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Case Report

When common turns uncommon – an atypical presentation of childhood tuberculosis

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ABSTRACT

Paediatric tuberculosis (TB) presents distinct challenges compared to adult TB in its diagnosis, clinical presentation, and management. Diagnosis in children is often difficult because symptoms are frequently non-specific or absent, and microbiological confirmation is hard to achieve. Young children are more likely to develop extrapulmonary or disseminated forms of TB than adults., lethargy, and significant weight loss (05 kg) without cough. Clinical examination revealed markedly reduced air entry on the left side. Laboratory investigations showed elevated inflammatory Management is complicated by the lack of paediatric drug formulations and the need for careful monitoring of potential drug toxicity. Despite these challenges, children generally tolerate anti-tubercular therapy well, and treatment regimens are largely similar to those used in adults. We report a child with large mediastinal mass who was proven to have extra pulmonary tuberculosis. This case emphasizes the atypical presentation of paediatric TB as a mediastinal cystic lesion, mimicking other pathologies. It highlights the need for maintaining a high index of suspicion, especially when initial microbiological tests are negative, and underscores the importance of obtaining tissue diagnosis in suspected extrapulmonary TB. Early recognition and appropriate management are essential to prevent complications and ensure favourable outcomes in paediatric tuberculosis.

Keywords: Tuberculosis, Paediatric, Case report

INTRODUCTION

Tuberculosis has always remained as a global health concern particularly in the low- and middle-income countries (LMICs). India reports the highest number of tuberculosis (TB) cases, representing about 27 per cent of all cases documented worldwide.[1] A significant burden of paediatric TB, as much as 31% of the global childhood TB cases is also noted in the nation. Despite this, children have consistently represented only 6–7% of all TB patients treated annually under the National Tuberculosis Elimination Programme (NTEP) over the past decade. An estimated detection gap of 56% highlights that a large number of paediatric TB cases remain undiagnosed or unreported attributing to unspecific symptoms and asymptomatic presentation. Approximately 43% of the paediatric tuberculosis cases is extra pulmonary in nature (EPTB).[2] Most common presentations are lymphadenitis, pleuritis, meningitis, gastro intestinal, and Potts diseases. However paediatric TB often presents with symptoms that overlap with other common childhood illnesses, making early detection difficult and treatment delay.

CASE REPORT

A 7-year, 10-month-old girl, presented with complaints of low-grade, intermittent fever for one month, associated with an evening rise in temperature. She also reported reduced appetite and lethargy for the same duration. There was a history of 05 kg weight loss over the preceding two months. However, there was no history of cough, breathing difficulty, or night sweats or known contact with fever or recent travel. Her past medical, natal, and developmental histories were unremarkable. She was fully immunized for her age and a BCG scar was present. On examination, her anthropometric measurements were

within normal limits. General and other systemic examinations were normal, with no organomegaly or meningeal signs. Respiratory system examination, revealed markedly reduced air entry on the left side, with bilateral fine crepitations (right greater than left). Investigations, done showed a total WBC count of 10,400/cu.mm and haemoglobin of 10.7 gm%. A peripheral blood smear showed microcytic hypochromic anaemia. Inflammatory markers were elevated. The erythrocyte sedimentation rate (ESR) was 116 mm/hour (normal 5-20 mm/hour), and C-reactive protein (CRP) was 16 mg/dl (normal <6 mg/dl). Other notable findings included elevated LDH (718 IU/), ferritin (207.0 ng/ml), and D-dimer (4.3 ug/ml), while procalcitonin was normal (0.03 ng/ml). Screening for tropical infections (dengue, leptospirosis, widal, and scrub) was negative. A chest X-ray revealed a homogenous opacity in the left upper zone (Figure 1).

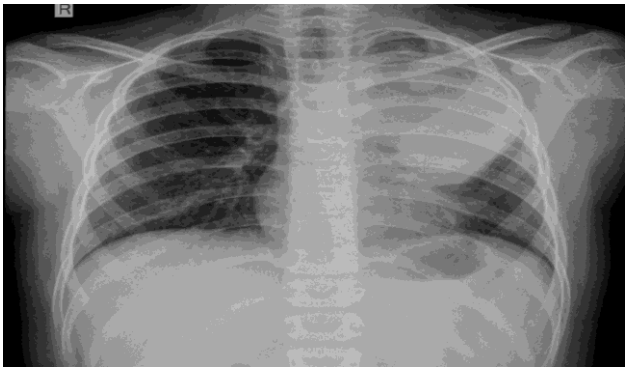

Figure 1: Left upper zone homogenous opacity.

