

# INTRACRANIAL TUBERCULOMA : TWO CASE REPORT

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## Abstract :

*These were rare case report both patients were treated surgically & medically both had the feature of raised intracranial pressure. One had history of secondary seizure. Other complaints of visual blurring both of them complaints of headache. No history of fever, cough, haemoptysis or weight loss. Both patients were diagnosed as intracranial space occupying lesion and craniotomy were done and excised. Histopathology confirmed tuberculoma. They were treated by anti-TB in post operative period. Intracranial tuberculoma is CNS infection; if diagnosis and treatment is done early can save many lives.*

**Key words:** *Tuberculoma acidosis bacilli, craniotomy computerized tomography, intracranial pressure.*

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## Introduction

Intracranial tuberculoma is a rarity in developed countries. It is a curable lesion and responds well to medical treatment. The great polymorphism of the tomography (CT) and the magnetic resonance imaging (MRI) appearance of intracranial tuberculoma allows it to mimic other types of intracranial masses.<sup>1</sup>

Hymns in the Rig Veda testify, that the early Indo-Aryans (1500 B.C) were familiar with the disease; so were the Chinese in the second or third millennia B.C.<sup>2</sup> Egyptian mummies dating 3500-3000 B.C were found to have unequivocal evidence of skeletal tuberculosis.<sup>3</sup> The writing of Homer (900 B.C), Hippocrates (400 BC) and Aristotle (350 BC).<sup>4</sup>

Recent molecular biological studies have revealed that M. tuberculosis contain diverse chemical substance, lipid, polysaccharides and tuberculo proteins which are responsible for the various immune phenomena viz resistance, sensitivity, virulence, granuloma formation and chronicity of infection. These immune responses are primarily cell mediated, involving a complex interplay of T and B lymphocytes and macrophages and mediated by various lymphokines and immunoglobulins. However, as of today, the nature of the antigen that stimulates the protective immune response the type of T cells involved in protection and the manner in which the macrophages kill the mycobacteria are not

known. Although over a dozen somatic and secreted antigens have been cloned, the immune-dominant antigen concerned with either virulence or protection has not been identified. In spite of phenomenal advances in molecular genetics, not a single gene involvement in the pathogenesis of tuberculosis has been identified. Kinger and Tyagi<sup>5</sup> recently claimed to have identified and cloned genes differentially expressed in the virulent strain of M tuberculosis.

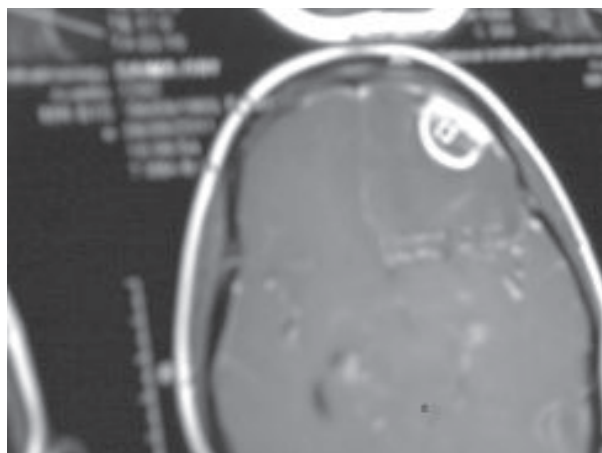
There has been a progressive decline in the incidence of intracranial tuberculomas. Reports from Bombay which indicated an incidence of 30.5% of all ICSOLS in 1963 and 21.5% in 1968 recorded an incidence of 12.3% in 1974.<sup>6,7</sup> Similarly the reported incidence of 20% in 1960 from Madras came down to 14% in 1973.<sup>8</sup>

## Case report 1:

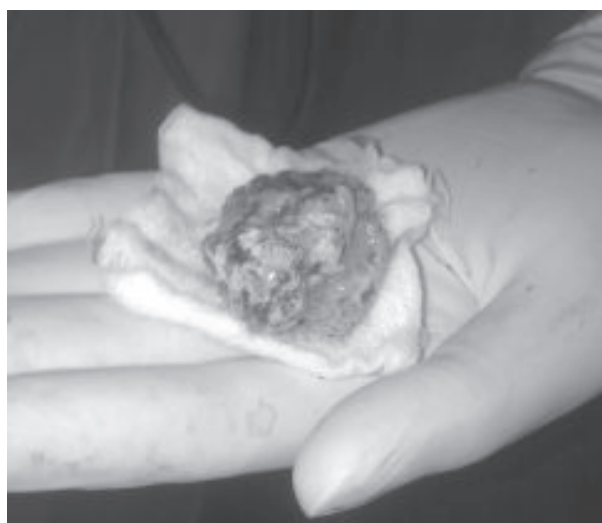
An 18 years young lady had been admitted at BSMMU with complaints of occasional headache for two months. He had the history of headache at late night. History of unconsciousness for several time and persist for several minute. He had been suffering from visual blurring for 12 days. MRI of brain with contrast revealed left frontal space occupying lesion(SOL) measuring 3x2 cm in diameter. With contrast rim enhanced lesion was found with perilesional oedema with midline shift. After left frontal craniotomy excision of tumor was done. Proper haemostasis was done. Wound was closed in layers. Post operative period was uneventful. Anti-tubercular therapy was given for 18 months. After 1 months follow up patients was quiet normal and there was no tumor after postoperative CT scan.

