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CASE REPORT

Orbital cavernous hemangioma: Transnasal endoscopic management

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Cavernous hemangiomas (CHs) are the most common intraorbital tumors found in adults.[1] Although histologically benign, they can encroach on intraorbital or adjacent structures and be considered anatomically or positionally malignant.[1,2]

Most of these tumors are unilateral and can increase intraorbital volume with a resultant mass effect. Visual acuity or field compromise, diplopia, and extraocular muscle or pupillary dysfunction can result from compression of intraorbital contents. The morbidity associated with orbital CH is the threat of compressive optic neuropathy, extraocular muscle dysfunction, and cosmetic disfigurement.[1,2]

Most orbital CHs require no intervention, but especially when there is visual compromise, surgery is indicated. The approach is dictated by tumor location within the orbit. The typical described approaches are lateral orbitotomy, transconjunctival, and frontotemporal.[1-3] We present a case of an orbital CH with visual compromise and its transnasal endoscopic surgical management.

A 33-year-old male presented with a six-month history of a progressive left visual loss that had worsened during the last month. He did not present with proptosis, eye movement limitations, or any other complaints. After a complete ophthalmologic evaluation, he performed an eye campimetry that showed severe decrease of left visual acuity.

An MRI showed an intraorbital mass that filled up homogeneously on gadolinium, at the left orbital apex, with approximately 8 mm on its largest axis, compressing the left orbital nerve, and with close relationship with extraocular muscles (Fig 1).

After a careful preoperative evaluation with CT to analyze the orbital cavity and its relationship with the paranasal sinus, and an arteriography to analyze the blood vessel supply to the tumor, an endoscopic transnasal resection of the lesion was proposed.

After IRB approval and the patient's informed consent, the surgery was performed. A left maxillary antrostomy and a complete left ethmoidectomy were performed. The left sphenoid sinus ostium was identified and carefully opened to avoid any unnecessary bleeding. The patient presented an Onodi cell that was opened in order to identify the optic nerve channel.

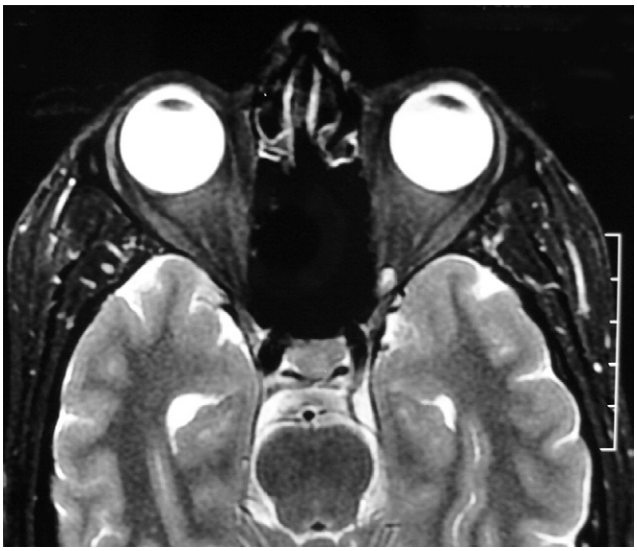

Figure 1 T2-weighted MRI, axial view showing a hyperintense mass at the orbital apex.

After a large exposure, the left internal carotid artery, left orbital nerve, optic-carotid recess, and papyracea lamina were all identified. A diamond bur was used to remove the bone and expose these structures. The periorbit was opened and orbital fat and the medial rectus muscle were identified.

After careful dissection, the lesion was identified, removed with sharp cutting instruments, and sent for pathologic examination (Fig 2). The nasal cavity was packed with hemostatic reabsorbable material.

The surgery lasted approximately two hours and the patient was discharged the day after the procedure, with subjective improvement of his left visual acuity. Nasal cleanings were performed to avoid any nasal obstruction or infection, and another eye campimetry was performed one week after the surgery that showed complete recovery of the left visual acuity. No complications were observed.

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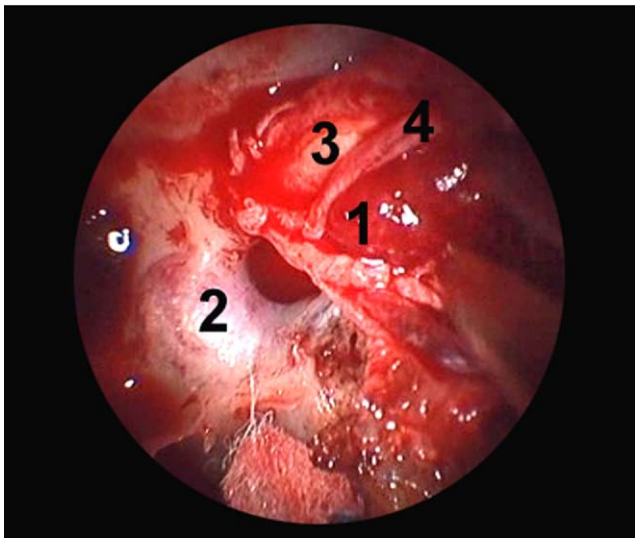

Figure 2 Endoscopic view with a 0-degree 5-mm endoscope of the surgical field. *(1)* orbital cavernous hemangioma; *(2)* left internal carotid artery; *(3)* exposed optic nerve; *(4)* medial rectus muscle.

DISCUSSION

Patients who present with clinically significant CH usually are middle-aged and have complaints of change in visual acuity.[1] A careful clinical history and review of symptoms is paramount to formulate a list of differential diagnoses that must include meningioma, fibrous histiocytoma, and hemangiopericytoma, among other orbital tumors. The radiological and clinical features are the most important keys to provide a preoperative diagnosis idea.[1,2]

Progressive and total homogeneous filling up of an orbital mass on gadolinium-enhanced MRI is a pathognomonic sign of CH.[2] Most CHs are found between the optic nerve and extraocular muscles within the intraconal space, classically within the medial aspect of the orbit. They are approached through an upper eyelid or a transcaruncular-based medial orbitotomy. After adequate exposure, a well-circumscribed purple encapsulated lesion is seen with distinct vessels on its surface. Gentle dissection allows for en-bloc removal after all vessels have been identified and cauterized with bipolar cautery.[3-5]

Although external approaches provide direct exposure of the lesion, they are associated with significant morbidity. There are very few reports of endoscopic transnasal resection of intraorbital lesions, mostly because even with all the recent advances, the use of endoscopic techniques to manage lesions beyond the paranasal sinus is still very restricted.[3-5]

Transnasal endoscopic resection of intraorbital tumors is feasible and may offer some advantages when compared to traditional approaches. However, it is paramount to have specialized instruments such as long handpiece drills, good camera systems, and long bipolar forceps, as well as an experienced endoscopic surgeon, to control vascular lesions and potential life-threatening complications.

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Aldo Stamm, writer, reviewer; **João Flávio Nogueira**, literature review, writer, and photo editing.

DISCLOSURES

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