

Osteoblastoma of Mandible: A Unique Entity

Abstract

Osteoblastoma is an uncommon osteoblastic tumor that rarely involves facial bones. It is an uncommon lesion that accounts for 1% of all bone tumors and about 3% of all benign bone tumors. Here, we present a case of 35-year-old female with benign osteoblastoma on the right side of the mandible which was growing for the past 3 years. Clinical presentation, radiologic and histologic features, and treatment and follow-up of this patient are discussed in this paper. Proper diagnosis of this lesion is very important because of its similarity to others lesions. There are very few reported cases of this rare entity; the primary aim of this article is to add more cases of this rare phenomenon to literature and provide a descriptive review.

Keywords: Mandible, osteoblastoma, tumor

Introduction

Benign osteoblastoma is a rare benign tumor of bone, generally affecting the vertebrae and long tubular bones. It is a unique osteoblastic tumor with osteoid and bone deposition, cytologically characterized by the abundant presence of osteoblasts.

This lesion was first reported by Jaffe and Mayer in 1932 as osteoblastic osteoid tissue forming tumor.^[1] Jaffe and Lichtenstein named this lesion as “Benign Osteoblastoma” in 1956, which was adopted by the World Health Organization.^[2,3] The review suggests very few amounts of cases have been described in the literature.^[4]

Case Report

A 35-year-old female reported to our department with a chief complain of intraoral swelling in the right side of her jaw for 3 years [Figure 1].

The swelling which was initially small attained its present size by gradual increment. There were problems with mastication and deglutition, but the pain was never there. There were no significant family and systemic history. The cervical chain of lymph nodes was nonpalpable and nontender.

During intraoral examination, we found that the swelling was originating from the region

of the right lower premolar, extending linguallly till the midline and continued to the mesial part of a lower right first molar. The swelling was a single, firm, stony hard growth, with well-demarcated borders, displacing the involved tooth [Figure 2].

The overlying mucosa was firm and blanched, although no ulceration or discharge was found. Wide bore needle aspiration was attempted with no success.

An initial clinical diagnosis of benign tumor of bone, with-differential diagnosis of osteoid osteoma, benign osteoblastoma, ossifying fibroma, and fibrous dysplasia was made based on the history, clinical examination, and nature of growth.

A single, well-defined radiopaque area in the premolar region having compact trabecular pattern was found in panoramic radiograph (orthopantomogram). Furthermore, there was displacement of adjacent tooth, but no evidence root resorption was seen. A nonhomogeneous radiopaque mass with flecks of calcification was revealed in the axial computed tomography (CT), which had a predisposition toward the lingual surface [Figure 3].

Plump osteoblasts, osteoid tissue with varying degree of mineralization and a highly vascular connective tissue was revealed by an incisional biopsy. Osteoclast, multinucleated cells, and loosely aggregated fibroblast-like cells were found in the collagenous stroma [Figure 4].

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The final diagnosis of benign osteoblastoma was established based on the clinical, radiographical, and histopathological findings. Considering the massive size of lesion, a multidisciplinary approach was taken for surgical and clinical treatment. Owing to the location and location of lesion excision of the lesion *en toto* was decided on.

Under general anesthesia, intraoral sulcular incision revealed the lesion and the lesion was excised *en toto* by marginal mandibulectomy, preserving the integrity of mandible [Figures 5 and 6].

The pain was completely relieved after excision of the lesion. The postoperative course was uneventful with no evidence of recurrence at the 1½-year follow-up [Figure 7a and b].

Discussion

Osteoblastoma is a rare bone tumor, among all primary bone tumors, it accounts only for approximately 1%. Males are more commonly affected than females, usually

occur during the second decade of life and often arise in the vertebral column and long bones. Little is known about osteoblastoma of the jaws because of its rarity.^[5,6] Barello and Sedano in 1967 described the first case of osteoblastoma in the mandible.^[7]

Radiographically, osteoblastomas are well circumscribed, solitary, and expansive lesions which measures 2–12 cm.^[8] The lesion may be completely radiolucent, or it may contain flecks of calcification.^[8,9] Smith *et al.* in 1972 reported that these flecks may be focal and few in number or may be dispersed throughout the lesion with the expansion of the cortical bones.^[9] A thin rim of expanded cortical bone may be found encasing the lesion or cortex may appear to be completely absent with an outgrowth of a soft tissue mass. Due to, lack of reactive sclerosis in the mandible the margins appear somewhat indistinct. Although the central radiopaque areas suggest new bone formation, it is less likely to provoke an outstanding bony sclerosis typical of osteoid osteoma. Adjacent teeth may be effected by root resorption, displacement, and



Figure 1: Patient profile showing facial asymmetry, diffuse swelling involving the left side of the lower jaw