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**Fig.-1:** MRI of the brain with contrast with left frontal tuberculoma



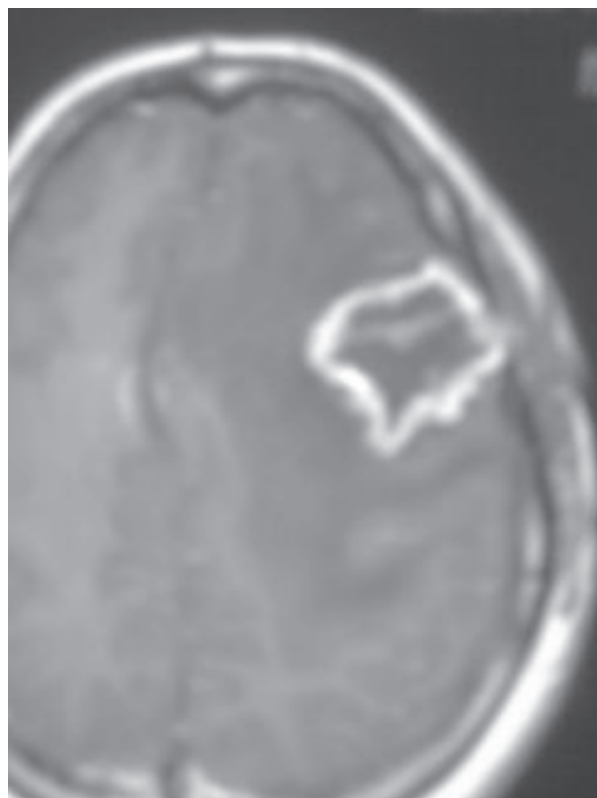
**Fig.-2:** Excise tumour from the brain



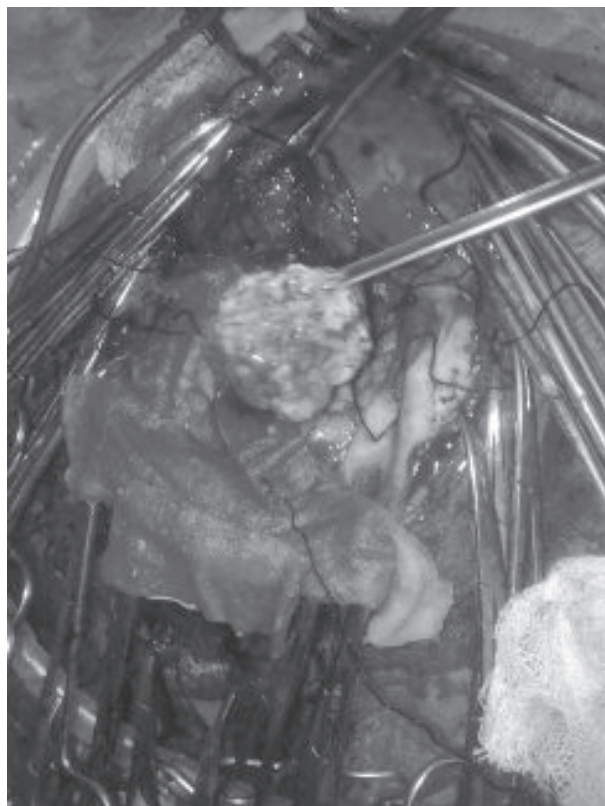
**Fig.-3:** Postoperative photograph of patients without neurological deficit

### Case report 2:

A 25 years old female patients admitted at BSMMU with complaints of occasional headache for 1.5 month. Headache was global in nature. History of occasional seizure several time for same duration. He had been suffering from left sided hemiparesis for same duration. No history of unconsciousness or low grade evening pyrexia or haemoptysis. He had given the history of loss of appetite & weight loss. MRI of brain with contrast showed a rim enhancement lesion at the right front parietal region with peri-lesional oedema and tumor size was 5x4 cm in diameter. Differential diagnosis of MRI were glioblastoma multiforme, tuberculoma etc. Right fronto parietal craniotomy was done, dura was opened. Tumour invade the cerebral cortex and dura matter, consistency of tumor was firm. Macroscopically it reveals meningioma. Histopathological examination of tumour tissue was done. Histopathology showed tuberculoma. Postoperative period was uneventful. Antitubercular therapy was given for 18 months. After 2 months follow up patients was quiet normal and there was no residual tumor.



