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Journal of Tuberculosis

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A rare combination of cavitating miliary tuberculosis and multiple brain tuberculomas in an infant

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Abstract

Cavitatory pulmonary tuberculosis is a rare entity in children especially in infants. Tuberculomas in brain is rarer in infants and children. Concurrent occurrence of multiple brain tuberculomas and miliary tuberculosis with cavitatory pulmonary tuberculosis is an extremely rare phenomenon. We present an infant with these rarities.

Received: Mar 06, 2019
Accepted: Apr 24, 2019
Published Online: Apr 28, 2019
Journal: Journal of Tuberculosis
Publisher: MedDocs Publishers LLC
Online edition: http://meddocsonline.org/

Keywords: Cavitatory tuberculosis; Infant; Tuberculomas

Introduction

Although progressive and cavitatory pulmonary tuberculosis is relatively uncommon in infants, several cases are still reported from busy pediatric centres. Cavitatory pulmonary tuberculosis is a rare entity in children especially in infants [1]. Tuberculomas in brain is rarer in infants and children [2]. Multiple brain tuberculomas are even rarer in children especially in immunocompetent ones. Finally, concurrent occurrence of multiple brain tuberculomas and miliary tuberculosis with cavitatory pulmonary tuberculosis is an extremely rare phenomenon and hardly reported in pediatric literature [3]. Here in we present an infant with these rarities altogether perplexing the diagnosis but improved with the treatment.

Case report

A 6 month (182 days) old infant immunized with BCG vaccine at birth presented with low grade fever, cough, and abdominal distension since 1 month. No family h/o tuberculosis including mother, however h/o tuberculosis present in a neighbour. No respiratory distress, convulsions, focal deficits. On examination there was no evidence of pallor, significant lymphadenopathy and clubbing. Systemic examination revealed massive hepatosplenomegaly and right UMN type facial nerve palsy. Respiratory and cardiovascular systems were within normal limits.

Chest X-ray revealed bilateral miliary shadows (Figure 1), one out of two gastric lavage samples were positive for AFB

Cite this article: Prakash BJ, Ratageri VH, Fattepur SR. A rare combination of cavitating miliary tuberculosis and multiple brain tuberculomas in an infant. J Tuberc. 2019; 2(1): 1007.

(12bacilli/HPF), tuberculin skin sensitive test done using 2 U was negative (induration of 7mm at 48hrs). CBNAAT revealed Mycobacterium Tuberculosis with rifampicin sensitivity. USG abdomen showed multiple hypoechogenic areas suggestive of granulomatous lesions in spleen (Figure 2). CT scan of thorax showed large, irregular, thick walled cavities involving the right middle and lower lobes with adjacent lung collapse and extensive ill-defined multifocal consolidation and irregular nodules involving both lungs with relative sparing of the lung bases (Figure 3). CT scan of brain showed multiple ring enhancing lesions in bilateral temporo-parietalareas, pons, midbrain and cerebellar regions on left side (Figure 4).

Child was treated with ATT Cat –I and steroids (Prednisolone 1mg/kg/day).Child improved clinically by 2 weeks, spleen and liver size decreased. Planned to give steroids for 4 weeks followed by a taper and ATT for 9 months.

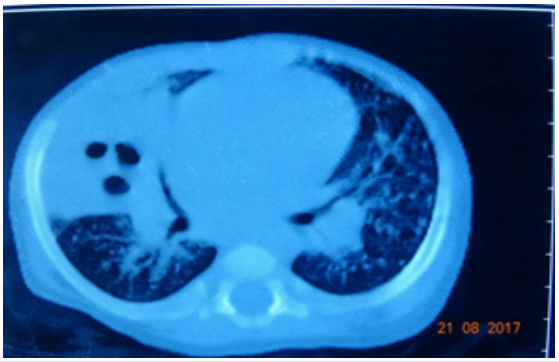

Figure 3: CT Thorax
1) Large, irregular, thick walled cavities involving the right middle and lower lobes with adjacent lung collapse
2) Extensive ill-defined multifocal consolidation and irregular nodules

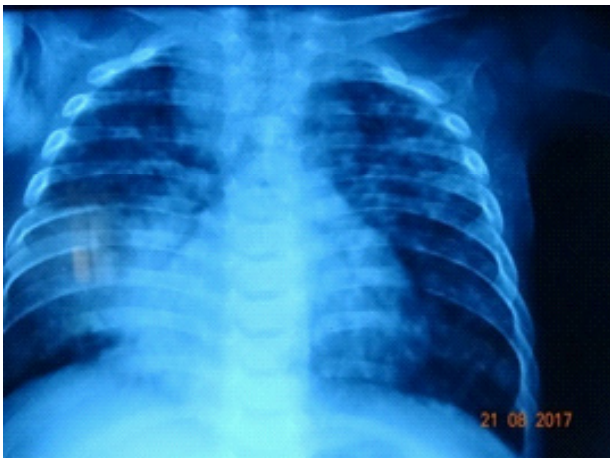

Figure 1: CXR showing
1) Right middle and lower lobe consolidation,
2) Miliary changes B/L

