth of estimated global incident Tb cases in the world. Despite the high prevalence of this disease in adults and children, the congenital and perinatal forms of tuberculosis are rare. The two routes of acquisition of congenital tuberculosis are: 1) hematogenic, through the umbilical vein, with a primary lesion in the liver or lung; and 2) breathing or swallowing infected material, with the primary lesion in the lung or gastrointestinal tract.^{3,4} An infant can also acquire Tb via postnatal exposure from contacts. We describe a case of postnatally acquired tuberculosis in a child with symptoms beginning on 53rd day of life.

CASE REPORT

A 68 day old female child was brought to Pediatric Department in Bebe Nanaki Centre for Mother & Child care, Amritsar, with complaints of cough for 15 days & difficulty breathing in the form of increased rate of breathing for 3 days. Baby was apparently well until 15 days ago. She developed cough which was intermittent & interfered with sleeping & feeding. The episodes of cough increased progressively over last 15 days. Since previous 3 days, child developed increased rate

of breathing & respiratory distress. History of fever, rash, coryza, conjunctivitis or cyanosis could not be elicited.

On examination, the child was irritable, tachypneic with respiratory rate 51 breaths per minute. Room air oxygen saturation was between 60 to 65%. Child had moderate subcostal & intercostal retractions. On auscultation, air entry was equal bilaterally, with no adventitious sounds heard. Child was afebrile. Child had normal heart rate & heart sounds. Per abdomen examination revealed hepatosplenomegaly. Liver was palpable 4.4 cm below RCM with span of 8 cm, with smooth margins & soft consistency. Spleen was 2.5 cm, soft in consistency. There was no other palpable mass, no lymphadenopathy. Anthropometry revealed weight= 3.3 kg, length=54 cm & head circumference=37.5 cm against the median of 3.7 kg, 52 cm & 38.5 cm respectively for her age & sex(WHO). Child was immediately placed on nasal oxygen inhalation, i/v fluids and injection co-amoxycylav.

Child was first in birth order (no h/o previous abortion/stillbirth), born by LSCS, indication for which being prolonged labour & meconium staining of liquor. The routine prenatal screening and obstetric ultrasonography during her pregnancy were all normal. Child cried immediately at birth. Birth weight was not recalled by parents. Breastfeeding was started since day 2nd of life & child was exclusively breastfed till date. Child had received BCG vaccination within 24 hours of birth, along with Hep B & was immunised at 6 weeks of age as per the National Immunisation Schedule. Child's biological father had pulmonary Tb 4 years ago, for which ATT was given for about one year & as per the informant, was successfully treated with resolution of fever & cough. Mother had no h/o cough, fever or dyspnea & was never screened for pulmonary tuberculosis. As per the informants, child's paternal aunt had active pulmonary Tb and was on ATT since 4 months. She used to help the mother to take care of the child as well as breastfeed the child during the initial few days of her life.

Investigations revealed Hb=8.6 gm/dL, TLC=17,400/mm³, Differential=Neutrophil 72%, Lymphocytes 25%, Monocytes 1% & Eosinophils 2%, Platelet count 60,000/mm³. Chest X ray revealed military pattern of involvement (Figure.1).

Consultant, Department of Pediatrics, Rattan Multispeciality Hospital, Ludhiana, Punjab, India

Corresponding author: Dr. Anshuman Dhawan, H. No. 10995, Prem Nagar, Haibowal Kalan. Ludhiana, Punjab. Pin- 141001, India

How to cite this article: Anshuman Dhawan. A case of postnatally acquired tuberculosis in a 2 month old infant. International Journal of Contemporary Medical Research 2020;7(6):F1-F2.

DOI: <http://dx.doi.org/10.21276/ijcmr.2020.7.6.35>





Figure-1: Chest X ray of the child showing military pattern of involvement.

Examination for gastric aspirate for Acid fast bacilli was positive. CBNAAT for gastric aspirate was performed, in which M. Tuberculosis was detected & was sensitive to Rifampicin. CSF was examined & revealed glucose 53.5 mg/dL, proteins 83.1 mg/dL, chloride=119.0, total cell counts=8/mm³ with lymphocytes 60% and neutrophils 40%. ZN & Gram staining was negative. CSF culture was negative & CSF CBNAAT was also negative. Mantoux test revealed redness & induration of 6 mm size. ESR was 20 mm in 1st hour.

