

CASE REPORT

Pulmonary Tuberculosis: Atypical Presentation

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Introduction

Tuberculosis (TB) is a major global health problem. In 2016, there were an estimated 10.4 million TB cases and 10% of this was in children younger than 18 years of age.¹ Pulmonary tuberculosis is caused by *Mycobacterium tuberculosis* when droplet nuclei containing bacilli are inhaled.²⁻⁵ The course of the disease depends on the interaction between the host defence and the virulence of the organism. The major host defense is cell-mediated immunity, which is effected primarily by macrophages and T lymphocytes.⁶ The pathologic form is classified as primary or postprimary.²⁻⁵ Primary tuberculosis appears as consolidation in the lower lobes, hilar and mediastinal lymphadenopathy, pleural effusion and miliary disease. Postprimary tuberculosis appears as a nodular and linear areas of increased opacity or increased attenuation at the apex of lung.^{3-5,7,8} Common intrathoracic manifestations of tuberculosis include mediastinal or hilar lymphadenopathy and pulmonary parenchymal lesions. Lymph nodes may caseate or necrose, entering into the airway leading to bronchopneumonia.⁹ The most common symptoms include cough and mild dyspnea. Systemic complaints like fever, night sweats, anorexia and decreased activity occur less often. Some infants and young children have localized wheezing or decreased breath sound due to bronchial obstruction.¹⁰ It is a rare complication and occurs in approximately 2%-4% of patients with pulmonary tuberculosis.⁸ Airway compromise may result from compression of bronchi

by enlarged lymph nodes or less commonly, from bronchostenosis due to tuberculous granulation tissue within the bronchial mucosa.¹¹ The net effect of obstructive lymphadenopathy is the appearance of segmental atelectasis or obstructive emphysema.¹² Extra-thoracic manifestations comprise 20-40% of TB cases. The most commonly involved extra-thoracic sites are the peripheral lymph nodes and the central nervous system.⁹ Unlike confirmation of active TB in adults, which is mainly bacteriologic, diagnosis in children is usually epidemiologic and indirect. A history of recent exposure to an infected adult is critical in the absence of positive cultures, and supporting evidence is derived from tuberculin skin testing, the chest radiograph, and physical examination.¹³ For early diagnosis, a high index of awareness of this disease is required. The eradication of *Mycobacterium tuberculosis* and the prevention of airway obstruction are two most substantial treatment goals.

Case Report

Morium, a 5 months old girl, the only issue of a non-consanguineous parent, hailing from Dhaka, admitted with the complaints of low grade fever for 15 days and cough for the same duration. Her fever was continued in nature. The highest recorded temperature was 100°F, subsided by antipyretic, which was not associated with chills and rigor. With these complaints the child was consulted by a local physician and took some oral antibiotics without any

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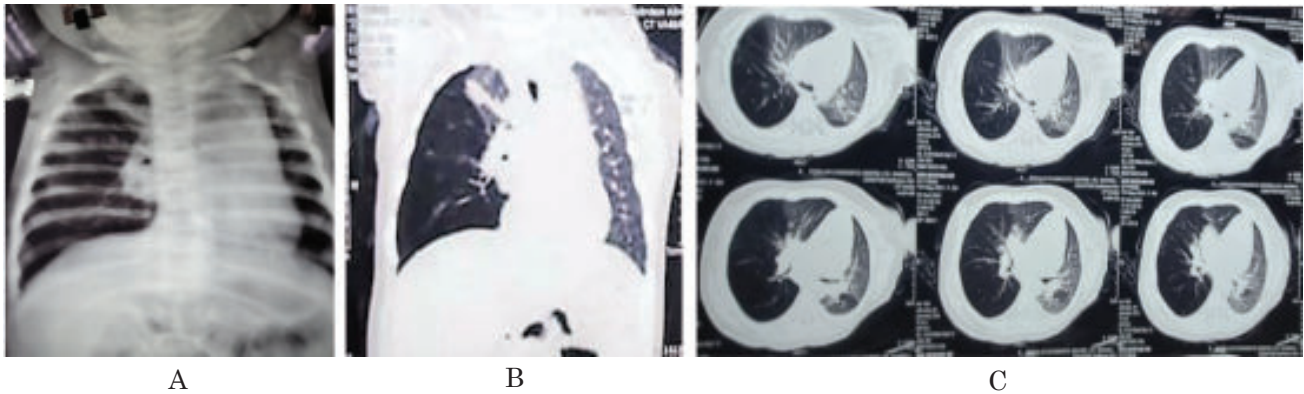


