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Pituitary Tuberculosis - A Rare Case Report

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ABSTRACT

Tuberculosis is an infectious disease primarily affecting lungs and also involves any body organ. Intracranial tuberculosis constitutes about 0.15-5% of all intracranial space-occupying lesions. Pituitary gland as primary site for tuberculosis is very rare. Delayed diagnosis and treatment can result in permanent endocrine dysfunction.

Here we present a case in a 44-year-old female presented to the hospital with complaints of progressive worsening headache, left eye pain, and blurred vision for 6 months. Patient was evaluated and radiological workup was done. MRI brain with contrast showed enhancing mass lesion of 1.7x1.4 cm arising from Sella with mass effect on optic chiasma and it was radiologically diagnosed as pituitary adenoma. A biopsy from the pituitary region was obtained and histopathological examination was done. Microscopic examination revealed pituitary gland parenchyma showing well-formed epithelioid granulomas consisting of epithelioid cells, Langhans type of giant cells, and chronic inflammatory cells along with foci of caseous necrosis. The case was finally diagnosed as pituitary tuberculoma.

Keywords: Tuberculosis, granuloma, space-occupying lesion, pituitary gland.

INTRODUCTION

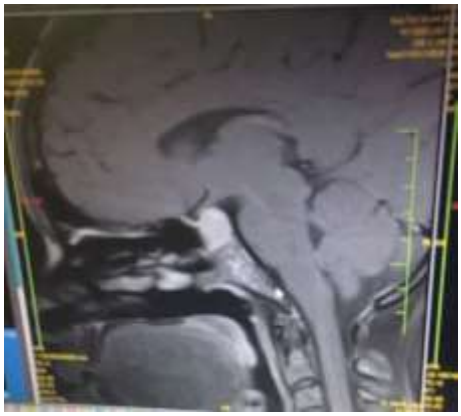
Tuberculosis caused by *Mycobacterium tuberculosis* is one of the major causes of death from a solitary contagious agent globally [(1)]. Tuberculosis involves any human body organ; however, the lungs are predominantly involved. [(2)] Extra pulmonary tuberculosis can occur with or without pulmonary tuberculosis and comprises 15-25% of all the cases reported in 2022 globally.[(1,3,4)] Tuberculosis involving central nervous system (CNS) constitutes only 1-9% of all tuberculosis cases globally.[(3,4)] CNS TB involves the meninges, brain, or adjacent bone by the hematogenous spread[(4)]. Primary pituitary gland tuberculosis is a sporadic condition, and only <110 cases have been reported till now in the literature.

CASE REPORT

A 44 years old female presented to the neurosurgery outpatient department with complaints of progressively worsening headache, left eye pain, and blurred vision for 6 months. She has no history of fever, syncope, seizures, weakness of limbs, ENT complaints and any other symptoms.

Patient was evaluated - laboratory workup showed hematological values, serum electrolytes and hormonal assays were within normal limits. Her chest X-ray revealed normal lung parenchyma. There was no family or close contact history of tuberculosis. No evidence of extrapulmonary lesion that could raise the suspicion of tuberculosis was noted. Contrast-enhanced MRI brain was done, which showed enhancing mass lesion of 1.7x1.4 cm arising from Sella with mass effect on optic chiasma. A radiological diagnosis of pituitary adenoma was given.

A biopsy from the pituitary region was done and sent for histopathological examination.



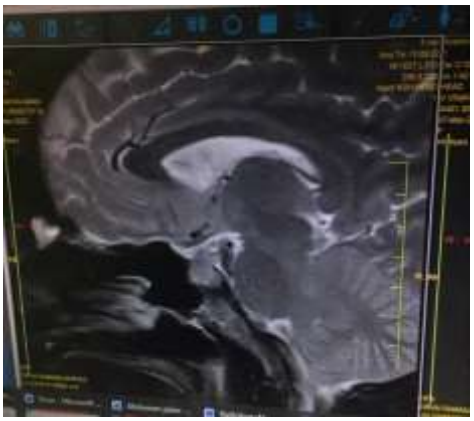


Figure 1 and 2: Brain MRI A and B – Sagital palne – Strongly enhancing a mass lesion measuring 1.7x1.4cm arising from suprasellar region causing compression over optic chiasma

Gross: Received multiple grey tan soft tissue bits altogether measuring 2x1x0.5 cm
Microscopy: Sections revealed pituitary parenchyma mostly replaced by multiple epithelioid granulomas, Langhan type of giant cells admixed with dense lymphocytic infiltration. Foci of caseous necrosis and hemorrhages were noted. Based on the above histomorphological findings, a diagnosis of Pituitary tuberculoma was given.