Mother was screened for active tuberculosis and HIV. She was found to be negative. The child's other contacts including her father, maternal aunt & maternal uncle were also negative for tuberculosis. As mentioned previously, history of contact was positive in the form of paternal aunt, during the initial few days of the child's life.

Anti tubercular therapy was started with HRZE daily regimen as per the RNTCP guidelines. Injection coamoxyclov was discontinued after 5 days of therapy. Child showed improvement in form of reduction in respiratory distress and retractions. Cough started improving & disappeared totally by day 15 of therapy. After 1 week of ATT, child was able to maintain room air oxygen saturation above 90%. Weight gain began by day-7 of admission.

DISCUSSION

There are many routes of transmission for perinatal tuberculosis. It can be truly congenital by hematogenous spread from placenta or by ingestion or inhalation of infected amniotic fluid. It can also be acquired postnatally, early in life by airborne transmission from the mother or others.⁵ The only criteria for distinguishing congenital tuberculosis from postnatally acquired tuberculosis were first proposed by Beitzke in 1935 and revised by Cantwell et al. in 1994.⁶ According to the revised criteria, the infant must have proven tuberculosis lesions and at least one of the following: (i) lesions present in the first week of life; (ii) a primary hepatic complex or caseating hepatic granulomas; (iii) tuberculosis infection of the placenta or the maternal genital tract; or (iv) exclusion of the possibility of postnatal transmission by a

thorough investigation of contact. Besides, the median age of presentation of congenital tuberculosis is 24 days (range, 1 to 84 days), and the median age of diagnosis of tuberculosis in infants is 8 months (range, 3.5 to 12 months).^{6,7}

According to the literature, the symptoms of congenital Tb generally begin in the second or third week of life, and most commonly include fever, low weight gain, irritability, respiratory distress, poor feeding and hepatosplenomegaly.^{3,8-10}

However in our patient, the symptoms began later, at around 8 weeks of life. Also the mother had no evidence of disease when screened for the same. The antenatal, natal & the immediate postnatal course was uneventful. These points favour postnatal acquisition of tubercle bacilli, most probably from the paternal aunt of the child, who had active pulmonary Koch & was taking care of the child in the immediate postnatal period.

Conclusion

This case emphasizes the need to have a high index of suspicion for congenital or perinatal tuberculosis while evaluating infants with pneumonia especially in countries with high Tb burden, like India. Early diagnosis of this condition is essential to improve prognosis since the mortality rate is around 100% in untreated children^{3,9} as compared to 22% amongst those who receive treatment.⁶

REFERENCES

1. WHO (2019), *Global Tuberculosis Report 2019*.
2. WHO (2004), *Weekly Epidemiological Record*, 23rd Jan 2004, No. 4.
3. Starke J.R. Tuberculosis: an old disease but a new threat to the mother, fetus, and neonate. *Clin Perinatol* 1997;24:107-25
4. Vallejo J.G., Starke J.R. Tuberculosis and pregnancy. *Clin Chest Med* 1992;13:693-707.
5. Starke J.R. Transmission of mycobacterium tuberculosis to and from children and adolescents. *Semin. Pediatr. Infect. Dis.* 2001;12:115-123.
6. Cantwell, M. F., Z. M. Shehab, A. M. Costello et al. Brief report: congenital tuberculosis. *N. Engl. J. Med.* 1994;330:1051-54.
7. Vallejo, J.G., L.T. Ong, and J.R. Starke. Clinical features, diagnosis, and treatment of tuberculosis in infants. *Pediatrics* 1994;94:1-7.
8. Chotpitayasonondh T., Sangtawesin V. Congenital tuberculosis. *Med Assoc Thai* 2003;86:S689-S95.
9. Hageman J., Shulman S., Schreiber M., et al. Congenital tuberculosis: Critical reappraisal of clinical findings and diagnostic procedures. *Pediatrics* 1980;66:980-4.
10. Jacobs R.F., Abernathy R.S. Management of tuberculosis in pregnancy and the newborn. *Clin Perinatol* 1988;15:305-19.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 20-05-2020; **Accepted:** 15-06-2020; **Published:** 30-06-2020