

Supero-lateral orbitotomy for resection of sphenoidal meningioma: a case report

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SUMMARY: Supero-lateral orbitotomy for resection of sphenoidal meningioma: a case report

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Sphenoidal meningioma have traditionally been defined as secondary tumors of the orbit originating from the dura of the sphenoid wing bone. Nevertheless, pathologic findings reveal a distinct periorbital component as a defining feature of these lesions. These tumors are characterized by an intraosseous mass growth leading to a significant hyperostosis involving the sphenoid wing, the orbital roof, the lateral orbital wall and the middle fossa cranial base and to a thin, usually soft-tissue growth at the dura. We report here on the extension of the primary tumor into the orbital cavity and present the surgical approach performed.

RIASSUNTO: Orbitotomia supero-laterale per l'asportazione di un meningioma sfeno-orbitario: caso clinico.

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Il meningioma sfeno-orbitario è stato definito tradizionalmente come un tumore secondario dell'orbita che origina dalla dura adiacente all'osso sfenoide. Questi tumori sono caratterizzati da una crescita intra-ossa determinata da una significativa iperostosi che coinvolge l'ala dello sfenoide, il tetto orbitario, il pavimento, la parete laterale dell'orbita e la fossa cranica media. Presentiamo un caso clinico con un approccio chirurgico e fino adesso mai scelto per l'exeresi di tale entità patologica.

KEY WORDS: Orbital tumor - Meningioma - Orbitotomy.
Tumore orbitario - Meningioma - Orbitotomia.

Introduction

Originally described by Cushing and Eisenhardt as *meningiomas en plaque* (5), the description of these tumors has changed over the years based on a better understanding of the anatomy of this region and its pathological features. Different surgical approaches, such as pterional, fronto-temporal, transzygomatic and transcranial-transmalar, for the resection of sphenoidal meningioma have been described (3,4). However, the removal of these tumors exclusively through a lateral orbital osteotomy has not been reported as yet in literature.

Case report

A 47-year-old woman was admitted to our Neurosurgical Service with a 13-month history of intermittent headache, unilateral proptosis and facial pain; general physical examination did not reveal any abnormality and blood routine investigations were within normal limits. Cranial computed tomographic (CT) scan revealed a significant right sphenoid hyperostosis with invasion of the lateral orbital wall and intraorbital-intracranial tumor extension (Fig. 1). Surgical procedure consisted of a fronto-temporal curvilinear skin incision by exposing the superior and lateral rims of the orbit and the zygomatic arch; the antero-superior portion of the temporalis muscle was divided from the temporal line and reflected postero-inferiorly to expose the temporal portion of the greater wing of the sphenoid. Then the bone flap was cut with an oscillating saw, as described by Mourier (1): the inferior cut runs horizontally along the superior margin of the zygomatic arch, including the lateral orbital rim; the superior cut runs horizontally through the lateral part of the superior orbital rim; the lateral cut runs vertically the lateral orbital wall, posterior to the lateral orbital rim; finally, the tree-bone flap was removed. Using a high-speed drill the temporal and the thicker orbital portions of the greater wing of the sphenoid were drilled away to the lateral edge of the superior orbital fissure. This action exposed the temporo-polar dura, which was opened after removing the intracranial part of the tumor and was followed by an orbital skele-

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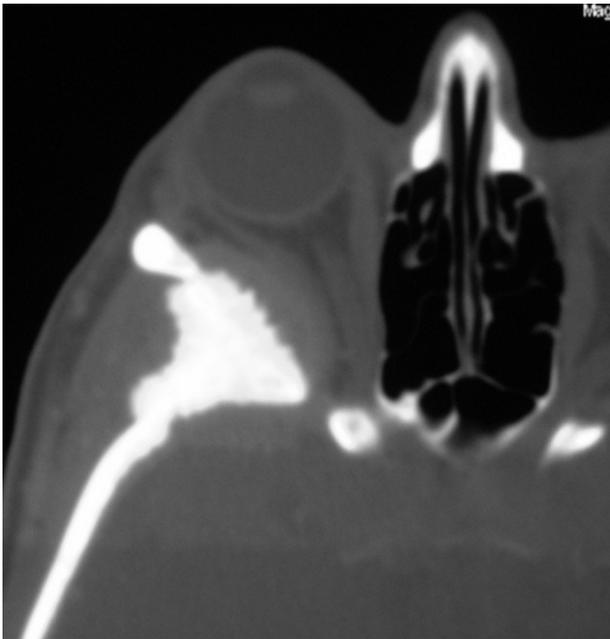


Fig. 1 - CT scan demonstrates infiltration of the sphenoid wing and intra-extra cranial tumor extension.

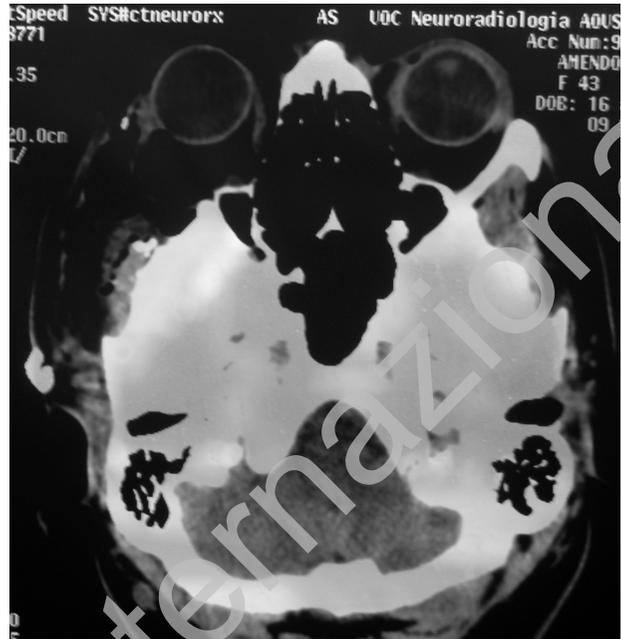


Fig. 2 - The postoperative axial image of the CT scan shows complete tumor excision.

tal reconstruction, performed through the use of an alloplast. The postoperative period was uneventful, apart from a transient VI cranial nerve deficit. Histopathologic examination confirmed the diagnosis of WHO grade II meningioma and postoperative CT scan revealed complete excision of the tumour (Fig. 2). The patient was discharged on 9th day. A magnetic resonance (MR) scan, performed 6 months later, revealed no signs of tumor recurrence.

Discussion

The supero-lateral orbitotomy with deep lateral wall drilling represents a reliable alternative to the subfrontal, pterional or posteriorly enlarged antero-lateral ap-

proach for tumors located in the orbital apex or intra-extraconal space. This procedure represents a balance between minimizing the surgical invasiveness for the patient and optimizing an efficient surgical removal of the lesion. Many different materials can be safely used for orbital reconstruction (2, 6). However, all must be designed individually to recess the orbit in proper symmetry with the face and to recreate the necessary orbital volume that may have been lost due to the involvement of fat and periorbital tissues. We believe that tumor resection and a proper surgical reconstruction are both equally important for achieving a successful outcome.

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