

Case Series

EXTRACRANIAL MENINGIOMA PRESENTING AS INFRATEMPORAL FOSSA MASS: A CASE SERIES

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ABSTRACT

Extradural meningioma occurs as extracranial extension of intracranial tumor. In this series we present two uncommon cases of extracranial meningioma extending into the infratemporal fossa (ITF). One patient presented as left sided facial pain and cheek swelling and another patient as swelling outer to the lateral canthus of eye, of 2 years' duration each. Both the cases had foramina or fissural extensions. Detection of possible intracranial extension and involvement of adjacent structures is mandatory before surgery. The close proximity of the infratemporal area to the intracranial structures, the orbit, the paranasal sinuses, the nasopharynx, and the facial area demands careful planning of surgical excision and combined procedures.

KEY WORDS: Meningioma, Extracranial, Infratemporal Fossa, CT, MRI.

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INTRODUCTION

Extradural meningioma occurs as extracranial extension of intracranial tumors. Cross-sectional imaging is an indispensable tool in the investigation of infratemporal fossa pathologies. CT and MRI exquisitely display the complex anatomy of this region. Imaging provides accurate spatial localization of pathology, differential diagnosis & vital information for treatment planning.

PRESENTATION:

The common infiltrative lesions to involve the infratemporal fossa in adults are squamous cell carcinomas of the retromolar trigone & pharynx. [1] Rarely, Meningiomas may extend extracranially via any of the skull base foramina

(commonly jugular foramen) or by invading the skull base itself [2].

They appear as homogeneously enhancing soft tissue masses with foci of calcification within them. Hyperostotic thickening of the involved bone is a common finding. The infratemporal fossa combines a large part of the masticator space, para-pharyngeal space & the retroantral buccal space reaching upto the skull base superiorly. The close proximity of the infratemporal area to the intracranial structures, the orbit, the paranasal sinuses, the nasopharynx, and the facial area demands careful planning of surgical excision and combined procedures. Detection of possible intracranial extension and involvement of adjacent structures is mandatory before surgery.

CASE REPORT: 1

Fig. 1A: Enhancing ill-defined lesion in the right infratemporal fossa, involving the medial & lateral pterygoids, masseter & the temporalis.



Fig. 1B: Superior extension into the middle cranial fossa via the Foramen ovale

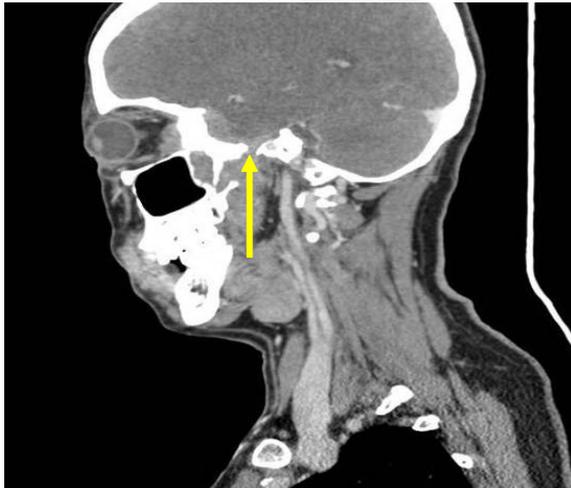


Fig. 1C: Mass was seen to extend into the right pterygopalatine fossa, sphenopalatine foramen & the pterygomaxillary fissure.

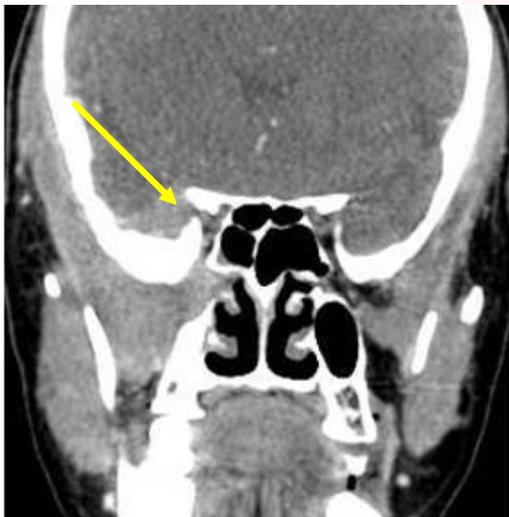


Fig. 1D: Bony hyperostosis of right greater wing of sphenoid.

