June 2018

Pituitary Tuberculoma

Amir Humza Sohail
Aga Khan University

Umar Farooq Bhatti
University of Michigan, Michigan, United States.

Najmul Islam
Aga Khan University, najmul.islam@aku.edu

CASE REPORT

Pituitary Tuberculoma

Amir Humza Sohail[1], Umar Farooq Bhatti[2] and Najmul Islam[3]

ABSTRACT

Tuberculosis rarely involves the hypothalamo-pituitary region and constitutes only 1% of the lesions involving the sellar and/or suprasellar region. Coleman and Meredith first reported pituitary tuberculosis in 1940, and only a handful of cases have been reported ever since. It may manifest as a chiasmal syndrome due to compression of the optic chiasm or as hypopituitarism due to pituitary destruction. It has a characteristic radiological appearance and can mimic a pituitary adenoma. Diagnostic procedures, such as trans-sphenoidal biopsy, are crucial for accurate diagnosis. We report a case of a 32-year male, who presented with complaints of headache and decreased visual acuity for the past 6 months. Eye examination revealed bitemporal hemianopsia. Brain MRI scan showed a mass in the sella with features suggestive of pituitary adenoma. Transcranial resection of the mass was performed; histopathology of the excised mass proved it to be a pituitary tuberculoma.

Key Words: *Tuberculoma. Hypothalamo-pituitary region. Central nervous system. Hypophysitis. Bitemporal hemianopsia.*

INTRODUCTION

Tuberculosis can involve any part of the central nervous system (CNS), but tuberculomas involving the hypothalamo-pituitary region are extremely rare.[1] New chemo-therapeutic treatments, better diagnostic modalities, and effective preventive measures have resulted in lower incidence and severity of all types of tuberculosis; but despite these advances, tuberculosis remains one of the leading causes of intracranial space occupying lesions, especially in the developing world.[2] For example, in India, 20% of all intracranial space-occupying lesions are due to tuberculosis, and 1% of these intracranial tuberculomas are present in the sellar and suprasellar regions.[2] Although the global incidence of tuberculosis has decreased, atypical forms of this infection, such as abscess and tuberculoma, are rising as a result of HIV infections.[2]

For tuberculosis, the rarity of tuberculosis in the sella and suprasellar regions makes very difficult the clinical diagnosis of tuberculosis as the cause of a sellar or suprasellar lesion.[3] This difficulty can be compounded by the fact that on radiology, tuberculomas can mimic other CNS lesions, such as adenomas, as in our patient. Thus, biopsy and histopathological review are crucial for the diagnosis of pituitary tuberculomas, irrespective of the clinical presentation, laboratory results and radiological findings.[3]

[1] *Medical College, The Aga Khan University, Karachi.*
[2] *University of Michigan, Michigan, United States.*
[3] *Department of Medicine, The Aga Khan University Hospital, Karachi.*

Correspondence: Dr. Amir Humza Sohail, University of Oxford, Oxford, Oxfordshire, United Kingdom.
E-mail: ameer.hamzasohail@gmail.com

Received: September 27, 2017; Accepted: December 18, 2017.

Herein, we document the first case of pituitary tuberculoma in Pakistan that mimicked a pituitary adenoma on radiology.

CASE REPORT

A 32-year male, presented to the clinic with complaints of decreased visual acuity and mainly right-sided severe headache for the past 6 months. There was no history of nocturia, polyuria, polydipsia, loss of consciousness, decreased libido or erectile dysfunction. Past medical, surgical, drug and family history were unremarkable. On examination, the patient was vitally stable. General physical and all systemic examinations did not reveal any positive finding. Ophthalmologic examination revealed bitemporal hemianopsia. MRI of the brain showed a mass measuring 1.6 x 1.5 cm in the pituitary fossa abutting the optic chiasm, with features suggestive of a pituitary macroadenoma. Based on history, clinical examination and the MRI findings, a diagnosis of pituitary macroadenoma was made.

The patient underwent transcranial resection of the pituitary mass. Postoperatively, there was marked improvement in the visual symptoms. Histopathology report of the excised mass showed features of chronic granulomatous inflammation pointing towards pituitary tuberculoma. The patient received anti-tubercular therapy (ATT) for 18 months. Hormone replacement therapy for hypopituitarism was started. Brain MRI was repeated 3 months after the surgery and showed no indication of recurrence or residual tuberculosis granuloma.

