

Olfactory Groove Atypical Meningioma: Case Report with Review of the Literature

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Abstract: Background: Olfactory groove meningiomas (OGM) arise above the cribriform plate and can reach very large sizes before presentation. They can be differentiated from meningiomas of the sellar tuber because MGOs arise more anterior to the skull base and displace the optic nerve and chiasma below the skull base. **Case Presentation:** We report the case of a 30-year-old woman who presented with a long history (about 6 years ago) of atypical treatment-resistant headaches associated with a recent decline in visual acuity leading the patient to consult. Brain MRI was performed and reveals an atypical olfactory groove meningioma. **Conclusion:** Olfactory groove is a rare location of meningiomas, the search for imaging findings that suggest tumor aggressivity is essential to predict the risk of recurrence after surgical treatment

Keywords: Atypical meningioma, Olfactory, olfactive groove

INTRODUCTION

Olfactory groove meningiomas (OGM) are benign tumors, If large enough, MGOs can involve the sellar region and cause visual impairment by compressing the optic nerve and chiasma [1]. These tumors often cause hyperostosis in the bone from which they originate. Extension to the ethmoidal sinuses and nasal cavity may occur in 15-25% of cases [3]. The most common symptoms are usually anosmia, headache, and visual disturbances [1]. Imaging of olfactory groove meningioma is similar to that of other meningiomas elsewhere but the detection of atypical imaging signs is primordial to report. We present a case of a 30-year-old woman with an olfactory groove meningioma and we highlight the imaging findings of such tumors including atypical signs.

CASE PRESENTATION:

A 30-year-old woman was admitted to the hospital with headaches 6 years ago, and bilateral visual impairment for 8 months. She had no specific medical or trauma history. The neurological examination was normal.

A Brain MRI was performed and revealed a well-circumscribed extra-axial Dural-based lobulated mass at the floor of the anterior cranial fossa in the midline overlying the cribriform ethmoid. The mass had an isointense signal on T1 and T2 (Fig. 1) with homogeneous enhancement after administration of gadolinium measured at approximately 9.5 x 11 centimeters.

