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Case Note

Multiple intracranial tubercular abscesses in a child

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Abstract

2 year old girl presented with fever and cough for 4 months. Neurological examination revealed right sided hemiplegia. Contrast enhanced computed tomography of brain showed multiple hypodense ring enhancing lesions. Pus on aspiration of intracranial abscess showed positive polymerase chain reaction for Mycobacterium tuberculosis. A possibility of tuberculosis though not commonly recognised may be considered in any child presenting with prolonged fever and multiple intracranial abscesses.

It is estimated that 8.8 million new cases of active tuberculosis are reported annually. Cases of tuberculosis in children represent 5-15%, causing death in 1,70,000 children per year[1]. Central nervous system tuberculosis mainly presents as meningitis or tuberculoma while tubercular brain abscess is highly uncommon. We report a rare case report of multiple intracranial tubercular abscesses in a young child.

Case report

2 year old female presented with complains of mild grade undocumented fever and paroxysmal cough for 4 months and decreased movement of right half of body for last 3 days. This was associated with excessive drowsiness and decreased acceptance of food. There was no history of trauma, seizures, rash, loose motions or ear discharge. On the day of admission child appeared drowsy and confused with a heart rate of 108/min, respiratory rate of 30/min, temperature 37.4°C with no BCG scar. Neurological examination revealed localisation of painful stimulus, normal reacting pupil, with right upper motor neuron facial nerve palsy. The tone was increased in right upper and lower limb. Reflexes were brisk with upgoing plantars and ankle clonus was well sustained on right side. Differential diagnosis of tubercular meningioencephalitis or pyogenic brain abscess was considered. Investigations revealed erythrocyte sedimentation rate= 57 mm in 1st hour, bilateral miliary motting in chest X-ray. Fundus examination showed left papilloedema and normal cerebrospinal fluid findings. A possibility of miliary tuberculosis with intracranial space occupying lesion was considered. Contrast enhanced computed tomography of brain showed multiple hypodense ring enhancing lesions with walls of moderate thickness in both supratentorial compartments. The largest abscess was seen in left temporoparietal region measuring 7 x 4 x 5 cm^3 with midline shift to right. Evidence of perifocal oedema with meningeal enhancement and hydrocephalus was also seen (Fig.1,2).

The patient was HIV negative. Mantoux was negative however other T cell functions could not be carried out. Aspiration of left temporoparietal abscess revealed 30-35 ml yellow coloured thin pus. Gram staining and Zeil Nelson staining did not reveal any organism, moreover no organism could be isolated from pyogenic culture sensivity. Pus sent for culture and Polymerase chain reaction revealed *Mycobacterium tuberculosis*. Diagnosis of multiple intracranial tuberculous abscesses was made and 4 drug antitubercular treatment started. The patient was readmitted after 1 month with right complex partial seizures since patient was noncompliant with antitubercular treatment. She was treated with phenytoin sodium, mannitol and antitubercular treatment. The patient improved with no signs of neurological deficit after 6 months of therapy. The antitubercular therapy was continued for a total of 12 months. The patient continues to remain well after 2 years of stoppage of treatment.

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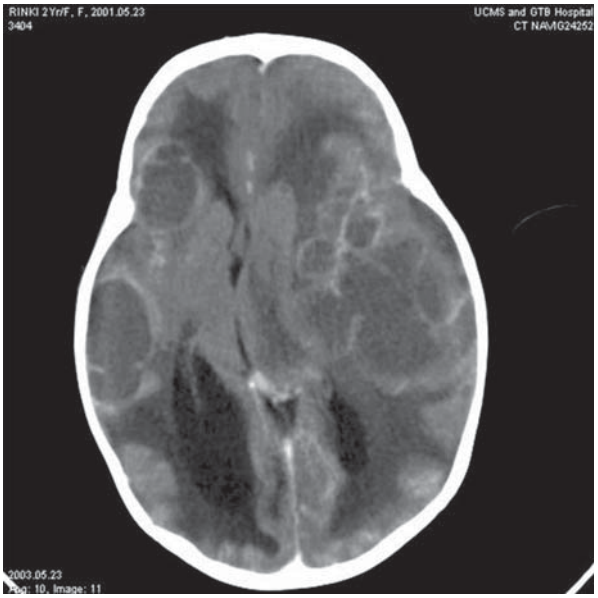

Fig 1: Multiple intracranial tubercular abscesses in child.

Fig 2: Left temporoparietal abscess with midline shift.

Discussion

Central nervous system tuberculosis mainly presents as meningitis, tuberculoma or an abscess. In a large-scale epidemiological study of extrapulmonary tuberculosis in the United States, CNS involvement was noted in 5 to 10% of extrapulmonary tuberculosis cases[2], with more recent CDC data in 2005 indicating that 6.3% of extrapulmonary cases (1.3% of total tuberculosis cases) involve the CNS[3]. Tang et al[4] reported a case of multiple tubercular abscess in a child with tuberculous meningitis. Only 57 cases of tubercular brain abscess were found in a review of world literature by Whitener et al[5]. Arestis N et al[6] in a population based study of children with cerebral tuberculosis observed tubercular meningitis and tuberculoma but not a single case of abscess was noted.

Brain abscess formation is a rare manifestation of CNS tuberculosis. Tuberculous brain abscess develops either from parenchymal tubercular granulomas or via the spread of tuberculous foci from the meninges and is characterized by an encapsulated collection of pus containing viable bacilli without evidence of the classic tubercular granuloma and must be distinguished from granuloma with central caseation and liquefaction mimicking pus[7]. Grossly and radiographically, a tuberculous brain abscess has a much thicker abscess wall than a pyogenic brain abscess[7]. Histopathological findings suggest that the inflammatory reaction in the abscess wall is predominantly vascular granulation tissue containing acute and chronic inflammatory cells and bacilli in the pus or abscess wall[5].

The usual clinical manifestations of tubercular brain abscess are headache, seizures, papilledema or other signs of increased intracranial pressure. Usually the presentation of these symptoms is acute appearing within 1 week to 3 months period[8]. Criteria for diagnosis are: pus within brain, bacteriological proof or histological confirmation of abscesses. CT scan shows hypodense lesions surrounded by enhancing ring. There may be associated surrounding oedema. Demonstration of acid fast bacilli by direct smear, culture is seldom positive while Bactec and PCR for tubercular cavity carry better sensitivity and specificity. Appropriate treatment includes antitubercular treatment with surgical excision / aspiration.

Conclusion

A tubercular brain abscess often an unrecognised entity among paediatric patients should be suspected in a child with intracranial abscess especially in a tubercular setting.

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