

ESTHESIONEUROBLASTOMA: AN MRI-BASED CASE REPORT OF A RARE SINONASAL NEUROECTODERMAL TUMOR

Radio-Diagnosis

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ABSTRACT

Esthesioneuroblastoma, also known as olfactory neuroblastoma, is a rare malignant neuroectodermal tumour arising from the olfactory epithelium of the superior nasal cavity. The clinical presentation is often nonspecific, with nasal obstruction and epistaxis being common symptoms. Imaging is essential for assessing the site of origin, local extent, skull-base destruction, orbital involvement and intracranial extension. We present a case of a 62 year-old female with nasal obstruction, recurrent epistaxis, headache and anosmia for 6 months, in whom MRI revealed an enhancing sinonasal mass centred in the superior nasal cavity with ethmoidal involvement. Histopathological examination with immunohistochemistry confirmed esthesioneuroblastoma. This case emphasizes the complementary role of MRI in diagnosis, staging and treatment planning.

KEYWORDS

Esthesioneuroblastoma, Olfactory Neuroblastoma, Sinonasal Tumour, MRI, Cribriform Plate

INTRODUCTION

Esthesioneuroblastoma (ENB), also termed olfactory neuroblastoma, is a rare malignant neuroectodermal tumour arising from the specialized olfactory epithelium in the superior nasal cavity. It represents a small proportion of sinonasal malignancies and can occur over a wide age range. Because early symptoms are often nonspecific, diagnosis may be delayed until the lesion has attained considerable local extent.

The usual clinical manifestations include progressive unilateral nasal obstruction and recurrent epistaxis. Anosmia, headache, facial swelling, proptosis, visual symptoms or neurological manifestations may occur in advanced disease. The tumour has a tendency to extend through the ethmoid roof and cribriform plate into the anterior cranial fossa, and may also involve the orbit and cervical lymph nodes.

Cross-sectional imaging is central to evaluation. Computed tomography (CT) is useful for delineating the sinonasal epicentre and associated osseous erosion or destruction, whereas magnetic resonance imaging (MRI) provides superior assessment of soft-tissue extent, orbital involvement, dural disease and intracranial extension. Histopathology with immunohistochemistry is required for definitive diagnosis.

Case Study

A 62 year-old female presented with progressive nasal obstruction, recurrent epistaxis, headache and anosmia for 6 months. Clinical examination revealed a mass within the nasal cavity. The patient was referred for radiological evaluation to assess the extent of disease.

Esthesioneuroblastoma (ENB), also termed olfactory neuroblastoma, is a rare malignant neuroectodermal tumour arising from the specialized olfactory epithelium of the superior nasal cavity.[1,2] It represents a small proportion of sinonasal malignancies and may occur over a wide age range.[1,2] Because early symptoms are often nonspecific, diagnosis may be delayed until the lesion has attained considerable local extent.[1]

The usual clinical manifestations include progressive unilateral nasal obstruction and recurrent epistaxis. Anosmia, headache, facial swelling, proptosis, visual symptoms or neurological manifestations may occur in advanced disease.[1] The tumour may extend through the ethmoid roof and cribriform plate into the anterior cranial fossa and can involve the orbit and regional cervical lymph nodes.[1,2]

MRI demonstrated the lesion to be predominantly isointense on T1-weighted images and intermediate to mildly hyperintense on T2-weighted images with heterogeneous post-contrast enhancement. MRI

more clearly demonstrated the relationship of the tumor to the anterior skull base (intracranial extraaxial extension) and orbit.