Figure 2: Buccal and lingual cortical bone expansion along with the displacement of involved teeth

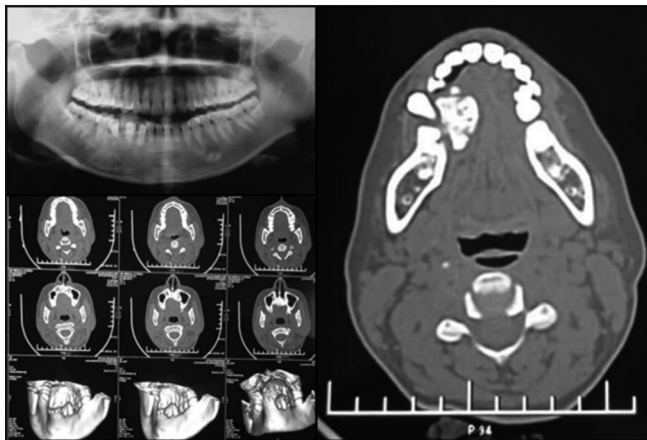


Figure 3: Orthopantomogram and computed tomography showing non-homogeneous radiopaque mass on the lingual surface at the premolar region along with the displacement of adjacent teeth

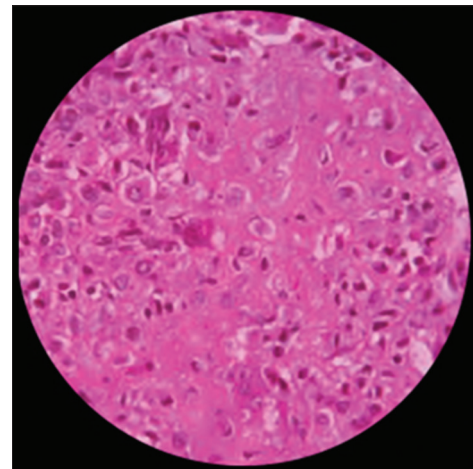


Figure 4: Histopathology showing plump osteoblasts, osteoid tissue with varying degree of mineralization



Figure 5: Marginal mandibulectomy of the affected site



Figure 6: Excised specimen showing 6 mm in length

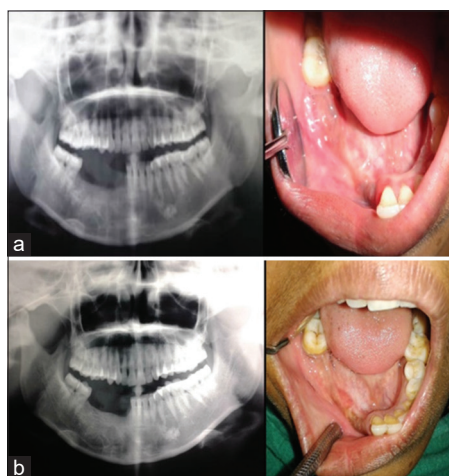


Figure 7: (a) 2 months' postoperative follow-up showing satisfactory healing and no recurrence. (b) 1-year postoperative follow-up showing complete healing and no recurrence

tipping.^[9] CT has a crucial role in radiographic evaluation of this disease, and it has strongly contributed for the differential diagnosis, management, and surgical planning of osteoblastoma.

Histological features of osteoid osteoma highly resemble benign osteoblastoma. In the year 1954, Dahlin and Johnson suggested a name "giant osteoidosteoma," based

on this histologic similarity.^[8] Osteoblastoma occasionally may be mistaken as benign fibro-osseous lesion also, due to its numerous histologic variants.^[10] Microscopically, osteoblastomas are composed of long, irregularly shaped, inter-anastomosing trabeculae of osteoid or immature woven bone rimmed by osteoblasts and embedded within a fibrovascular stroma.^[8] According to recent studies, neoplastic osteoblasts in osteoblastoma expresses minimal levels of cyclooxygenase-2.^[8]

The treatment options of osteoblastoma include conservative surgical excision, excision with vigorous curettage followed by bur ablation and copious irrigation or *en bloc* resection.^[11] 14% local recurrence is reported in case of inadequately removed tumors.^[12] *En bloc* resection or resection yielding tumor-free margins exhibit minimal recurrence rate. Primary reconstruction is worthwhile when mandibular integrity can be preserved, despite the chances of recurrence. The long-term follow-up is recommended, to minimize the risk of recurrence also to guarantee the grafts' survival and integration.

Conclusion

In our case, the clinical and histopathologic presentations are in accordance with those reported in literature. Due to the high resemblance of clinical, radiographic, and microscopic similarity to other bone lesions, including malignant tumors, a correct diagnosis of osteoblastoma is very important. Diagnosis is more difficult in smaller lesions especially at their initial stages. A complete surgical resection is shown to eliminate the risk of recurrence.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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