DISCUSSION

Coleman and Meredith first reported pituitary tuberculosis in 1940, and only a handful of reports have followed ever since.[2] It occurs either due to reactivation of tuberculous bacilli disseminated in primary tuberculosis or as a result of local spread from the meninges.[1] Pituitary tuberculosis

has a 2:1 female predominance and is mostly reported before 45 years of age.[2] History of extrasellar tuberculosis or presence of active disease at diagnosis is also common.[2] This is the first documented case report of pituitary tuberculosis from Pakistan.

The most common complaint in patients with pituitary tuberculoma is headache resulting from vasculitis-related infarction or inflammation associated with concomitant meningitis, followed by visual disturbances.[2] Pituitary tuberculosis often mimics a non-functional sellar neoplasm, such as pituitary adenoma.[4] It may manifest either as hypopituitarism due to gland infiltration/compression effect or as a chiasmal syndrome owing to optic chiasm compression.[1,5] Hypopituitarism, if present, can involve any hormonal axis, does not obey the usual sequence of involvement of different axes in pituitary adenomas and is disproportionate to the size of the mass.[2,6] The prevalence of endocrine abnormalities, adenohypophysial hypofunction, hyperprolactinemia and diabetes insipidus is 77%, 58%, 23% and 11%, respectively.[2] This patient had bitemporal hemianopsia but was otherwise asymptomatic.

MRI in pituitary tuberculosis shows a typical morphology of tuberculous granulomas.[7] Infundibular and pituitary stalk thickening also suggest pituitary tuberculoma, and tuberculosis should be considered in all sellar masses with this finding. Identifying isolated intrasellar granulomatous foci solely on MRI is very difficult.[8] Thus, a range of diagnostic procedures, including a transsphenoidal biopsy, are crucial to accurate diagnosis.[8] Transsphenoidal biopsy should be done before starting treatment, and will show caseating granulomas on histopathology.[7] Additionally, culture of the biopsied tissue and polymerase chain reaction technique in cerebro spinal fluid (CSF) or pathological specimen can support the diagnosis.[2]

Treatment of pituitary tuberculosis comprises of a 2-year course of ATT and surgical decompression *via* transsphenoidal route in cases with neurological emergencies.[9] A decrease in pituitary mass size is seen during ATT, especially in the first few months.[2,9] In the present case, since the mass was misdiagnosed as a macroadenoma and resected, symptoms were relieved even before starting ATT. Importantly, to prevent tuberculous meningitis, ATT must be given even when surgical tuberculoma resection has been performed.[2]

REFERENCES

1. Majumdar K, Barnard M, Ramachandra S, Berovic M, Powell M. Tuberculosis in the pituitary fossa: a common pathology in an uncommon site. *Endocrinol Diabetes Metab Case Rep* 2014; **2014**: 1400912.
2. Sunil K, Menon R, Goel N, Sanghvi D, Bandgar T, Joshi S, *et al*. Pituitary tuberculosis. *J Assoc Physicians India* 2007; **55**:453-6.
3. Sinha S, Singh A, Tatke M, Singh D. Hypophyseal tuberculoma: direct radiosurgery is contraindicated for a lesion with a thickened pituitary stalk: Case report. *Neurosurgery* 2000; **46**:735.
4. Sharma M, Vaish S, Arora R, Gaikwad S, Sarkar C. Composite pituitary adenoma and intrasellar tuberculoma: Report of a rare case. *Pathol Oncol Res* 2001; **7**:74-6.
5. Tanimoto K, Imbe A, Shishikura K, Imbe H, Hiraiwa T, Miyata T, *et al.* Reversible hypopituitarism with pituitary tuberculoma. *Intern Med* 2015; **54**:1247-51.
6. Esposito V, Fraioli B, Ferrante L, Palma L. Intrasellar tuberculoma: Case report. *Neurosurgery* 1987; **21**:721-3.
7. Rao S, Rajkumar A, Kuruvilla S. Sellar lesion: not always a pituitary adenoma. *Indian J Pathol Microbiol* 2008; **51**:269.
8. Shukla S, Trivedi A, Singh K, Sharma V. Pituitary tuberculoma. *J Neurosci Rural Pract* 2010; **1**:30.
9. Eckland D, O'Neill J, Lightman S. A pituitary tuberculoma. *J Neurol Neurosurg Psychiatr* 1987; **50**:360-1.