

Tuberculomas in the Cavernous Sinus, Temporal Lobe and Basal Subarachnoid Spaces

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Abstract:

Tuberculoma is not an uncommon lesion in intracranial space specially in developing world but tuberculoma in the cavernous sinus is very rare, and only less than ten cases have been reported in the literature, till today. Preoperative neuro-radiological features of such lesions may mimic neoplastic lesions of skull base and brain and post operative histopathological study brings the ultimate diagnosis. Here we report a rare case of cavernous sinus tuberculoma where tuberculomas were also in temporal lobe and Basal subarachnoid spaces (Right cavernous sinus, left temporal lobe, right sylvian fissure, basal cistern, interpeduncular cistern and prepontine cistern).

Keyword: Tuberculoma, Cavernous sinus, Basal subarachnoid spaces, Temporal lobe

Introduction:

Intracranial tuberculomas are rather common lesions in developing world.¹ The central nervous system (CNS) involvement comprises approximately 10–15% of all tuberculous infections.² They are commonly located in cerebral hemispheres and basal ganglia in adults, and in cerebellar hemispheres in children.³ The other rare locations are the sellar area, cerebellopontine angle, Meckel's cave, suprasellar cistern, hypothalamic region.^{4,5} Involvement of the cavernous sinus is very rare, and only less than ten cases have been reported in the literature, till today. Here we report a rare case of tuberculoma involving cavernous sinus, temporal lobe and basal subarachnoid spaces (Right cavernous sinus, left temporal lobe, right sylvian fissure, basal cistern, interpeduncular cistern and prepontine cistern).

Case Report:

A 35 year male presented with headache for 1 year and right sided ptosis for 1 month. He had no history of vomiting, visual disturbance, unconsciousness or convulsion. His neurological examination including fundoscopy revealed no abnormality except complete 3rd nerve palsy of right side. Other systemic examination revealed no abnormality. Contrast enhanced axial CT scan of brain showed hyperdense lesions at right cavernous sinus, right sylvian fissure, basal cistern, inter peduncular cistern, prepontine cistern and left anterior temporal lobe (Figure 1). Tuberculoma in cavernous sinus was 2x 1.5x 1 cm. His chest x-ray and complete blood count were within normal limit. Right cavernous sinus lesion was approached through subtemporal extradural approach by temporal craniotomy and the lesion was excised



Fig-1: CT scan of brain axial section (A&B) showing lesions in right cavernous sinus, basal & prepontine cistern and right & left anterior temporal lobe. C-Post operative CT scan of brain axial section (six months after operation & chemotherapy) showing no residual lesion.

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anticipating recovery of 3rd nerve. Cavernous sinus was entered first between the maxillary nerve & ophthalmic nerve and later between ophthalmic and oculomotor nerves. The lesion was less vascular and easily removable. Histopathology report was consistent with tuberculosis. The patient was put on anti-TB and anti convulsant drugs. Standard AntiTB drugs regimen was continued for 18 months. His 3rd nerve function recovered within 04 weeks (Figure 2A&B). Post operative CT of brain (Figure 1C) at the end of 18 months showed no residual lesion.



Fig.-2: A-Preoperative right sided ptosis. B-Postoperative recovery of ptosis and 3rd nerve function.

Discussion:

Tuberculosis involving CNS is a serious condition with mortality and morbidity especially in developing countries. There is also resurgence in developed countries due to human immunodeficiency virus (HIV), immigration and development of multi-drug resistant strains.¹ Central nervous system tuberculosis may appear as tuberculous meningitis, tuberculoma, abscess or Pott's disease.⁶ Tuberculomas account for 10-30% of all intracranial masses in developing countries, and 0.5-2% in developed countries.³ Common sites for tuberculomas 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.^{3,5,8} Involvement of the cavernous sinus is very rare. Tuberculomas involving cavernous sinus, temporal lobe basal subarachnoid spaces (sylvian fissure, basal cistern, interpeduncular & prepontine cistern) was not reported.

Patients generally present with the complaints of ptosis, headache, and diplopia. Neurological examination reveals involvement of the cranial nerves contained within the cavernous sinus. Simultaneous involvement of other system is not common.⁹ There are no pathognomonic radiological

findings for a tuberculoma, so confirmation is only possible by histopathological study or by isolation of bacteria from the lesion.⁹ A necrotic caseous center surrounded by a capsule composed of fibroblasts, epithelioid cells, Langhans giant cells and lymphocytes is the picture of a tubercle under the microscope.¹

Here surgery is needed to establish a diagnosis and to exclude other possibilities (i.e. meningioma, lymphoma, metastasis). In our case we went for surgery to confirm diagnosis along with the hope for improvement of ptosis and 3rd nerve functions. We only excised the tuberculoma in the cavernous sinus leaving the other tuberculomas in situ. Complete excision is not always necessary in tuberculomas in CNS.⁹ Though mainstay of treatment in intracranial tuberculomas is medical but diagnosis is usually made after a surgical intervention.⁹ Overall mortality is 10%.¹⁰

Conclusion:

In brain and skull base lesions one must not forget the possibility of tuberculosis which is a curable disease with appropriate surgical and medical management.

Conflict of Interest: None

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