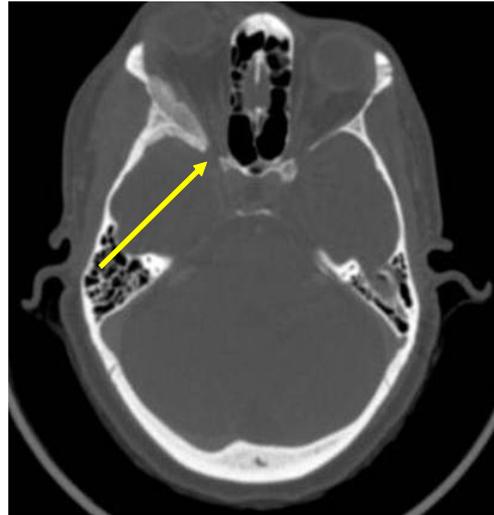
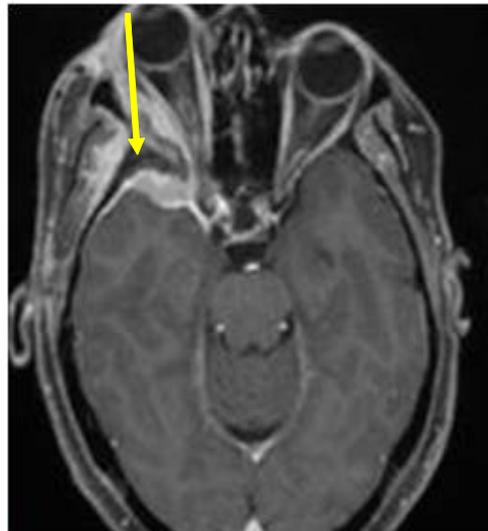


Fig 1E: Superior extension enhancing into the right middle cranial fossa as an extra-axial enhancing lesion.



Fig. 1F: Extra-axial enhancing anterior temporal lesion with a dural tail.



A 42-year-old lady presented with history of swelling outer to the lateral canthus of the right eye since 2 years & occasional pain since 3-4 months. The swelling started about the right zygomatic bone & progressed to the current size of 4 x 3 cm. CT Skull base to the mediastinum was done. MRI brain was performed after the CT study to evaluate the intracranial component.

DIAGNOSIS

Right transzygomatic temporal & subtotal craniectomy with microsurgical subtotal tumor excision was performed. Biopsy from the infratemporal fossa mass were consistent with Meningioma (WHO Grade I).

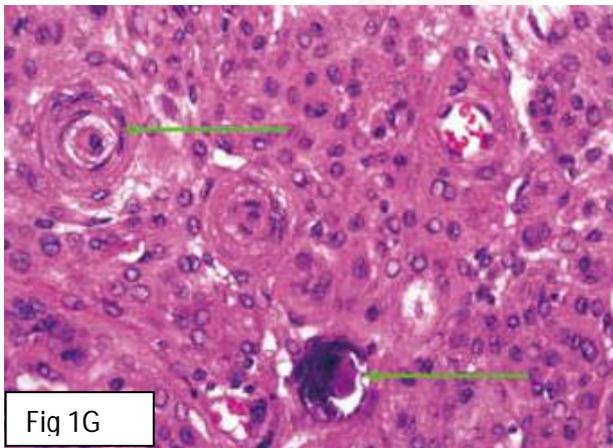


Fig 1G

CASE REPORT: 2

A 38-year-old lady presented with left sided headache, facial pain & left sided cheek swelling for 2 years. The headaches were recurrent & associated with blurring of vision & were worsened with chewing & cold exposure. The cheek swelling had an insidious & progressive onset. Associated left eye ptosis with exophthalmos was present.

Fig 2A: Ill-defined enhancing lesion in the left infratemporal fossa.

