Article published online: 2022-09-14

Original Article

Unravelling Hitherto Unreported Masses Camouflaged as Pituitary Macro Adenomas

Vernon Velho, Amrita Guha[1], Harish Naik, Laxmikant Bhople, Nimesh Jain

Departments of Neurosurgery and [1]Radiology, J.J. Group of Hospitals and Grant Medical College, Mumbai, Maharashtra, India

Abstract

Background: Lesions of the pituitary gland and the juxtasellar region are quite frequently encountered in daily practise of a neurologist/neurosurgeon. While the differentials of sellar masses are quite large and form an extensive list and the management protocol varies in each case, the onus of properly categorizing and diagnosing the pituitary mass often falls on the reporting radiologist. We hereby present two such unusual masses in the sellar-suprasellar region which were masquerading as pituitary macro adenomas. **Materials and Methods:** Two cases of sellar-suprasellar masses which were preoperatively diagnosed as pituitary macro-adenomas on radiological imaging proved out to be pituitary natural killer cell lymphoma and lepromatous abscess. **Results:** The first one is a rare case of pituitary abscess seen in a lepromatous patient which is not yet reported in the literature. The second case is of primary pituitary natural killer cell lymphoma which is almost entirely unknown, with only two such cases being reported worldwide till date. **Conclusion:** It is important to realize that all enhancing pituitary lesions are not macro adenomas and it is necessary to have a high index of suspicion in such cases. The clinical implications of such an error and steps that can be taken to prevent misinterpretations of unusual sellar masses camouflaging as pituitary macro adenomas have been briefly outlined.

Keywords: *Pituitary lepromatous abscess, pituitary macro adenoma, primary pituitary natural killer cell lymphoma*

Introduction

Pituitary macro adenomas cause enlargement of the sella with T1 iso/hypo intensity, T2/FLAIR hyper intensity on MRI and most show some degree of contrast enhancement. However, not all sellar lesions are pituitary macro adenomas. The differential diagnoses of non pituitary origin sellar masses include meningioma, metastatic disease, germinoma, chondrosarcoma, giant cell tumour, and giant aneurysm.We hereby report two hitherto unreported lesions camouflaged as pituitary macro adenomas, one a case of lepromatous abscess of the pituitary gland and the other a primary natural killer cell lymphoma in the sella.

Case Reports

Case 1

A 45-year-old female came with complaints of headache and diminution of vision. On ophthalmological examination, she was found to have bitemporal hemianopia. Magnetic resonance imaging (MRI) brain [Figure 1a and b] revealed a well-defined thick walled peripherally enhancing lesion in the sellar-suprasellar region which was hypointense on T1-weighted sequences, hyperintense on T2-weighted sequences with no diffusion restriction. The mass had been labeled as a pituitary macroadenoma at a primary level diagnostic centre outside and referred to us. The patient also gave a history of paraesthesia in bilateral upper limbs. An electromyogram (EMG)/nerve conduction velocity (NCV) was advised by the neurologist which showed significant delay in the nerve conduction potentials. In view of abnormal EMG/NCV, an ulnar nerve ultrasound was advised which showed frank neural abscess of the ulnar nerve. Biopsy of the ulnar nerve was done and modified Ziehl–Neelsen staining of the specimen confirmed multibacillary form of leprosy. In view of the above clinical picture suggestive of lepromatous abscess, a tentative decision to defer surgery was taken and the patient was started on the WHO regimen of MB-multidrug therapy

How to cite this article: Velho V, Guha A, Naik H, Bhople L, Jain N. Unravelling hitherto unreported masses camouflaged as pituitary macro adenomas. Asian J Neurosurg 2018;13:1005-7.

Address for correspondence:
Dr. Harish Naik,
Department of Neurosurgery,
J.J. Group of Hospitals and Grant Medical College,
Mumbai - 400 008,
Maharashtra, India.
E-mail: haryadoc@gmail.com

Access this article online

Website: www.asianjns.org

DOI: 10.4103/ajns.AJNS_17_17

Quick Response Code:

anti-leprosy treatment with cabergoline. The patient was discharged and asked to follow-up after 3 months. Repeat magnetic resonance imaging after 3 months revealed near complete resolution of the sellar-suprasellar lepromatous abscess [Figure 2a and b].

