



**Case Report**

**A case report on Osteoblastoma of maxilla.**

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**ABSTRACT**

Osteoblastoma is an unusual neoplasm, usually found in the vertebral column and long bones of extremities. Maxillary involvement is extremely rare. We present a case report of benign osteoblastoma of maxilla affecting a 17-year-old young male patient. The clinical presentation, radiological and the histopathological features as well as the treatment modalities of this unusual neoplasm are briefly discussed. Lastly an attempt is made to clarify the diagnostic dilemmas associated with this tumour with a hope to provide the best possible treatment for this rare neoplasm.

**Keywords:** *Osteoblastoma, Maxilla, Case report.*

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## INTRODUCTION

Osteoblastoma is a rare osteogenic tumor accounting for approximately one percent of all primary bone tumors.<sup>1</sup> Approximately 10-15% of the cases occurs in the facial skeleton including the jaws. Osteoblastoma of the facial skeleton has a propensity to affect the body of the mandible particularly the posterior region. Only about one third of the cases involving the jaws are recorded in the maxilla<sup>2</sup>. Alvarez et al described 69 cases of maxillofacial osteoblastoma in their comprehensive review of the literature.<sup>3</sup> A recent review by Manjunatha et al summarized features of 108 well documented cases of gnathic benign osteoblastoma along with the report of a new case<sup>4</sup>. The tumor typically affects age group of 20-30 years and is more frequent in the male population. Local pain and swelling are the commonest presentation. Radiological features are nonspecific and show essentially an osteolytic process with variable amount of calcification. A sclerotic border may or may not be present. Histology features the presence of osteoblast; small trabeculae of woven bone and rich vascular fibrous stroma.<sup>5</sup> Complete surgical excision is the treatment of choice. Properly managed cases of osteoblastoma bear a favorable prognosis. Recurrence can be a problem especially in inadequately treated cases.<sup>6</sup>

## CASE REPORT

A seventeen year old male patient reported to the dental outdoor with the chief complaint of a palatal bulge and pain in his upper jaw for the last one and half month. On examination a firm mass was palpated in relation to upper right maxillary molars having indistinct borders which have caused moderate expansion of both buccal and lingual cortical plates. The right upper permanent first molar tooth was extracted by a local dentist in an attempt to relieve the pain. Remainder of the dental examination was within normal limits. The patient was advised an orthopantomogram which showed an ill defined mixed radio opaque and radiolucent endophytic lesion in right maxilla (As shown in figure 1).

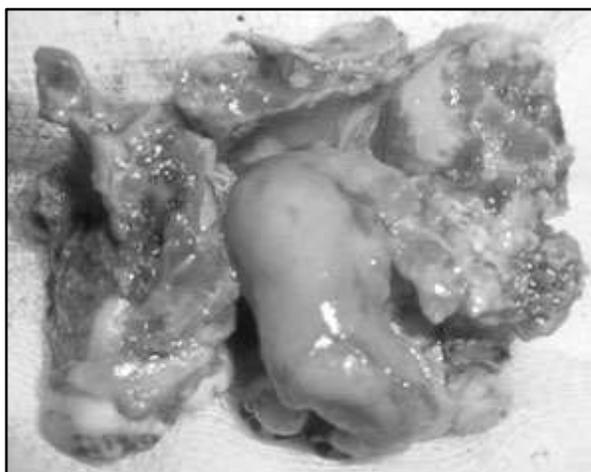


**Figure 1:** OPG shows an ill defined mixed radio opaque and radiolucent endophytic lesion in right maxilla. The lesion extended from the right canine to the third molar tooth obliterating part of the maxillary sinus superiorly.



**Figure 2:** shows an computed tomography image of patient which suggested a fibro-osseous mass of 3.2 X 3 X 4.3 cm in right maxillary sinus having peripheral calcification and central soft tissue attenuation.

The mass has caused obstruction of left infundibulum as well as destruction of medial and inferior wall of right maxillary sinus. A provisional diagnosis of fibro osseous lesion or odontogenic tumor was made and the patient was referred to department of otolaryngology for opinion and treatment options. After interdisciplinary discussions an antroscopy was performed and biopsy tissue was derived. The tissue was embedded in paraffin blocks and routine H&E staining done which revealed epithelioid osteoblast, scanty fibrous tissue and large areas of osteoid. These histological features were suggestive of osteoblastoma. Definitive surgery was planned but resection limits had to be carefully selected. The patient was put under general anesthesia, lip splitting Weber Ferguson incision given and partial infrastructure maxillectomy done, preserving the premaxilla. Before giving palatal cut, pericoronal incision of palatal gingiva was given and a mucoperiosteal flap elevated over bone to allow the palatal mucosa to form future functioning palate on the operated side. The level of resection was at a plane above inferior turbinate.



