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Non-Hodgkin B-cell Lymphoma Presenting as a Pituitary Mass

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Abstract

INTRODUCTION: The authors describe the case of a pituitary mass considered from the radiological point of view as a non-secretory adenoma.

CASE REPORT: The patient, a 31-year-old male, presented with an intense headache, non-responsive to antalgics, right eye Mydriasis, and semiptosis. An endoscopic transnasal surgery caused important but temporary relief to the patient, who some days later complained of tumefactions in both axillar regions. Pathological diagnosis was of a non-Hodgkin B-cell lymphoma.

CONCLUSIONS: Although pituitary involvement is rare in the case of systemic lymphomas, and even rarer among primary central nervous system malignancies, this possibility must become part of differential diagnosis when approaching pituitary masses.

Introduction

Lymphomas of central nervous system (CNS) are a relatively rare occurrence, with sources suggesting a share of 3% between all intracranial tumors [1]. While a hypothalamic – hypophyseal location is a more extreme rarity; however, when lymphomas locate in the pituitary, the clinical picture can be quite acute and aggressive, with headache, ophthalmoplegia, and diabetes insipidus among other presentations [1], [2].

From a pathogenetic model of involvement, pituitary gland could be infiltrated from malignant cells in primary CNS lymphoma; but metastases are as well reported in other forms of lymphoma, and their appearance is more dramatic, as a rule [2], [3]. The authors concur with the fact that posterior pituitary is more susceptible to metastases [4], [5].

Although considered as an emerging disease, primary intracranial lymphomas exist and their increased reporting might of course be due to radiological advancements, ensuring an early diagnosis [6], [7], [8]. Pituitary lymphomas will act *in situ* as a mass formation, differently from secretory hypophyseal tumors of endocrine nature, and will therefore present mainly with visual field deficits, headache and oculomotor nerve palsies. However, hypopituitarism has been reported as well [8], [9].

We report the case of a male patient that showed for neurological consultancy due to severe headache and blurred vision. He was radiologically suspected for pituitary adenoma; but the clinical course and pathology concluded in the favor of a non-Hodgkin lymphoma.

Case Presentation

A 31-year-old male visited the emergency department for a strong headache lasting since 3 days. The day before seeking medical advice he had as well blurred vision and noticed a fall of the right superior eyelid.

A neurological consultancy noted a slight right palpebral ptosis, with the eyeball slightly deviated medially and inferiorly, mydriasis of the right pupil with preserved light reaction. A brain CT scan performed in the emergency unit revealed a parasellar mass interpreted as a pituitary adenoma (Figure 1). Hormonal findings were within norm and the patient was sent at the neurosurgery department.

With the suspicion of a non-secretory pituitary adenoma that was engaging the sellar structures, and due to the severity of the headache which was unresponsive to antalgics, the patient had the next day a MRI of the head, which confirmed the extension of the tumor (Figure 2). The patient underwent pituitary trans-sphenoidal endoscopy intervention for removal of the mass.

The next post-operative day the clinical picture was consistently improved, with an almost restored right

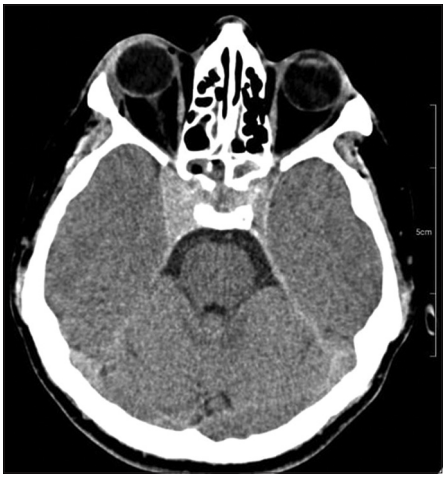

Figure 1: Intra-parasellar formation infiltrating the right cavernous sinus (computed tomography scan)

eye motility and a decrease in the severity of headache. The improvement, however, lasted not longer than 48 h, because the right superior palpebral ptosis returned with a proptosis and severe headache.

The patient received dexamethasone 16 mg intramuscular, but with very few improvement and only initially. The 7th post-operative day he noted a tumefaction in his right axillar region whose dimensions were 4–5 cm. The next day another tumefaction, of smaller dimensions, was seen contralaterally.

The biopsy of the pituitary mass removed surgically concluded in favor of a malignant non-Hodgkin B-cell lymphoma (Figure 3). The patient was sent for oncological consultancy and further treatment.

Furthermore, immunohistochemistry suggested that Ki67 (nuclear protein Ki67), a surrogate marker of proliferative cells, was 70%.