Hence, this was a case of a large lepromatous abscess in the sellar-suprasellar region masquerading as macradenoma, which resolved completely on starting anti-leprosy treatment. Such a case of an abscess in pituitary gland due to leprosy remains unreported in literature as yet. With leprosy being still reported in developing countries, this case becomes all the more important so that they are detected and treated early. The clinical implication of this case is that an aggressive surgical intervention was unnecessary, and might even have caused in the further seeding of the infection.

Case 2

A 23-year-old male presented with a history of headache and diminution of vision. On endocrine evaluation, the patient had evidence of anterior pituitary hypofunction in the form of weakness, easy fatiguability, vomiting, and episodes of hypoglycemia. He had no complains of polyuria. MRI of the brain revealed a large, ill-defined irregular heterogeneously enhancing mass lesion in the sellar-suprasellar region displacing the optic chasm upward [Figure 3a and b] along with involvement of the clivus. However, no obvious abnormal focal mass lesion was seen involving the nasopharynx, thorax, or abdomen on detailed radiological study.

This was again misreported as a case of pituitary macroadenoma. Transnasal transsphenoidal approach was taken, and the tumor was debulked. Frozen cytology revealed lymphoma. Histopathological examination and immunohistochemistry of the specimen confirmed it to be a natural killer (NK) cell type of lymphoma. The patient was given chemoradiotherapy and is doing well at 1-year follow-up [Figure 4].

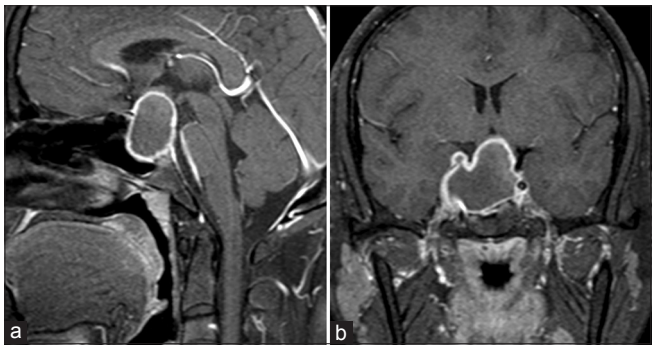

Figure 1: (a and b) Saggital and coronal T1-weighted magnetization-prepared rapid gradient-echo postcontrast sequence showing a large well defined peripherally enhancing collection in the sellar suprasellar region with nonvisualisation of the pituitary gland and its stalk separately from it s/o an abscess

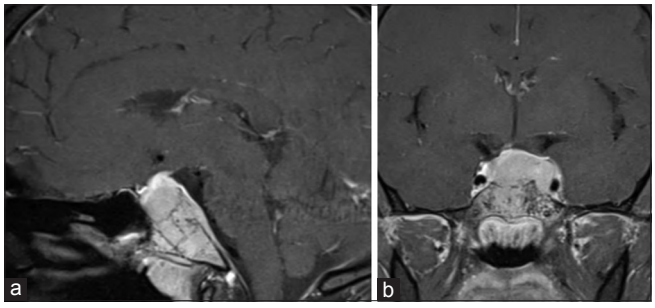

Figure 3: (a and b) Postcontrast saggital and coronal T1 magnetization-prepared rapid gradient-echo sequence showing a large ill-defined irregular heterogeneously enhancing mass lesion in the sellar-suprasellar region displacing the optic chasm superiorly with infiltration of the clivus

Discussion

Pituitary adenomas are the most commonly encountered tumors involving the pituitary gland in the practice of a neurologist/neurosurgeon/radiologist.[1] While it is has been conventionally taught that pituitary macroadenomas cause widening of the sella with a figure of eight appearance, but not all such lesions are pituitary macroadenomas.