Fig.-1: (A) Shows Chest x-ray, (B & C) Shows, CT Scan of chest.

improvement then she was referred to Bangladesh Shishu Hospital and Institute for further evaluation and better management. On query, the mother stated that, her child had history of similar type of illness at the age of 2 months. In that episode, the child was hospitalized and was treated by injectable antibiotic for 7 days and was completely well at that time. She had history of significant weight loss but no history of contact with any patient with tuberculosis, measles, convulsion, alteration of bowel-habit, history of foreign body inhalation or cow's milk ingestion. Her birth history was uneventful. She was on exclusive breast feeding and was developmentally age appropriate.

On examination, the child was dyspneic, febrile, H/R-100/min, R/R-55/min. There was no lymphadenopathy and BCG mark was present. Weight was 6.8 kg, Length was 69cm. The child was moderately wasted and mildly under weight. Her chest-wall was bulged on right side. Mediastinum was shifted to left side. On percussion right chest was hyper-resonant and breath-sound was diminished on the same side. Left side was normal. Therefore, our provisional diagnosis was right sided pneumothorax due to pneumonia. After admission the child was treated by injection Ceftriaxone and injection Flucloxacilin for 7 days but no improvement was noticed.

Her investigation revealed Hb-11.1g/dl, TWBC-9580/cu mm, Neutrophil-24 %, Lymphocyte-69%, total platelet count-233000/cu mm. CXR revealed right sided long lobar emphysema with pneumonia. The CT scan of chest was suggestive of congenital lobar emphysema/congenital emphysematous bulla involving all segments of right lung except a part of

anterior segment of right upper lobe with a focal consolidation or enlarged right hilum in the right parahilar region.

Then we consulted with Pulmonology Department and they advised us to exclude TB. We also consulted with a thoracic surgeon who had advised us to go for surgery. We also did MT which was MT>20mm and Gene Xpert detected MTB from sample of gastric lavage and stool. RBS, CRP, LFT, serum electrolytes and serum calcium all reports were within normal limit.

Finally we diagnosed the case as right sided obstructive emphysema due to Pulmonary TB. We started treatment with 4-FDC and pyridoxine. Within a few days, we observed significant clinical improvement.

Discussion

TB usually presents with nonspecific symptoms, including fever, cough, wheezing, or diminished breath sounds and these lesions are not evident on chest radiographs.¹⁴ In this case Morium has low grade fever and cough. Fever is usually low grade but may become marked with advanced cavitary disease.¹⁵ Cough is the most common symptom and present in 70–80% of the patient.¹⁶ In this case BCG mark was present which co-inside neonatal BCG vaccination have reported protection rates greater than 80%.^{17,18} Tuberculin Skin Test was used for universal screening of the general population and periodic screening of high-risk populations.^{19,20} In this case MT was >20 mm, means positive. More than half the cases of airway obstruction present in <35 years of age and has a slight female preponderance.²¹ In this case Morium was a girl.

Chest X-ray shows right lung was involved. Emphysema is a major pathological feature in chronic obstructive pulmonary disease (COPD). The most important aspects of emphysema are sustained oxidative stress and cell damage mediated by macrophages and other cells of the innate and adaptive immune systems, leading to epithelial cell death.²² In this case emphysema was found. TB with Emphysema in children was not reported in Bangladesh. Other studies also showed that, the right upper and right main bronchi were involved most frequently. Addition of steroids to appropriate ATT seems to relieve the features of airway obstruction to some extent.²³ After appropriate treatment all the patients recovered.

Conclusion

Early diagnosis and aggressive treatment with antituberculous chemotherapy is necessary in the management of TB and to prevent complications like airway obstruction. Steroid therapy is effective in some extent to prevent the features of broncho-stenosis.

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