Medial sphenoid wing meningioma

- The impact of perilesional heatsink structures on ablation volumes and symmetry in laser interstitial thermal therapy for the treatment of primary central nervous system tumors
- Diagnostic Challenges and Insights in Optic Nerve Hemangioblastoma Using Magnetic Resonance Imaging: A Case Report
- Exploring Secondary Mania: A Case of Medial Frontal Meningioma With Exceptional Response to Antimanic Medication
- Are Considered Ectopic Orbital Meningiomas Really Ectopic?
- How I do It: Endoscopic transorbital resection of sphenoid osseous meningioma via the lateral orbital 'sliding coach door' approach
- Endoscopic transorbital approach for the management of spheno-orbital meningiomas: A systematic review and meta-analysis
- The importance of the optic nerves unlocking during the resection of anterior skull base meningiomas for visual function preservation: surgical nuances and clinical outcome
- Characteristics of optic canal invasion in the large midline non-tuberculum sellae anterior skull base meningiomas and the surgical outcomes

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It is part of the heterogeous group of Skull base meningiomas

These sphenoid wing meningiomas involve the region of the anterior clinoid, adjacent medial sphenoid wing, superior orbital fissure, and cavernous sinus. They may grow into the orbit. The tumor often encases the internal carotid artery and proximal middle and anterior cerebral artery as well as the optic nerve and may compress or provoke edema in the temporal or frontal lobes.

Anterior clinoidal meningioma (medial sphenoid wing) meningiomas are a subcategory of the medial sphenoid wing meningiomas.

see Anterior clinoid region meningioma

Epidemiology

Approximately ~15-20% of all meningiomas arise from the sphenoid wing, with about half of these arising from the medial portion of the wing.

Meningiomas of the sphenoid wing make up approximately 15–20% of total cranial meningiomas [1) 2) 3)].

Classification

see Medial sphenoid wing meningioma classification.

Differential diagnosis

Anterior cranial fossa meningioma

Treatment

see Medial sphenoid wing meningioma treatment.

Outcome

Medial sphenoid wing meningiomas (mSWM) present a surgical challenge because they can grow into the cavernous sinus (CS), encircle the anterior circulation arteries, affect the cranial nerves, and even invade the bone [4) 5)].

The intricate location of medial sphenoid wing meningiomas (mSWM) increases the risk of surgery, leading to higher morbidity and even mortality. It is crucial to study preoperative imaging to predict which extent of resection can be achieved and decide whether to manage total resection for lower recurrence rate or partial resection for preservation of encased neurovascular structures. We have not yet had a widely accepted classification system of mSWM to predict the extent of resection in clinical practice. Recently, application of three-dimensional (3D) multimodality fusion imaging has greatly contributed to the understanding of anatomical structures and has been proved to be a promising neurosurgical tool for brain tumors [6) 7) 8)].

Videos

Resection of medial sphenoid wing meningiomas poses surgical challenges because of the close contact with important cerebrovascular structures. The standard treatment for large tumors is microsurgical resection. Complete removal includes maximal resection of the dura and any involved bone, but this approach is not always feasible when the tumor encases the arteries or cranial nerves. In these cases, there is evidence that a more conservative resection followed by radiation treatment can reduce operative morbidity with acceptable tumor control rates. In this 3-dimensional video (http://www.youtube.com/watch?v=owNVp-x_xOQ), the authors demonstrate their preferred technical nuances to resect a large middle to medial sphenoid wing meningioma [9)].

Case series

Medial sphenoid wing meningioma case series.

Case reports

1989

Gum and Frueh report a case of unilateral exophthalmos and compressive optic neuropathy due to sphenoid ridge meningioma. The patient underwent transantral orbital decompression with removal of the orbital floor and medial wall that resulted in rapid, dramatic normalization of both visual acuity and visual field in the involved eye. Due to the slow-growing, noninfiltrative nature of meningiomas, we propose this procedure as an alternative, initial, palliative treatment for selected cases of compressive optic neuropathy due to meningioma compressing the posterior orbit. This procedure can provide restoration of visual function with less risk to the patient than neurosurgical resection [10].

1971

Total removal of large global meningiomas at the medial aspect of the sphenoid ridge. Technical note [11].

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