This prompted advanced imaging. A contrast-enhanced computed tomography (CECT) scan of the thorax showed a large, well-defined, peripherally enhancing, multiloculated cystic lesion in the left mediastinum, involving the prevascular and visceral compartments. Multiple mediastinal lymph nodes were also seen (Figure 2). A subsequent CE-MRI confirmed this large cystic lesion, measuring approximately 9.7×6.5×7.2 cm, along with multiple heterogeneously enhancing mediastinal lymph nodes (Figure 3). In view of positive for IgRA the and mediastinal lymph nodes, a TB workup was pursued. However, acid-fast bacilli (AFB) staining and CBNAAT on a gastric aspirate sample were both negative. An interferon-gamma release assay (IGRA) showed positive titers. An ultrasound-guided biopsy and aspiration of the mediastinal lesion were performed under general anaesthesia. The pus sample from the biopsy was positive for *Mycobacterium tuberculosis* (without rifampicin resistance). Furthermore, histopathological examination (HPE) of the tissue showed necrotizing granulomas. A final diagnosis of mediastinal tuberculous lymphadenitis with abscess formation was made. The child was initiated on anti-tubercular therapy (ATT) along with pyridoxine. She is currently on regular follow-up and monitoring and doing well with clearing lesion on chest X-ray.

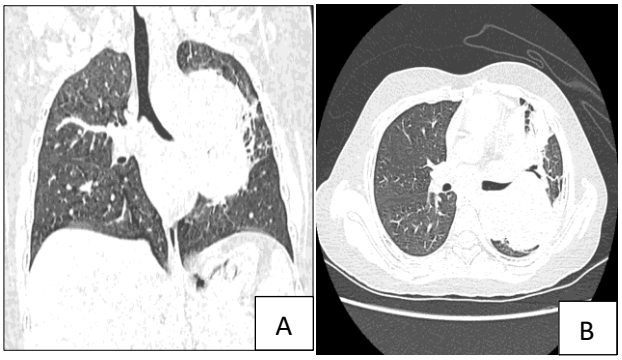

Figure 3 (A and B): CECT large well defined peripherally enhancing multiloculated cystic lesion involving left side of the mediastinum with involvement of the prevascular and visceral compartments. Multiple mediastinal nodes seen.

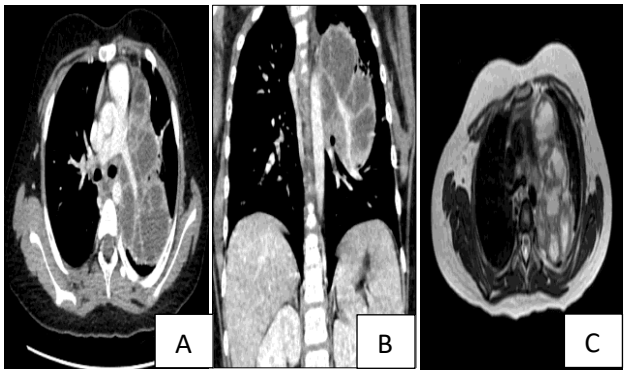

Figure 3 (A-C): CE MRI - a large well defined multiloculated cystic lesion measuring approximately 9.7×6.5×7.2 cm (AP×TR×CC) Multiple mediastinal lymph nodes noted, largest measuring 0.85 cm in short axis diameter in left upper paratracheal location, some of them showing heterogenous enhancement.

DISCUSSION

This case is noteworthy for its atypical presentation. While this patient had fever and significant weight loss, she notably lacked any cough or respiratory distress, which is unusual given the size of the mediastinal lesion. This presentation as a large, isolated mediastinal mass is exceedingly rare in children.[3] The differential diagnosis for such a mass is broad and includes lymphoma, teratoma, and other malignancies. Several studies and case series note that extensive mediastinal tuberculous lymphadenopathy can be clinically and radiologically indistinguishable from lymphoma, making it a significant diagnostic mimic.[4]

The paucibacillary nature of the disease in children often leads to negative results on standard samples like gastric aspirate. This remains a major challenge for diagnosis in pediatric and extrapulmonary TB.[5] In this case, both AFB smear and CBNAAT from the gastric aspirate were

negative. The strongly positive Mantoux test (20 mm) and the positive IGRA were crucial in maintaining a high index of suspicion for TB.

While our patient presented with a large mediastinal mass, TB can manifest in numerous other extrapulmonary forms, such as tuberculous lymphadenitis (scrofula) or tuberculosis of the spine (Pott's disease).[4,5] This case underscores the importance of pursuing tissue diagnosis in suspected TB cases with atypical presentations or negative non-invasive tests, as it allows for definitive microbiological confirmation and exclusion of other serious pathologies.[6-8]

CONCLUSION

Mediastinal tuberculosis can present as a large cystic mass with minimal respiratory symptoms. A high index of suspicion, guided by immunodiagnostic tests like the Mantoux test and IGRA, is essential. In cases where non-invasive sampling is negative, tissue biopsy is a critical tool for achieving a definitive diagnosis.

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