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Ethmoidonasal Osteoblastoma: A Case Report and Literature Review

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Abstract | **Case Report**

Osteoblastoma is a rare, benign bone-forming tumor, accounting for less than 1% of all primary bone neoplasms. Its occurrence in the paranasal sinuses is exceptionally rare. We present a case of ethmoidal-nasal osteoblastoma in a 12-year-old child managed endoscopically, and we review the clinical, radiological, and therapeutic aspects in light of current literature.

Keywords: Osteoblastoma, Paranasal sinuses, Ethmoidal sinus, Nasal cavity, Endoscopic surgery.

INTRODUCTION

Osteoblastoma is an uncommon osteogenic tumor typically seen in children and adolescents. It accounts for approximately 1% of all bone tumors and about 3% of benign bone neoplasms [1]. The most frequently affected regions are the vertebral column and long bones [2]. Craniofacial involvement is rare, and nasal or paranasal sinus localization is particularly exceptional, with fewer than 25 reported cases worldwide [3, 4]. The rarity of the site and its variable clinical presentation may mimic more frequent sinonasal lesions, leading to misdiagnosis [5]. Imaging—especially CT and MRI—plays a critical role in the evaluation of the extent and characteristics of the lesion [5]. However, definitive diagnosis requires histopathological confirmation to differentiate it from other fibro-osseous lesions and malignancies [6].

We report a case of ethmoidal-nasal osteoblastoma in a young patient, emphasizing diagnostic challenges, surgical management, and follow-up.

CASE REPORT

A 12-year-old boy with no medical history presented with a 6-month history of progressive right-sided nasal obstruction and hyposmia. Two months before consultation, right-sided proptosis appeared, non-pulsatile and non-axial, without pain or visual impairment. Nasal endoscopy revealed a vascularized soft tissue mass originating from the right middle meatus and extending to the nasal floor and vestibule (Figure 1). No cervical lymphadenopathy was noted.

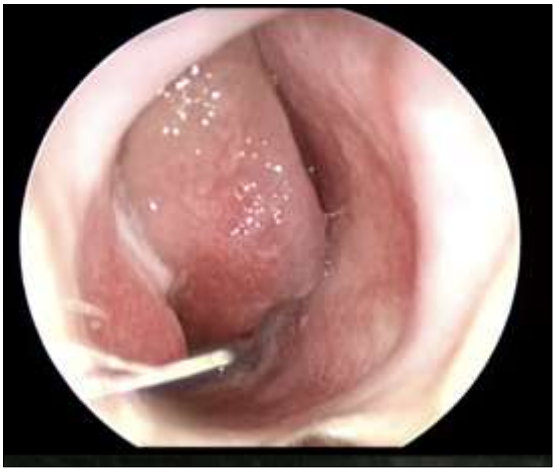

Figure 1: Rhinocavos copy: Presence of a tissue mass originating from the right middle meatus

CT showed a 50×25 mm, well-defined, polylobulated ethmoid mass with ground-glass density and sclerotic borders, displacing the medial orbital wall without evidence of bone destruction (Figure 2). MRI revealed a mass with peripheral low signal on T1 and T2, and central high signal on T2-weighted images, consistent with fibro-osseous content (Figure 3).

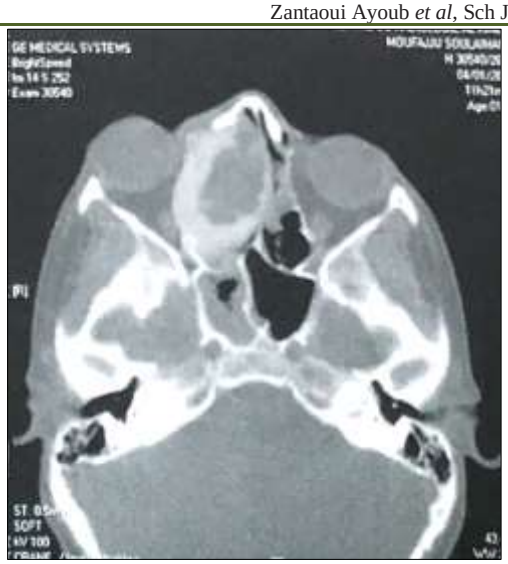

Figure 2: Paranasal CT scan: Presence of a large right ethmoido-nasal mass

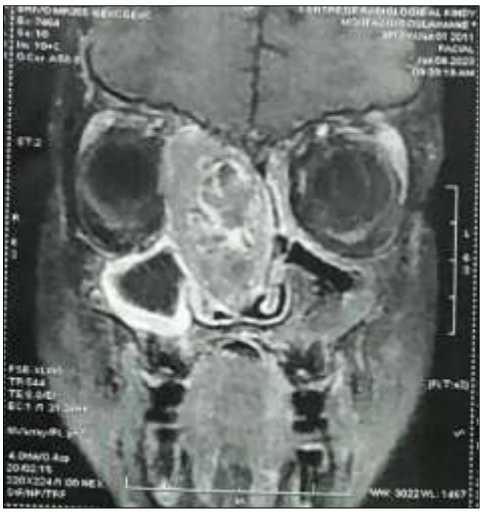

Figure 3: Paranasal MRI: Presence of a large right ethmoido-nasal mass

The patient underwent complete endoscopic resection. Histological examination confirmed osteoblastoma. Postoperative recovery was uneventful. No recurrence was noted at 6 months.

DISCUSSION

Osteoblastoma, while benign, can exhibit locally aggressive growth, particularly in anatomically confined regions such as the paranasal sinuses [1-7]. Most commonly found in the spine and long bones [2], its occurrence in the nasal cavity is so rare that many ENT specialists will never encounter a case in their career.

Vertebral osteoblastomas are more common and often cause pain and neurological symptoms [8], whereas sinonasal lesions may remain asymptomatic for long periods or cause nonspecific symptoms such as obstruction or epistaxis [3]. In our patient, the main symptoms were nasal obstruction and progressive proptosis.

CT typically reveals a well-circumscribed lesion with variable calcification, often with sclerotic borders [5]. The 'ground-glass' appearance seen in our case is more characteristic of fibrous dysplasia, necessitating differential diagnosis through imaging and histopathology [6]. MRI provides superior evaluation of soft tissue involvement and proximity to vital structures such as the orbit or skull base [3].

Histologically, osteoblastomas consist of osteoid trabeculae lined with osteoblasts, set within a vascularized stroma [6]. The differential includes osteoid osteoma (smaller, painful) and low-grade osteosarcoma (atypia and mitotic activity) [9].

Surgical excision remains the cornerstone of treatment. Incomplete resection carries a recurrence risk of up to 20% [1]. The endoscopic approach offers excellent visualization with lower morbidity and better cosmetic results [10].

Though rare, malignant transformation into osteosarcoma has been reported, especially in recurrent or incompletely excised cases [6]. Radiotherapy is generally avoided but may be considered in unresectable or high-risk locations [2-4].

Interestingly, some authors propose a reactive etiology rather than a true neoplastic origin, particularly in cases with preceding trauma—such as in our patient [7].

CONCLUSION

Ethmoidal-nasal osteoblastoma is a rare clinical entity. Imaging and histological assessment are essential for accurate diagnosis. Complete surgical resection—preferably via an endoscopic route—is crucial to prevent recurrence. Long-term follow-up is recommended due to the risk of recurrence or exceptional malignant transformation.

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