Figure 1 (T2 Sagittal)

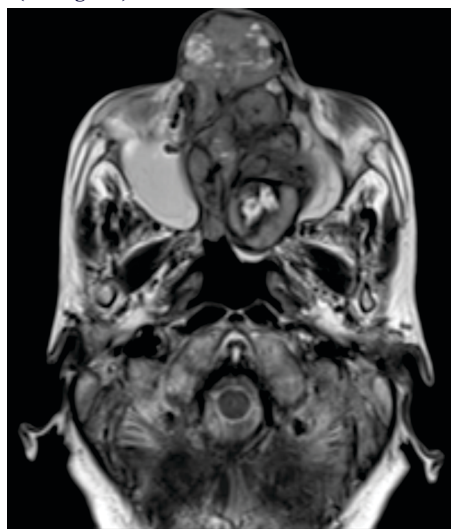


Figure 2 (T2 Axial)

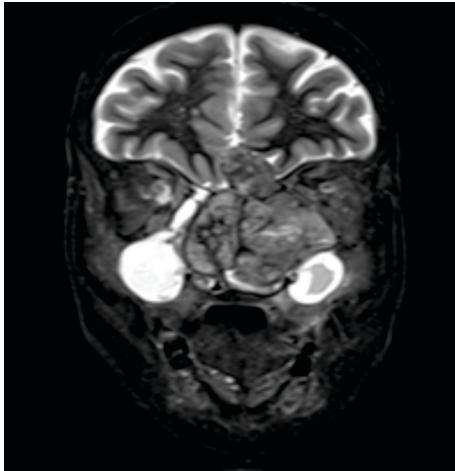


Figure 3 (Stir Coronal)

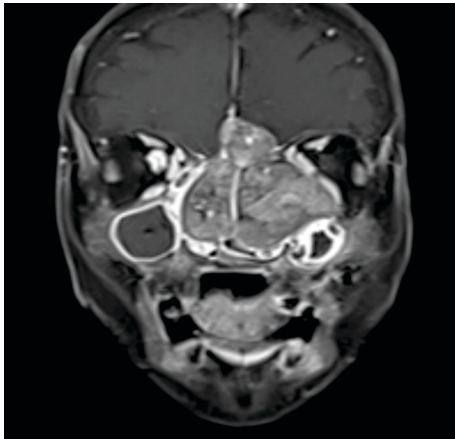


Figure 4 (Post Contrast Coronal)

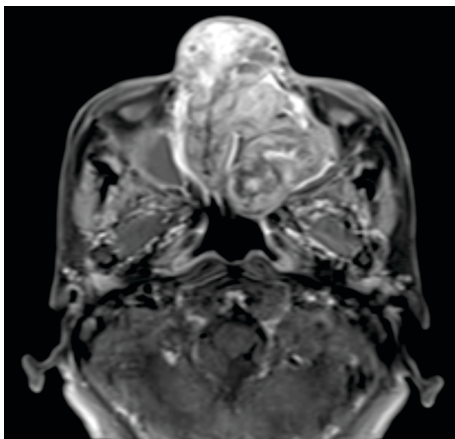


Figure 5 (T1 Post Contrast Axial)

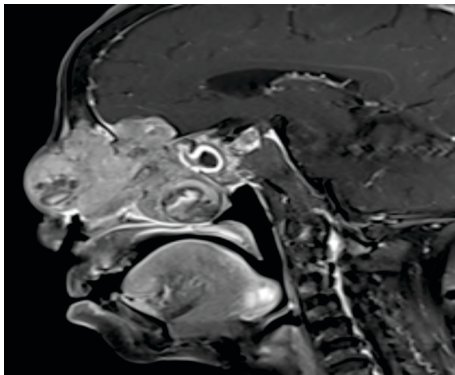


Figure 6 (T1 Post Contrast Sagittal)

Biopsy showed a malignant small round cell tumour arranged in nests and lobules with a neurofibrillary background. Immunohistochemistry demonstrated positivity for synaptophysin and chromogranin, supporting the diagnosis of esthesioneuroblastoma. The tumour was classified as Hyams grade III.

CONCLUSIONS

Esthesioneuroblastoma is an uncommon malignant sinonasal tumour in which imaging plays a crucial role in diagnosis and staging. A mass centred in the superior nasal cavity with ethmoidal involvement and extension across the cribriform plate should raise suspicion for this entity. MRI is superior for evaluating orbital, dural and intracranial extension. Definitive diagnosis requires histopathology and immunohistochemistry. Accurate assessment of tumour extent is essential for appropriate treatment planning and long-term surveillance.

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