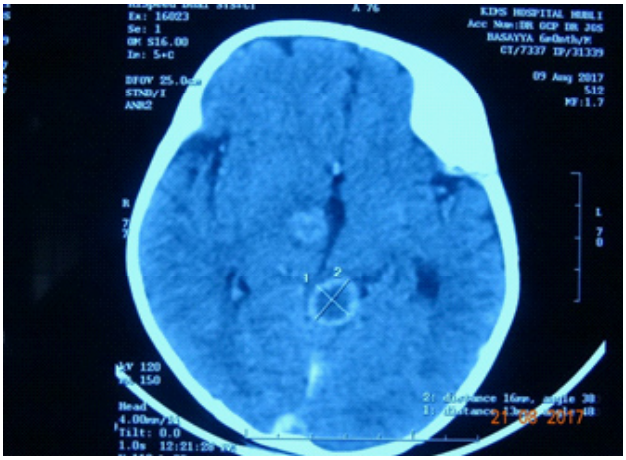

Figure 4: CT scan of brain showed multiple ring enhancing lesions in bilateral temporo-parietalareas, pons, midbrain and cerebellar regions on left side.

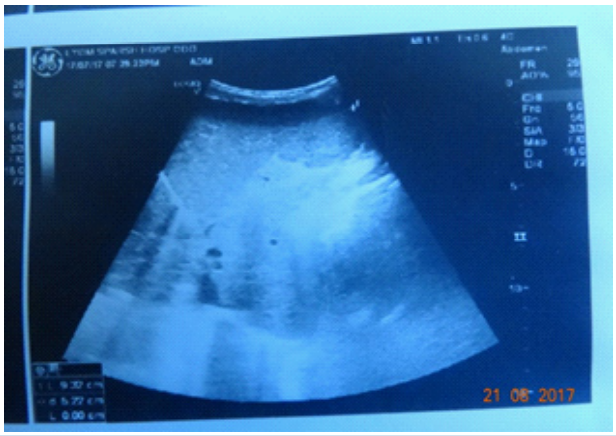

Figure 2: USG abdomen showing multiple hypoechogenic areas suggestive of granulomatous lesions in spleen

Discussion

Miliary TB has a wide spectrum of manifestations that still perplex the most erudite and experienced clinicians and remains a diagnostic and therapeutic challenge. It is estimated that miliary TB accounts for about less than 2% of all cases of TB in immunocompetent persons and up to 20% of all EPTB cases [4-5]. Miliary TB develops less often in children who have received the BCG vaccination [6]. Presence of multiple tuberculomas in brain associated with miliary tuberculosis is extremely rare, only few cases have been reported previously, most of them in adult patients [3]. Though cases of miliary tuberculosis with cavitations in lung [1] and CNS tuberculomas in infants [7] are reported in pediatric literature the concurrent occurrence of both is hardly documented.

The mechanism for the development of lung cavities in infants is different from that of adults. Poor containment of primary infection with enlargement of the primary (Ghon's) focus with caseous liquefaction rupturing into an airway causing endo-bronchial spread of tuberculosis resulting in bronchopneumonic opacification and eventually widespread cystic cavities and distal caseating pneumonia resulting in bulging fissures (expansile pneumonia) and thick-walled cavities. Clinicians who are uninformed of this unusual form of infantile tuberculosis, may not undertake diagnostic tests for tuberculosis thereby de-

laying institution of effective therapy or patient may be investigated and treated for other infectious causes (such as *staphylococci* and *klebsiella*) that present with lung cavities, and for anomalies such as pulmonary sequestration [8].

This case report is an attempt to alarm the clinicians, of the possible cavitating tuberculosis in infants to avoid consequences of uncontained tuberculosis which can cause lung destruction and death.

Uysal G et al [7] has reported CNS tuberculoma in an infant of 4.5months with no neurological signs and symptoms. Also cranial MRI investigation of 7 patients with miliary tuberculosis, who did not have any neurologic symptoms, revealed CNS involvement [9]. Our case did not have any symptoms related to CNS tuberculosis but on thorough examination the child had right UMN facial nerve palsy, which mother claims it to be present since birth. However facial deviation improved on starting steroids and ATT. This emphasizes the need for high index of suspicion and need for CNS investigation in all military tuberculosis with or without CNS signs and symptoms.

Conclusion

Though rare, combination of cavitating miliary tuberculosis and multiple brain tuberculomas can occur in children as well as infants, which require high index of suspicion and an aggressive approach to deal with.

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