Leprosy is an infective disease caused by acid-fast bacilli *Mycobacterium Leprae*.[2] It mainly manifests as three types:

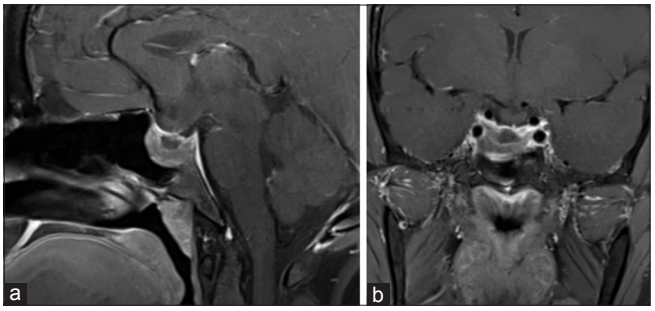

Figure 2: (a and b) Follow-up magnetic resonance imaging of the same patient 3 months after the previous scan. Patient is on regular MB-multidrug therapy for leprosy. Saggital and coronal T1-weighted magnetization-prepared rapid gradient-echo postcontrast sequence showing near complete resolution of the previous abscess

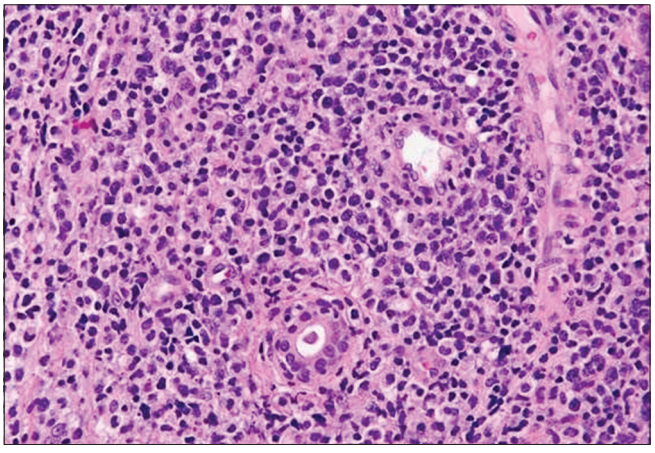

Figure 4: Histopathology confirmed a natural killer cell pituitary lymphoma

multibacillary, paucibacillary, and borderline tuberculoid.[3] Leprosy is known to cause multiple neural nodules and nerve abscesses involving the peripheral nerves but not the brain.[4] Hence, this is the first reported case in literature of a pituitary abscess due to leprosy. The patient responded to anti-leprosy drugs very well as the follow-up MRI done showed near complete resolution of the abscess. In view of the absence of diffusion restriction, the diagnosis of an abscess was not easy. However, sometimes cold abscesses may not show central restriction and the thick shaggy peripheral enhancement of the collection warranted the consideration of an infective etiology. Furthermore, a detailed clinical examination is imperative and served as a vital clue in this case.

The second patient was a case of primary NK cell lymphoma of the pituitary gland. Lymphomas originating in the sellar-parasellar region have been anecdotically reported to be among the most unusual causes of sellar masses.[5] Primary pituitary lymphomas are rare tumors of the central nervous system, and most are of B-cell origin. Primary NK cell pituitary lymphomas are almost entirely unknown, with only two previous such cases being reported worldwide till date.[6] Again in this case, though it was difficult preoperatively to confidently call the lesion a primary pituitary lymphoma on MRI, the infiltration and invasion of the clival fat and T2-weighted hypo intensity of the lesion was a crucial clue to the diagnosis. Although not unknown, it is unusual for a pituitary macroadenoma to invade the clivus and a more aggressive character of the lesion should be communicated to the neurosurgeon.

Extranodal NK/T-cell lymphomas are uncommon neoplasms that are highly aggressive and most commonly affect the nasal cavity and paranasal sinuses. Although the exact etiopathology of NK cell lymphoma of the pituitary is presently unknown, a strong association with Epstein–Barr virus[7] and the detection of human NK cell-like immunoreactivity in human pituitary adenomas using monoclonal antibody NK-1 revealed the presence of NK-1 cells in the cytoplasm of 5%–10% cells of the anterior pituitary.[8] Whether or not secondary malignant transformation of these cells is a possibility, is a hypothesis that needs to be studied further.

Conclusion

Pituitary lepromatous abscess and primary pituitary large B-cell lymphoma of the sella are uncommon entities which can involve the sella-suprasellar and parasellar region. It is of practical importance to include lymphoma and abscess in the differential diagnosis of skull base neoplasms. Moreover, since lymphoma can be successfully treated with chemoradiotherapy, it is strongly recommended that a histological diagnosis is made before instituting. Especially, considering the increasing use of cranial base surgical approaches to resect tumors in these regions, it is important for neurosurgeons to be aware of atypical and unusual pathological abnormalities that may be encountered.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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