Case Report

Preoperative malignant looking retrobulbar, infratemporal and middle cranial fossa tuberculoma in a young child - a case report

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Abstract:

Tuberculosis involving skull base and brain is relatively common in developing countries. Preoperative neuro-radiological features of such lesions mimic neoplastic lesions of brain & skull base and postoperative histopathological study brings the ultimate diagnosis. Here we present a case of large tubercular lesion involving retrobulbar, infratemporal and middle cranial fossa that preoperatively thought to be a malignant lesion in a young child and was managed surgically with anti-tubercular drugs having a happy termination. Even radiologically malignant looking mass lesion in brain and skull base can be proved as tuberculosis that can bring happiness to the patient and also to the treating neurosurgeons.

Key words: preoperatively malignant looking; retrobulbar infratemporal and middle cranial fossa; tuberculoma

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Introduction:

Lesion involving retrobulbar space, superior orbital fissure(SOF), infratemporal, pteriogpalatine and middle cranial fossa in a young child isusually a malignant (PNET, neuroblastoma, malignant masenchymal)tumor. Other possibilities are pseudotumor, sarcoidosis, aspergilosis, Tolosa Hunt disease and rarely tuberculosis. Tuberculosis in these sites occurs rarely in immunocompromized person. Children are very rare victim of tuberculosis in such location.The central nervous system (CNS) involvement comprises approximately 10–15% of all tuberculous infections[1] and is seen most commonly in the developing countries. It is usually seen in all ages and usually caused by haematogenous dissemination of bacilli from pulmonary lesions. Although large series from developing countries continue to be reported [2] and incidence has increased for the last 20 years due to human immunodeficiency virus (HIV) infection.

We report here a large tuberculoma in a child involving retrobulbar space, superior orbital fissure(SOF), infratemporal, pteriogpalatine and middle cranial fossa where preoperative neuroimaging and peroperative findings convinced us about the possibility of malignant lesion.A huge "happiness bearing' tuberculoma in the above mentioned areas in a child is very rare in the literature.

Case presentation:

A fifteen years old young girl presented with headache, right temporal swelling, right sided proptosis and visual disturbance. She had no history of unconsciousness, convulsion or double vision. Patient had right sided antero-medial proptosis but eye closure was possible but eyeball movement was mildly restricted especially right lateral movement. Her vision on right side was 6/24 and on left side was 6/6.Visual field and fundoscopy revealed no abnormality. There was swelling in temporal fossa which was underlying to the muscle, ill defined mar-

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gins, hard, nontender and seemed to be fixed with underlying bone. Other system examination including abdomen and respiratory system revealed no abnormality. MRI of brain showed hyperintance lesion(4x5x5cm) involving right retrobulbar, superior orbital fissure(SOF), anterior middle cranial fossa, infratemporal fossa, anterior cranial (posterior right) fossa and right sided ethmoidal sinuses(Figure1).Her complete blood count(CBC),Chest x-ray, abdominal ultrasonogram was normal. The lesion was excised subtotaly by right orbito-fronto-zygomatic approach. Peroperatively it was seemed to be malignant lesion. Histopathology reported tuberculosis (revision of histopathology was requested and tuberculosis was reconfirmed).Patient was put on standard antiTB therapy for 18 months. Post operative MRI after 18 months revealed no residual lesion(Figure2).

Discussion:

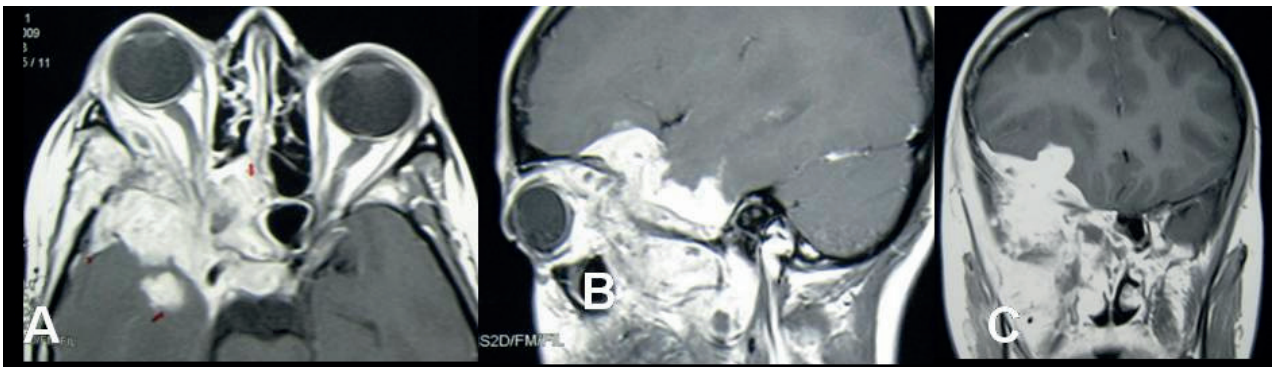
Mycobacterium bacilli usually settle in the involved site through blood stream and starts chronic inflammatory process. Pathological process of TB involving orbit and skull base is similar to the brain tuberculosis i.e. tuberculous bacilli can manifest as hard or soft granulomas, tuberculous abscess and tuberculoma. Tuberculomas are histologically round or oval masses, or they may assume a more lobular configuration with the fusion of several smaller nodules[3]. A tuberculous granuloma is typically small, measuring approximately 0.5 to 2.0 mm in size[4]. The granuloma consists of epithelioid cells harbouring tuberculous bacilli, with a peripheral collar of fibroblasts and mononuclear inflammatory cells. Langhans' giant cells, which contain multiple nuclei, is a characteristic feature. A hard tubercle does not show central necrosis, but with cell-mediated delayed hypersensitivity reaction, the core undergoes caseous necrosis, which is a coagulative and liquefactive necrosis resembling cheesy material[5].

