Sellar Tuberculosis Mimicking Pituitary Adenoma

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ABSTRACT

Tuberculosis of central nervous system accounts for only 1% of tuberculosis cases worldwide, of which pituitary is an extremely unusual site. We report a case of pituitary tuberculosis in a 29-year-old female presenting with complains of headache and diminished vision on right eye. It was misdiagnosed as pituitary adenoma on radiology. Biopsy showed epithelioid granulomas, langhans giant cells and caseous necrosis. Ziehl nelseen stain showed presence of acid fast bacilli confirming the tubercular etiology. Therefore, histology remains the mainstay for diagnosis of these lesions. Early diagnosis and prompt use of antitubercular drugs results in good outcome.

KEY WORDS

Pituitary adenoma, Sellar, Tuberculosis

INTRODUCTION

Tuberculosis of central nervous system(CNS) represents 0.15-4% of all intracranial space occupying lesions.[1-5] The frequently affected sites are cerebrum, cerebellum, brain stem, perimeningeal spaces.[6,7] Involvement of pituitary is extremely rare even in endemic areas.[3] Less than 110 cases of primary pituitary tuberculosis are reported till date.[1] It usually occurs without pulmonary or other extrapulmonary manifestations. The clinical features and radiological features of pituitary tuberculosis are non-specific with majority of cases simulating pituitary adenoma.[8,9] Herein, we report a case of sellar tuberculosis in a 29 years old female mimicking pituitary adenoma on radiology.

CASE REPORT

A 29 year female patient presented with headache for duration of 3 weeks. She had diminished vision on the right eye along with blurring of vision and bilateral eyeball pain. She also gives history of episodic headache for many years persistently, resolved by sleep. Her menstrual history was regular.

On examination her general condition was fair without any other significant clinical findings. The cranial nerves and reflexes were intact. Her GCS was 15. On investigations, her serum prolactin level was raised, T3 and T4 were within normal range with decreased TSH. FSH, LH, PTH and cortisol were also within normal range. Her ESR level was 17 mm in 1st hour. Her Chest X-ray was normal. There was no history of tuberculosis in the past and no extrapulmonary features that could raise the suspicion of tuberculosis. MRI of brain and orbit showed well defined sellar lesion of size 2 x 2.5 x 1.5 cm abutting the bilateral internal carotid artery and mass effect at infundibulum superiorly. It also had mass effect on optic chiasma with splaying of optic tracts. Anterio- superiorly the mass was abutting the bilateral anterior cerebral arteries with intraluminal flow voids. Considering the mentioned features, MRI impression was that of pituitary macroadenoma.

With the initial diagnosis of pituitary adenoma, the patient underwent surgery by trans-sphenoidal approach and the specimen was sent for histopathological examination.

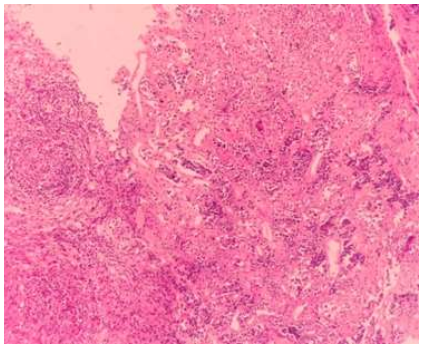

Figure 1. Histopathology showing granulomas and adjacent pituitary tissue (40X)

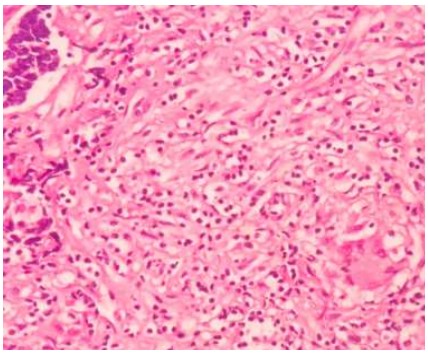

Figure 2. Multinucleated giant cells(400X)