**Fig. 4:** MRI of brain with contrast left with tuberculoma



**Fig.-5:** Peroperative photograph of left fronto temporal tuberculoma

### Discussion

Microscopically, the lesion is a classical tuberculous granuloma, with central coagulative necrosis surrounded by epithelioid cells, Langhans giant cells and an admixture of lymphocytes and plasma cells. There may be satellite granulomas at the periphery of the lesion and foci of perivascular infiltration may be seen further afield. A fibrocollagenous reaction is seen, only where the lesion has reached the surface of the brain.

Careful examination of the central region of the mass may reveal acid fast bacilli in appropriately.<sup>9</sup>

According to Pardee and Khnox<sup>10</sup> this type of tuberculoma was first demonstrated by French Author notably Chantensesse<sup>11</sup> in 1884 under the term meaningitee plaque tuberculoma.

Tuberculous abscess of the brain has been known since the early day.<sup>11,12,13</sup> Dandy referred in 1932, to the existence of pus in some tuberculomas resembling a pyogenic abscess.<sup>14</sup>

Cystic tuberculoma are rare. The first cases was reported Dastur et al.<sup>15</sup> in 1962 in a four year old boy

with hemiparesis. One of our case was solid & cystic in nature, one patients had hemiparesis.

Multiple grape like tuberculoma another rare presentation is in the form of grape-like cluster of multiple immature tuberculomas.<sup>16</sup>

MRI of our patients both should gross perilesional oedema.

Tuberculomas generally present as slow-growing intracranial space occupying lesions. The constitutional symptoms and signs of an inflammatory lesion are uncommon. Unlike patients with tuberculous meningitis, those with a tuberculoma often look physically well-preserved.<sup>17</sup> A history of fever is recorded in no more than 10-20 percent.<sup>18,19</sup> Exposure to a person with open pulmonary tuberculosis, specially a close relative should arouse the suspicion of tuberculous aetiology in a patient suspected in harbor a brain tumours. Concomitant evidence of healed or active tuberculosis acquires great significance. Mayers et al.<sup>20</sup> reported the co-existence of an active extracranial tubercular lesion in 50% of patients and an abnormal x-ray chest in 30%. Mathai found positive chest x-ray in 51% of 200 cases of intracranial tuberculomas. It is important to remember that in a community in which tuberculosis is as prevalent as India, patients with neoplastic lesions may have extracranial tubercular lesion as was observed by Mathai in 12.5% of cases.<sup>21</sup>

The erythrocyte sedimentation rate is often raised though it may be normal. The Mantoux's test is generally positive though Arseni<sup>22</sup> found it positive in 25% only. A negative Mantoux test does not rule out a tuberculoma nor does positive test establish the diagnosis. A plain x-ray of the chest is mandatory as an active tubercular lesion significantly increases the possibility of an intracranial mass being a tuberculoma. Plain x-rays of the skull may show signs of raised intracranial pressure and uncommonly calcification.

One of our patients had raised ESR, x-ray chest normal.

The CT morphology of intracranial tuberculomas has been well documented in a series of publications since 1976.<sup>23</sup> Welchman<sup>24</sup> has provided a comprehensive account, and concluded that the CT appearance of tuberculomata in the majority of cases is sufficiently characteristic to permit a positive or high probability diagnosis.

One of our case revealed GBM on MRI scan. Other case showed cystic lesion with both had perilesional oedema.

Microscopically one case revealed similar to meningioma. As its consistency was firm, intracranial, extradural & bony involvement.

Both of case were treated by anti-TB drug & were improved post operatively.

### Conclusion

Central nervous system (CNS) infected with acid fast bacilli can cause meningitis, tuberculoma. It is rare in 1<sup>st</sup> world countries. But in our country TB is common disease. So, a young patients with intracranial mass lesion with perilesional oedema have to think about radiological diagnosis is tuberculoma. It is benign lesion. Early excision, diagnosis and anti-TB drug therapy can save the many lives.

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