Tuberculosis involving CNS is a serious condition with mortality and morbidity[6]. Common sites for tuberculomas in head region are cerebral hemispheres and basal ganglia in adults, and in cerebellar hemispheres in children, due to the large blood supply to these areas[7]. The other rare locations are the sellar area, cerebellopontine angle, Meckel's cave, suprasellar cistern, hypothalamic region,brain stem and pituitary gland[6,8,9] Tuberculoma of the orbit is a rarer manifestation[10]. However tuberculoma occurring simultaneously in orbit, SOF, pterigopalatine fossa, infratemporal fossa, anterior & middle cranial fossa and ethmoidal sinus is probably extremely rare.

Clinical presentation is usually site specific. Simultaneous involvement of other system is not common[11]. There are no pathognomonic radiological findings for a tuberculoma[11], so confirmation is only possible by histopathological study or by isolation of bacteria from the lesion.

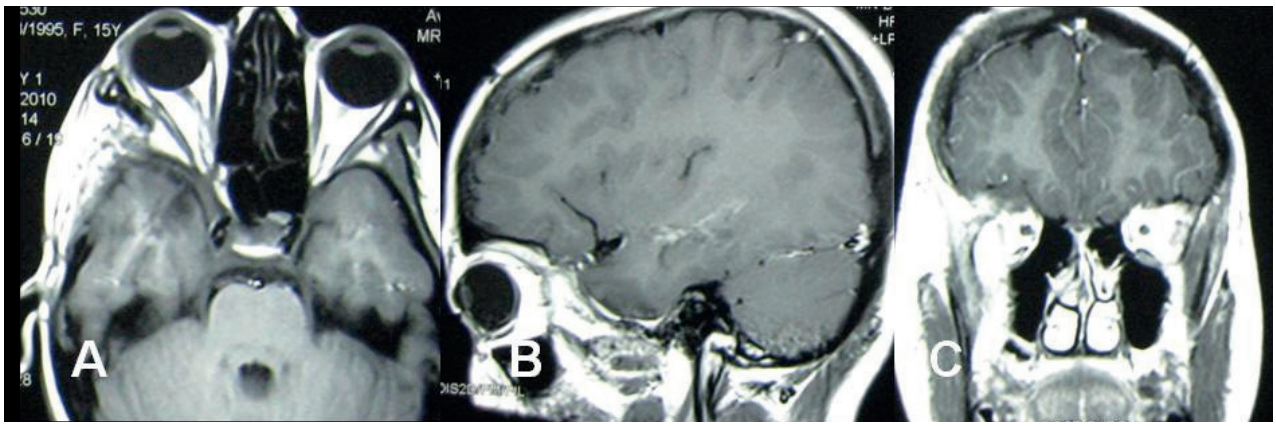
Here surgery is needed to establish a diagnosis and to exclude other possibilities. In our case we went for surgery to confirm diagnosis along with resection of the lesion as per as possible with the hope for improvement of pain and proptosis. Differential diagnosis of such lesion includes metastases, lymphoma, leukaemia, myeloma, tuberculoma, fungal infection, sarcoidosis etc. Though mainstay of treatment of such tuberculomas is medical[11] but diagnosis is usually made after a surgical intervention. Overall mortality is 10%.[1]

Figure 1:



MRI of brain A-axial, B-saggital, C-coronal view showing lesion in retrobulbar space, superior orbital fissure, middle cranial fossa, ethmoidal sinuses & infratemporal fossa.

Figure 2:



Post operative (18 months after operation)MRI of brain A-axial, B-saggital, &C-coronal section showing no residual lesion.

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