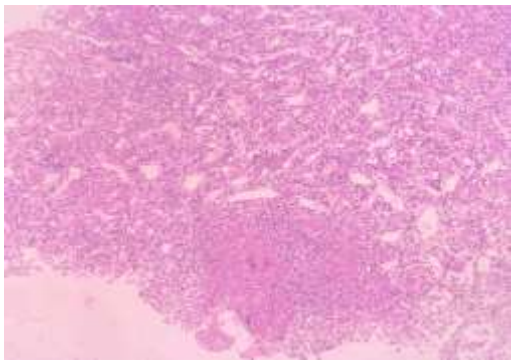
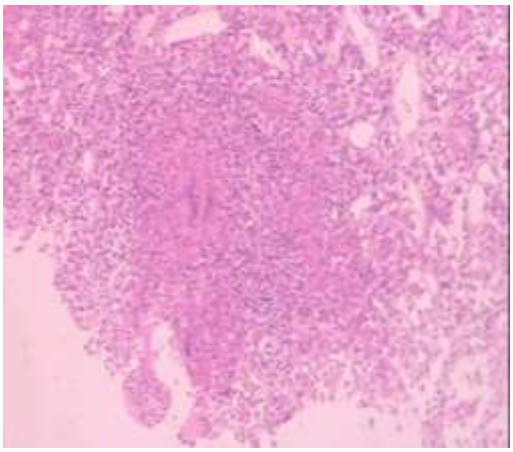


Figure 3: Many well formed epithelioid granulomas (H&E 100X)



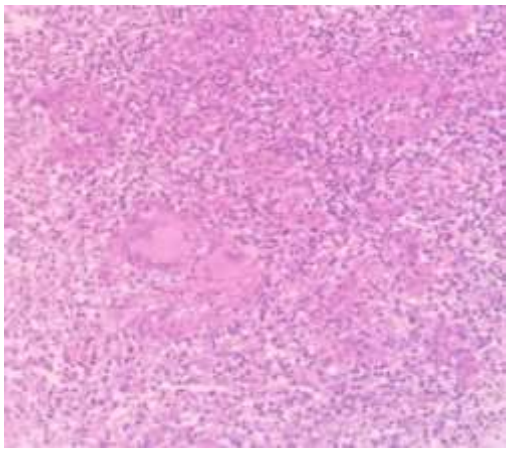


Figure 4 and 5 : (400XH&E) Well formed granulomas showing Lagnhans gaint cells along with pituitary paranchymal cells

DISCUSSION

Primary pituitary tuberculosis is a very rare disease in the absence of pulmonary tuberculosis or extra pulmonary tuberculosis. About 110 cases of primary pituitary TB have been reported in the literature[(1)] .Intracranial tuberculoma can occur at any age and commonly affects young adults.[(4,5)] About 30 – 34% of all intracranial space-occupying lesions are of tuberculosis etiology before the emergence of anti-tubercular drugs.[(5)] However, currently, it comprises 0.15–4% of all intracranial space-occupying lesions.[(6)] The majority of pituitary tuberculosis cases were reported from the Indian subcontinent probably due to the high prevalence of tuberculosis in India.[(6)] The primary pituitary TB is common in age group 8 to 68 years (mean age of 34.1±13.6 years), and females are more affected than males. [(4)] The hematogenous spread of tubercular infection from paranasal sinuses have been suggested in the literature.[(3)] However, the route of primary pituitary infection by the TB bacilli is still unclear.[(3)] Headache, low-grade fever, vomiting, visual disturbances are common clinical symptoms.[(3,6)] Endocrine symptoms such as amenorrhea and galactorrhea are seen in females[(4,6)] along with polyuria and polydipsia in few patients.[(4,5)] The presence of central diabetes insipidus is a clue that helps to differentiate the pituitary TB from the pituitary adenoma.[(4)] Misdiagnosis of pituitary tuberculoma as pituitary adenoma is common and delay in treatment leads to irreversible endocrine dysfunction.[(4)] Common endocrine dysfunctions in pituitary tuberculosis are anterior pituitary hypofunction and hyperprolactinemia .[(4)] In our case, the patient presented with complaints of progressively increasing headache and diminished vision for 6 months without any other neurological deficit. In the present case, MRI favored the diagnosis of a pituitary adenoma. Pituitary tuberculosis was diagnosed by histological and microscopic examination, and therefore histological confirmation is the main diagnostic modality.[(3,4,7)] Histopathological examination reveals epithelioid cell granulomas, Langhans giant cells, and caseous necrosis that may be occasional.[(3,4,7)] The demonstration of *Mycobacterium tuberculosis* can be done by culture, ZiehlNeelsen stain and by PCR.[(3,4)] conservative management of pituitary TB may be possible if other tests confirm the diagnosis pre-operatively, such as cerebrospinal fluid PCR for tuberculosis in cases with co-existing tuberculous meningitis.[(4)] The early diagnosis and prompt use of anti-tubercular drugs result in a better prognosis. Delay in diagnosis and treatment may lead to permanent endocrine dysfunction.[(3)] The anti-tubercular drugs that cross the blood-brain barrier are given to patients for 9 to 24 months depending on the clinical and imaging outcome.[(3,4,7)]

OUTCOME AND FOLLOWUP

On follow-up, the patient is doing well, restored normal vision and there is no headache.

CONCLUSION

Intrasellar tuberculomas are rare. Thickening of the hypophyseal stalk, a grayish, firm, nonsuckable lesion with a thickened dura should alert the surgeon to the possibility of tuberculoma. Histopathological examination plays an important role in diagnosis. Early diagnosis and treatment prevent permanent endocrine dysfunction.

Declaration by Authors

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