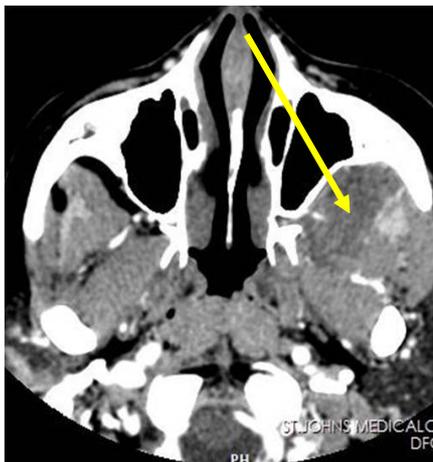


Fig 2B: Extension into the left pterygo-maxillary fissure and sphenopalatine foramen.



Fig 2C: Extension superiorly into the left middle cranial fossa via the Foramen rotundum

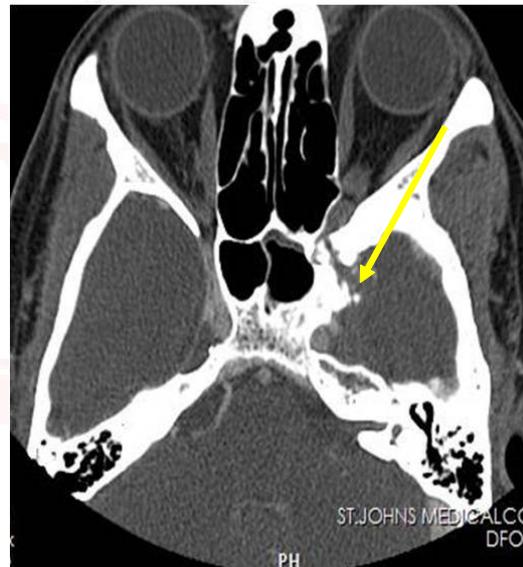


Fig 2D: Bony hyperostosis involving the sphenoid bone.

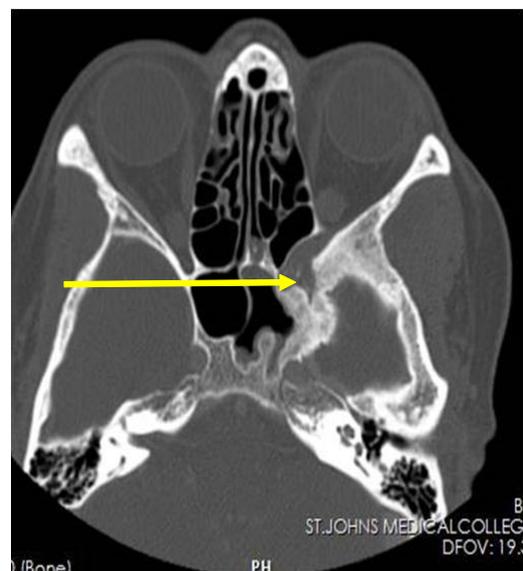


Fig 2E: Extra-axial enhancing mass in the middle cranial fossa.

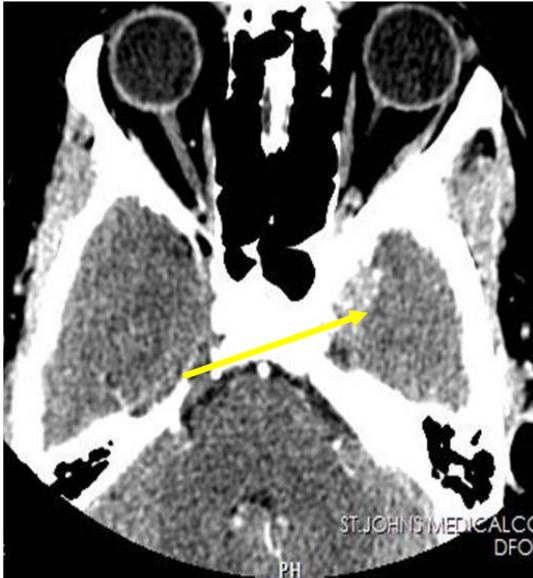
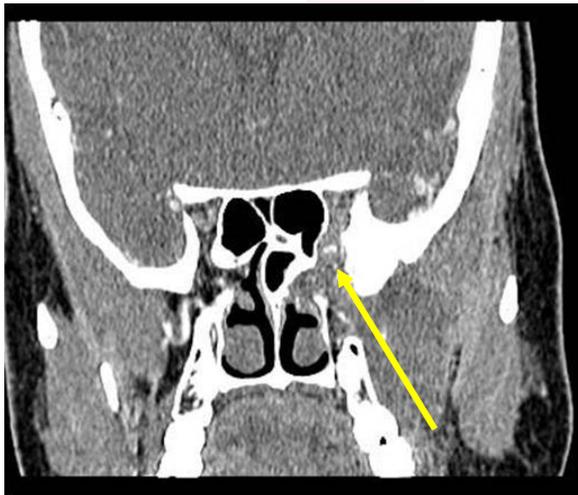