The histological diagnosis was that of diffuse large B cell lymphoma not otherwise specified. Negative stains included also anaplastic lymphoma kinase, human herpesvirus type 8 (HHV8), and CD30 as they help in the differential diagnosis of other anaplastic

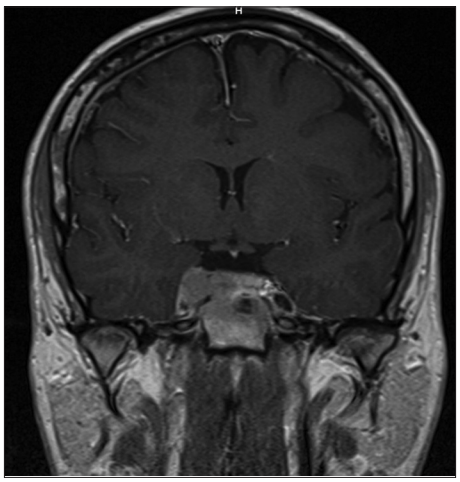

Figure 2: The tumor extension within the right cavernous sinus (brain magnetic resonance imaging T1-weighted image)

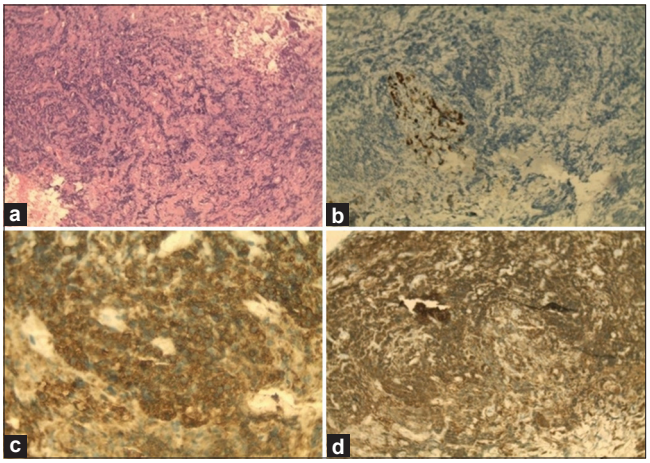

Figure 3: Pathological examination of tumor specimen. (a) Diffuse infiltration by basophilic, intermediate to large cells with tissue crush artefact. (b) Immunohistochemistry revealed negativity for CD3, CD4, CD99, glial fibrillary acidic protein, and S100 protein. (c and d) Cells were positive for CD45, CD20 (immunoperoxidase staining, original magnification 200)

lymphomas and HHV8-associated lymphoproliferative diseases.

Discussion

The case that we discussed was initially considered as a nonsecretory adenoma from the radiological images, and endoscopic intervention was emergently due to the intense headache and the ocular symptomatology that accompanied the clinic.

The differential diagnosis of a pituitary mass has its own challenges, and pathological microscopy will at the end be decisive [10], [11]. Furthermore, there are rarities when pituitary lymphoma will present as an apoplexy; or even when malignant lymphatic tissue might grow within the pituitary adenoma itself [12], [13].

Extensive studies of clinical features of non-Hodgkin lymphoma of the pituitary are available together with reviews of important literature [14], [15]. Of course, endoscopic transnasal surgery is the method of choice, a logical advancement while the transcranial approach and craniotomies still remain valid for tumors of increased dimensions [16], [17].

Controversies still surround the etiology and the genesis of lymphomas within CNS, especially when mass formations are solitary and thus classified as primary lymphomas. CNS lymphomas are reported with an increased prevalence following renal transplant, among other, thus supporting the theory of patients' incapacity to respond to these tumors due to associated pharmacologically-induced immunosuppression [18]. The authors suggest that primary CNS lymphomas derive from malignant non-Hodgkin's B-cellular types, and agree that radiotherapy alone might be insufficient; hence, its combination with high-dose methotrexate can be helpful

[19], [20]. Albeit lymphoma *per se* could be a secondary and remote indication for surgery, some sources find that patients with surgical excision have a survival advantage, when compared to others where the intervention was merely for biopsy purposes [21]. Here again, clinical characteristics and symptoms at the time of diagnosis were non-specific (headache, dizziness, limb weakness; more rarely nausea, vomiting, gait instability, and visual field defect), warranting further diagnostic procedures [21]. While MRI has undisputed value, a diversity of radiological techniques are available, offering an accurate and prompt evaluation to clinical pictures [22].

Conclusions

Non-Hodgkin lymphomas encompass various subtypes and can be grossly divided into “indolent” and “aggressive” groups. The case that we described above was clearly of an aggressive nature, since the pituitary area infiltration preceded the lymphadenopathy, and the hypophyseal area of endoscopic intervention was very soon inundated anew with tumoral cells. However, oncological therapeutics permitting, and their combination with radiotherapy, have permitted a better quality of life and longer survival of these patients from the time of first diagnosis.

Consent

Treating clinician (first author) received informed consent from the patient. All data are treated anonymously.

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