**Figure 3:** shows a procured biopsy speicmen. The mass was relatively well circumscribed, had a cartilaginous feel and found to extend up to orbital floor, but was easily separated with help of freer elevator.

H&E sections demonstrated abundant mineralized component and plump osteoblasts with large nuclei. The stroma was loosely packed, vascular and osteoblastic rimming was seen at places (Figure 4). There were no mitotic activity, bizarre nuclei or lamellar trapping noticed in the observed sections. Cellular permeation or areas of cartilaginous differentiation were also absent. These features were consistent with that of osteoblastoma. Post operative period was uneventful and healing was found to be adequate. However, subsequently a small oroantral fistula at margin of palatal flap developed. Patient had been instructed to perform routine nasal douching. Follow-up done with help of nasal endoscope failed to document recurrence at the end of six months. The patient is kept under periodic evaluation.

## DISCUSSION:

The lesion described here is a maxillary osteoblastoma which by itself is a unique location for the tumor. In a comprehensive review by Alvares et al<sup>2</sup> et al only 21 cases of osteoblastoma affecting the maxilla were identified. This lesion has been variously described in the literature as giant osteoid osteoma, osteogenic fibroma, benign, pseudomalignant or aggressive osteoblastoma reflecting the confusion in differentiating this tumor from similar allied lesions.<sup>7</sup> The clinical aspects of osteoblastoma are not pathognomic of the disease. In the present case the long duration of the lesion, intact mucosal surface, lack of tooth mobility or root resorption points towards the benign nature of the neoplasm. The nonspecific symptoms may lead to an erroneous diagnosis of pulpal or periodontal pathology arising from the tooth thus leading to unnecessary dental treatment. Hutchison and Hopper<sup>8</sup> described osteoblastomas mimicking apical infection. This case was similarly diagnosed and treatment attempted through dental extraction. The radiological features of tumor are inconclusive and may depict both benign and malignant processes.<sup>9</sup> The extent of calcification in osteoblastoma is variable simulating a multitude of both odontogenic and non odontogenic lesions affecting the jaw bones, the present case being provisionally diagnosed as a fibro osseous lesion. Our case also highlighted the role of CT scan which was invaluable in delineating the extent and internal structure of the disease. The differential diagnosis of osteoblastoma in jaw bones is quite challenging and includes a number of lesions. Clinically osteoid osteoma, which some authors believe to be the clinical and anatomic variants of same osseous tumor of osteoblastic origin<sup>10</sup>, are of classically much smaller dimension (less than one cm) and produce significant pain. Microscopically osteoid osteoma shows a central distinct compact osteoid tissue nest, varying in calcification degree, more vascularisation, bony trabeculae are wider more irregularly arranged with less prominent osteoblasts. The lesion may show a sclerotic border. Cementoblastoma is a similar neoplasm except that it occurs in close approximation to the tooth roots. Despite this these two lesions are clinicopathologically regarded as variants of same entity.<sup>11</sup> Ossifying fibroma, clinically and radiologically similar to osteoblastoma is often well circumscribed but shows less mineralization. Histologically calcifications are finer, capsule may be present and lacks the plump actively proliferating osteoblasts. The most important histological distinction is from low grade osteosarcoma. Osteosarcoma contains atypical osteoblasts with malignant bone formation, tumor giant cells and is capable of sarcomatous stroma as well as anaplastic cartilage. Additionally they form characteristic lace like osteoid areas and peripherally permeate into lamellar bone. Though osteoblastoma may contain bizarre nuclei, but they have no mitotic activity and lacks characteristic permeation. A less common subtype is known as 'aggressive osteoblastoma' which are borderline lesions demonstrating epithelioid osteoblasts, stromal mitosis and trapping of lamellar bone.<sup>12</sup> Aggressive osteoblastoma occasionally transforms to osteosarcoma, though some believe they had been sarcomas from the onset itself. Clinical aggressiveness of osteoblastomas may also depend on its location<sup>13</sup>. Lastly it should be emphasized that though histology remains the cornerstone, the best way is to combine the clinical, imaging and histopathological findings in making the final diagnosis of osteoblastoma.

Curettage and excision are two principal modalities of therapy. In the present case partial maxillectomy up to level of inferior turbinate was decided preserving the premaxilla. We also strived to preserve the palatal mucosa, so that when stitched back it may act as functioning palate. According to Gordon et al<sup>14</sup>, the probability of recurrence for conventional osteoblastoma is 13.6% while for aggressive osteoblastoma is 50%. Owing to this, cases of osteoblastoma should be followed up regularly to monitor for any possible recurrence.

## CONCLUSION

Osteoblastoma is a unusual tumor of the maxilla which is presented in this report along with a discussion on the appropriate imaging modalities, differential diagnosis and adequate management of the lesion.

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## CONFLICTS OF INTEREST

There are no conflicts of interest

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