Fig 2F: Extension of the lesion into the pterygopalatine fossa, pterygomaxillary fissure, sphenopalatine foramen and the inferior orbital fissure. Calcific foci are noted within the mass.



Microsurgical tumor excision was done using left transzygomatic & temporal approach. Histopathology of the infratemporal fossa mass lesion revealed Meningioma (WHO Grade I).

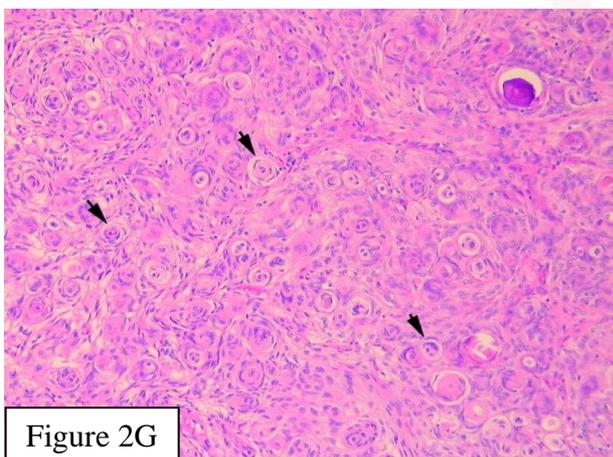


Figure 2G

DISCUSSION

Meningiomas are benign tumors that are derived from the arachnoids villous structures of the meninges and are common in the central nervous system. Extracranial meningioma is an unusual tumor, mainly found in the head and neck area. Hoyer et al., subclassified it on the basis of the major etiologies proposed in the development of extracranial meningiomas, and the most common variety of extracranial meningiomas is that which arises from intracranial dura and extends extracranially [3].

There are two possible sources for ectopic meningiomas have been proposed [4]. Firstly, Majoros mentioned about the embryonal arachnoid cells arise outside from skull and spine that lined along the fusion of primitive bone and nerve sheath. Secondly, Shuanshoti and Panyatahana mentioned about the possible origin of the ectopic meningioma from differential maturation of pleuripotent mesenchymal cells. [5] In this case, there is question regarding the primary site of the tumor and it might be from the soft tissue as intraoperative finding the tumor was in temporal fossa and not arising from temporal bone and can be separated from the scalp.

Elisabeth et al., 2009, largest series in analysis cases of primary extracranial meningiomas, reported that vast majority of tumors affected the scalp and there was no particular predilection anatomically with forehead, vertex, temporal or others. [6] It would be difficult to extrapolate association with cranial bone sutures lines but some of the tumors were probably overlying these landmarks. Patient symptoms were referable to the anatomical site of tumor involvement. Lesion over skin scalp and neck usually presented with a mass and usually discovered at early stage.

The histopathological diagnosis is usually straightforward; however, the diagnosis may pose challenges in these unexpected locations. WHO classification of meningioma are: Benign (Grade I)-(90%), Atypical (Grade II)-(7%) and Anaplastic/ malignant (Grade III)-(2%). Morphologically, they are usually rounded masses with well-defined dural bases that compress and displace the underlying brain tissue without

invading it. The surface of the mass is usually encapsulated with thin, fibrous tissue and may have a bosselated or polypoid appearance. Extension into the overlying bone may be present. It is easily separated from the brain tissue. relatively low risk of recurrence or aggressive growth. Biologically, extracranial meningiomas have been observed to be benign and slow growing. [7]

CONCLUSION

CT & MRI are indispensable for the imaging of infratemporal fossa. A thorough understanding of the infratemporal fossa anatomy and evaluation of intracranial extension is essential. Bony changes such as hyperostosis provide an important clue for the diagnosis of extracranial meningiomas.

Conflicts of Interests: None

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