The patient is a candidate operation in neurosurgery

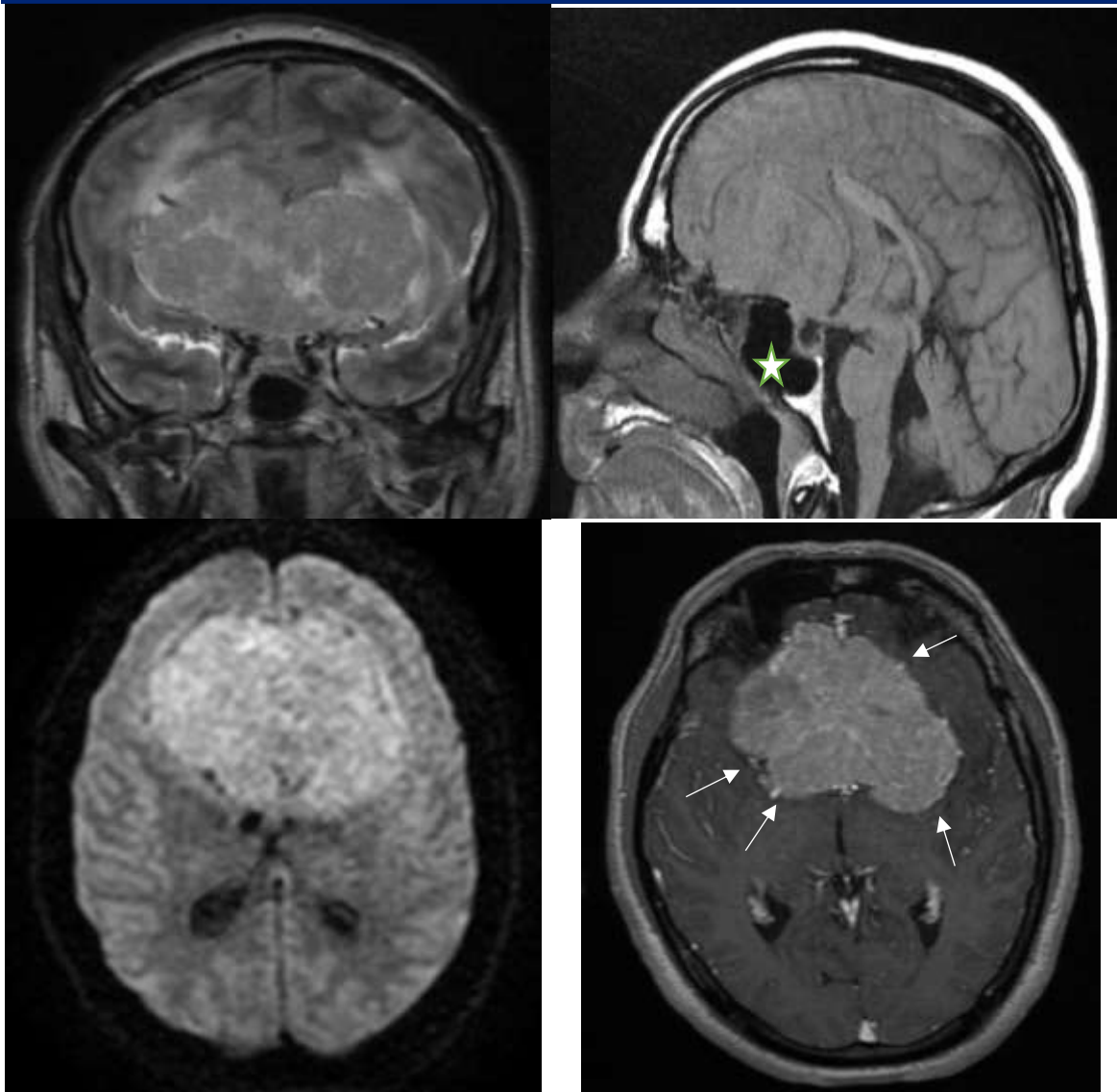


Figure 1 : MRI in axial and coronal slices in coronal T2 , sagittal T1 , Diffusion and axial C+ sequences showing a large bilateral basifrontal Isosignal T1 , moderate high T2 signal, showing restricted diffusion and enhance homogeneously post gadolinium administration.

- Asterix: Pneumosinus dilatans
- A spontaneously hyperintense peripheral border is noted on FLAIR and indicates arachnoid felting(Arrowheads)

DISCUSSION :

Olfactory sulcus meningiomas occur above the cribriform plate and fronto sphenoid suture and account for approximately 10% of intracranial meningiomas [1]. The meningiomas extend mainly on one side. Extension into the ethmoidal sinuses has been reported in 15% of patients, although this finding is probably underestimated [2]. Other extensions into the nasal cavity and orbit are evident in some cases. The blood supply to these lesions is most often derived from the ethmoidal arteries, the anterior branches of the middle meningeal artery, and the meningeal branches of the ophthalmic artery. As the tumors grow larger, the vascular supply from the

small branches of the ACA and ACoA is not uncommon[2,3]. There are some similarities between STDs and posteriorly extending GMs. However, there are important differences (Table 1), particularly with regard to the location of the optic tract in relation to the tumor [3].

to the tumor. The optic nerves and chiasma are located inferolateral to GMOs and superolateral to STDs¹¹. The risk of affecting the optic nerve is also relatively high when treating meningiomas of the tuberculum sellae region, especially when they are larger than 3 cm. [3].

Imaging features :

The appearance of GMOs on CT and MR images is similar to that of meningiomas elsewhere. Computed tomography is particularly useful in defining bone anatomy, including areas of hyperostosis or erosion. It can also be used to identify regions of hyperostosis or erosion that may assist in the diagnosis or planning of a surgical approach to these lesions. surgical approach to these lesions [4]. Meningiomas usually appear slightly hyperdense relative to the brain parenchyma on non-contrast scans and enhance homogeneously and brightly after contrast administration [4]. They are homogeneously and brightly enhanced after contrast administration. The extension of the paranasal sinus through the floor of the anterior cranial fossa is well demonstrated on CT scans, particularly on coronal views. MR imaging and MR angiography can define the relationship between the tumor and the optic nerves and the chiasm as well as the ACA and the communicating complex [4].

Catheter angiography is usually not necessary. Meningiomas usually appear isointense in relation to the grey matter in T1 and iso- or hyperintense on T2 weighted sequences and are iso- or hyperintense on T2-weighted sequences. Dense enhancement after Gd administration is also observed [5].

CONCLUSION:

The diagnosis of olfactory groove meningiomas is rare, and clinic manifestations are not specific, although imaging findings are clear and obvious. The search for signs of atypia is essential for therapeutic management.

ABBREVIATIONS :

ACA: Anterior cerebral artery

ACoA: Anterior communicant artery

T1 WI T1 weighted images

T2 WI: T2 weighted images

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