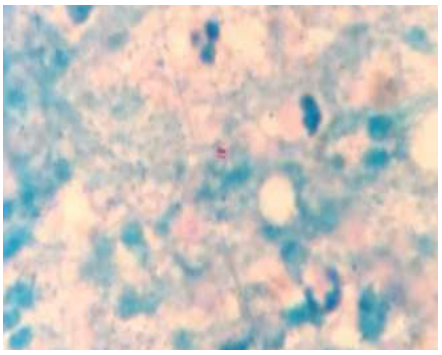

Figure 3. AFB in oil immersion

On microscopy, it showed fragments of pituitary tissue infiltrated by granulomas comprising of epithelioid histiocytes with langhans giant cells, areas of caseous necrosis and surrounding lymphocytic infiltrate (Fig. 1 and 2). Ziehl nelseen stain demonstrated the presence of acid fast bacilli (Fig. 3). The diagnosis of pituitary tuberculoma was made. But unfortunately the patient succumbed to death after a week due to sepsis.

DISCUSSION

Pituitary tuberculosis is a rare disease which was first reported by Coleman et al in 1940.[10] It is thought to arise from direct extension from paranasal sinuses or secondarily through hematogenous route.[2-4] However, the exact mechanism is still unclear.

Intracranial tuberculosis can occur in any age group from 8 to 68 years and females are more affected than males.[1] The most common presentation is headache which is usually accompanied by visual disturbances similar to our case.[6,7] Endocrine disturbances related to anterior pituitary dysfunction like galactorrhea, amenorrhea may be seen.[8] Some may present with polyuria due to central diabetes insipidus which is a clue to differentiate pituitary tuberculosis from pituitary adenoma.[7] Pituitary apoplexy has been reported in some cases of sellar tuberculosis. 10 About 25-30% of cases present with systemic features of tuberculosis which helps in diagnosis and avoids unnecessary surgery.[1,6,7]

MRI is considered the best radiologic modality for diagnosis of pituitary lesions. However, most pituitary tuberculomas are commonly diagnosed as pituitary adenomas according to many other studies which is a similar finding to our case.[2,3] Delay in diagnosis may lead to permanent endocrine dysfunction.[4] It can present with pituitary abscess or hemorrhagic infarction leading to pituitary apoplexy.[9] MRI features like thickening and nodularity of pituitary stalk are considered to be a feature of pituitary adenoma but such findings are nonspecific as they are also seen in sarcoidosis, idiopathic granulomatous hypophysitis, and syphilis.[5-8] However, a study conducted by Degadillo et al have reported that abnormal stalk involvement, peripheral enhancement and absence of signal suppression in FLAIR are clues for diagnosis of sellar tuberculosis.[4]

Histopathological investigation is the main diagnostic modality for sellar tuberculosis. The main aim of surgery is to obtain biopsy for diagnosis and decompression.[3] Transphenoidal approach is the better route as it avoids contamination with CSF rather than radical approach which carries risk of CSF leak and contamination.[1,2] Diagnosis may be confirmed with other tests like cerebrospinal fluid PCR for tuberculosis in cases co-existing tubercular meningitis where surgery need not be performed.[7] Microscopically, it demonstrates epithelioid granulomas, giant cells with or without necrosis.[1-3,5] The presence of caseous necrosis is a very important histological feature indicating a diagnosis of tubercular etiology.[6] Roka et al. has reported a case of sellar tuberculosis presenting as a tubercular abscess.[8] Other causes of granulomatous inflammation are sarcoidosis, idiopathic granulomatous hypophysitis, lymphocytic hypophysitis, Langerhans cell histiocytosis, Wegener's granulomatosis and fungal infection.[2,3,5] Mycobacterial infection may be confirmed with culture, ZN stain or PCR studies.[1] Interferon gamma release assay helped in diagnosis of latent tuberculosis in a case reported by Saito et al.[6] Most cases respond well with anti-tubercular therapy with significant reduction in size as early as 2 months.[7,8] A meta-analytic study reported that six months of antitubercular therapy remains probably adequate for all CNS tuberculosis however some authors recommend 12 months of treatment.[6]

The diagnosis of sellar tuberculosis is very challenging due to non-specific clinical and radiological findings often simulating pituitary adenomas. It should always be considered in differential diagnosis of pituitary lesions especially in endemic areas to avoid unnecessary surgery in such critical part of body. Early diagnosis and timely administration of antitubercular treatment provides good outcome in these cases.

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