

Giant Tuberculoma Resembling Brain Tumor in a Child

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13 years old child from tribal area of Khyber Pakhtunkhwa presented to us with chief complaints of headache and vomiting for last 3 months with recent onset of aggressive behavior. Patient had normal neurological examination except that he had frontal lobe release signs and bilateral papilledema. MRI scan of brain showed a large ring enhancing lesion measuring 5x6x5 cm in the frontal lobe with surrounding edema (Figures 1 – 3). Because of **Short** history and relevant MRI picture diagnosis of high grade glioma was made. Though there was history of tuberculosis in the family but because of large size of the lesion with short history with no fever or cough the differential of tuberculoma was not considered before surgery. Routine investigations were unremarkable. Patient was prepared and put on elective list for craniotomy and excision of the lesion. During surgery patient brain was edematous so patient was hyperventilated and mannitol was given before opening the dura. Per operatively the lesion was fibrous, firm and not easily removable as is the case with high grade glioma and gross total resection was not possible because of brain edema and respiratory distress. Biopsy was taken and subtotal resection was performed. Patient was put on ATT and metastatic work up also advised started. Histopathology report showed a caseating granulomatous lesion (Figure 4).

DISCUSSION

Tuberculosis is a global health problem and Pakistan is 5th country regarding burden of disease with an annual incidence of 270/100000.^{4,5} while pulmonary tuberculosis is mostly well understood and known to physicians cerebral tuberculomas and spinal caries though not very common are still not rare.⁵ There are very few case reports on very large cerebral tuberculomas which are mistaken for tumors.¹ The diagnosis of cerebral tuberculoma is made on history, CT and MRI findings. The presenting symptoms of tuberculoma are very vast ranging from tuberculoma with meningitis or tuberculoma without meningitis. And symptoms depends on anatomical location and sometimes these patients are asymptomatic.⁸ Headache,



Fig. 1:

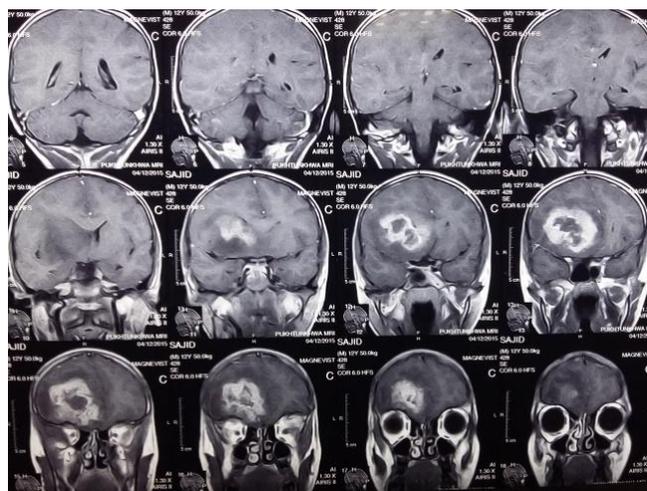


Fig. 2:

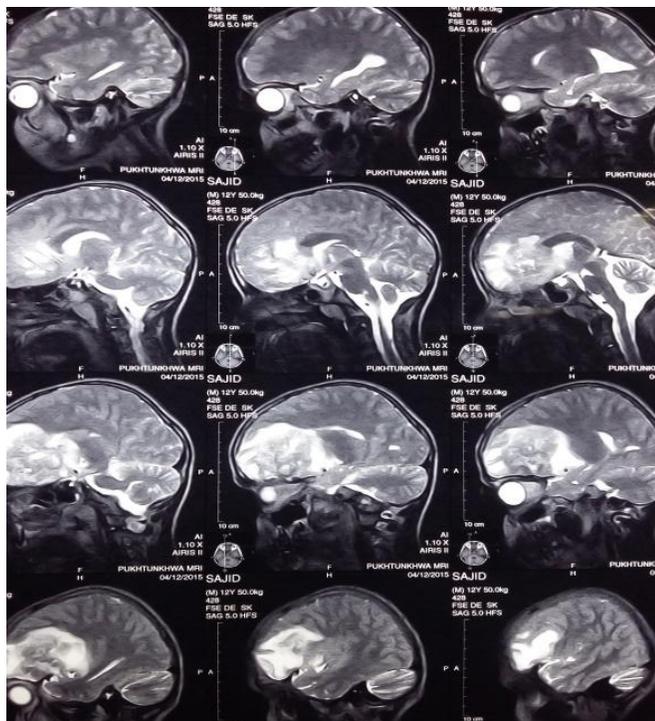


Fig. 3:

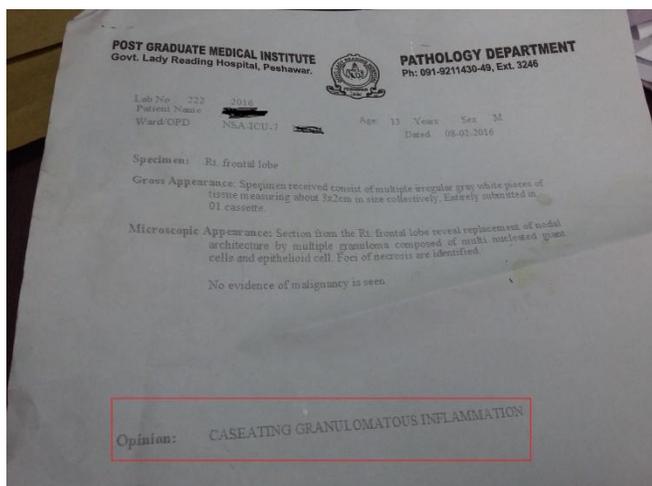


Fig. 4:

fever, weight loss and seizures are among the commonest symptoms while focal deficits being the rarest presentation.⁸ Tuberculomas are usually multiple and bilateral.² These lesion shows different enhancement patterns on CT scan varying from typical ring enhancement to variable irregular and lobular enhancement.^{1,6} The diameter of these lesions varies from 1 to 5 cm. Typical ring enhancement is seen in only limited number of patient specially when the lesion is larger

than 1 cm.^{1,6} calcification and meningeal enhancement is seen in 10% of CT scans and edema or midline shift is a common finding^{1,6} some authors consider target sign as pathognomic which is central calcified mass with ring enhancement.⁷ On MRI these lesions appear as ISO to hypointense core with peripheral hyperintensity on T₂ weighted images.⁶ While gadolinium enhanced T₁ weighted images shows large irregular ring enhancing mass.¹ The central necrosis in the larger lesion gives the hypo intensity on MRI.⁶ Apart from these investigation to confirm the diagnosis other investigation can also be carried out including CSF R/E, Tuberculin test, X-ray chest and ESR.² Once diagnosed treatment of tuberculoma is mainly nonsurgical and if the diagnosis is in doubt empirical treatment with ATT and steroids can be started.⁹ These lesions respond quickly and effectively to this treatment provided there is no multidrug resistance¹.

CONCLUSION

Tuberculosis is a common ailment in our country and cerebral tuberculomas are not very rare. Due to very vast variety of presentation these patient can easily be misdiagnosed. As in this case detailed history showed the child had on off fever few months back while at presentation he was afebrile. Also the history of active contacts in home showed non compliance and close contact with the patient. Also in neurosurgery it is common to jump to the CT and MRI before a detailed history and thorough examination is carried out, which ultimately affects the ability of surgeon as in diagnosis.

RECOMMENDATIONS

Tuberculomas can be very large and some time can be mistaken for a tumor. Detailed history, thorough examination and doing complementary mandatory investigations to rule out tuberculosis is essential to exclude infectious process in every patient.

Conflict of Interest

Authors declares no competing financial or non-financial conflict of interest.

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