CASE REPORT

Osteosarcoma of the jaw - An unusual case report

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Abstract

The prevalence of tumors of jaw bones is very less among all types of neoplasms. Osteosarcoma (OS) is the most frequent of primary malignant bone tumor producing osteoid or bone. On comparing to long bones, it occurs occasionally in the jaws and accounts for about 4% of the tumor. In jaw bones, it represents a discrete group of lesions from the conventional type generally occurring in long bones. OS of the maxilla is rarer preferably present in the posterior portion of the alveolar process and the antrum, however, in mandible body is most frequently involved followed by angle, symphysis, and ascending ramus. This article presented a rarer case of OS of maxilla in a 47-year-old male patient. We gave final diagnosis on the basis of clinical features in combination of occlusal radiograph and panoramic radiograph and histology report.

Keywords:
Maxilla, neoplasms, osteosarcoma

Introduction

Osteosarcoma (OS) referred to as osteogenic sarcoma is most common primary malignant bone tumor relating the appendicular skeleton. It accounts for approximately 15% of all primary bone tumors, whereas in the craniofacial skeleton, jaw OS is considered to be very rare representing only 4% of all OSs reported.

Its exact etiology of OS is unknown, but high cellular activity may have a role in OS, and hence, the most common affected site is metaphyseal end plate in growing bones involving the distal femur, proximal tibia, and proximal humerus. Its predisposing factors are Paget’s disease, fibrous dysplasia, and ionizing radiation.

The prevalence of 60% of all OSs is observed to be in the second span of life in children and adolescents, and about 10% occur in the third span of life. Few authors stated no gender predilection while according to few males predominancy is present in the ratio of male:female as 2:1. Jaw lesions usually occur in middle age in the fourth span of life while non-jaw lesions occur in the second decade of life. Usually, mandibular OSs are found to be more recurrent than in maxilla. The studies conducted by Bennett et al. concluded that mandibular tumors were predominant in females which were in total contrast with Forteza et al. who found that the maxillary tumors were predominant in females.

In this case report, we highlight a rare case of OS of maxilla in a 47-year-old male patient. This case necessitates special consideration because the incidence of OS is relatively occasional in the jaws and that to the presence of the lesion in maxilla.

Case Report

A 47-year-old male patient reported to our department with a swelling in the upper right back teeth region for 8 months. The patient revealed a history of extraction of the first and second molar 1 year back and soon after 2 months swelling started which was initially smaller in size and it took 8 months to reach to the present size. The patient was in a good state of health with no history of other medical problems. No family history revealed. The patient was of moderately built and well nourished. All the vital signs such as blood pressure, pulse, respiratory rate, and temperature were found to be usual under control. Extraorally, there was nothing significant. On an intraoral examination, a solitary localized swelling was seen in the left buccal vestibule of maxilla measuring 3.5 cm × 4.5 cm in dimensions extending anteroposteriorly from canine to retromolar and superoinferiorly obliterating the buccal vestibule up to cervical
third of 33, 34, 35, 36, 37, and 38 region. A solitary diffuse swelling was also present on palate measuring about 3 cm × 4 cm in size approximately, medially 0.5 cm away from the midpalatal region and anteroposteriorly from distal canine to retromolar left side which has caused buccolingual expansion. The surface of the swelling appeared to be covered by normal mucosa. On palpation, all the inspectory findings were confirmed. The swelling was bony hard in consistency, tender with pus discharge, and fixed to the underlying bone. It was smooth, non-fluctuant, non-compressible, and non-reducible in nature. Provisional diagnosis was given as septic osteonecrosis of jaw. Differential diagnosis was given as osteomyelitis of jaw, OS, osteoblastoma, ossifying fibroma, and fibrous dysplasia. The teeth associated with swelling were vital. To confirm the nature of the swelling, various investigations were carried out. The patient was first subjected to radiographic investigations. Occlusal radiograph revealed the expansion of cortical bone in relation to 33, 34, 35, 36, and the maxillary tuberosity. Dense trabecular pattern was seen in the hard palate on the left side. PPanoramic radiograph taken 1 year back showed mixed radiolucency and radiopacity with extracted tooth in relation to 28 (Figure 4). On second subsequent radiograph taken, showed mixed radiolucency and radiopacity with extracted tooth in relation to 27, 28 and third panoramic radiograph revealed ground-glass appearance of the bone with dense trabecular pattern surrounding teeth apex obscuring the root tip with periodontal ligament space widening and loss of lamina dura (Figures 5 and 6). Biopsy was done which revealed presence of woven bony trabeculae by fibrous connective tissue along with hyperchromic osteoblast like cell with dilated cells suggestive of Osteoblastoma, a variant of osteosarcoma.

Discussion

Although OS is an infrequent disease of orofacial region, it is a common primary malignant bone tumor. The final diagnosis is made on the basis of clinical, radiologic, and histopathologic features. The suffering patients will be classically presented with pain and swelling of the concerned area which is present in our case. In OS of jaw bones, where swelling rather than
pain is the most common finding. A study conducted by Nissanka et al. concluded that dental extractions are considered to be the most common etiology. The etiology behind it is speedy development of tumor instantly after tooth extraction, a phenomenon often shown by bone tumor as present in our case. Other clinical features comprised mobility of the tooth, numbness in the lips, or other paresthesias.

Radiographic examination is essential for diagnosis as clinically pain, paresthesia, and swelling may generally be present in other lesions. Radiographically, OSs are found to be commonly present in the mandibular posterior body region with ill-defined periphery causing enlargement. Internally, mixed radiolucency and radiopacity were present. The newly formed bone typically showed granular stippled pattern. In our case, it was involving posterior region but of maxilla which is very rare with a mixed radiolucency and radiopacity.

On invasion of tumor to the periosteum, periosteal reaction will present with the presence of irregular spicules of new bone developed outward and perpendicular to the surface of the lesion giving "sun ray appearance." Lindquist et al. stated that the widening of periodontal ligament space and inferior dental canal along sunburst effect is almost striking features of OS of jaw bone. Not all the lesions show such peculiar characteristics. Forteza et al. suspected an osteogenic sarcoma as unicentric destructive lesion with ill-defined margins with a predominantly sclerotic, lytic, or mixed radiographic pattern. A plain radiograph reveals a destructive lesion with a moth-eaten appearance which is a spiculated periosteal reaction and as Codman's triangle which is a cuff of periosteal new bone formation at the margin of the soft tissue mass. Definitive diagnosis was made by means of tissue biopsy taken from the center of the lesion as earlier as possible so that the diagnostic part of the tumor is included because the immature part of the lesion may be included in the superficial specimen, less likely to represent tumor and frequently fail to demonstrate osteoid formation. Further, it may misdiagnose the lesion as benign reactive periosteal bone is not included in the specimen. Highly variability was found to be present histopathologically. Sarcomatous stroma will lead to the formation of osteoid directly was with our case. The quantity of osteoid and bone shows variations fluctuating from a sclerotic osseous tumor to similarity of osteoid in multiple sections. The stromal cells may be osteoblastic, chondroblastic, and/or fibroblastic with no prognostic implication. In jaws, chondroblastic pattern overcomes, whereas in general, osteoblastic tumors are common as was with our case. A myxoid stroma is frequently present along with an atypical myxoid proliferation which characteristically defines OS.

It is well known that the patients of OS report to the dentist usually with the chief complaint of dental pain and swelling. Although OS is a rare case, hence it is very challenging for dentists to diagnose it which might have reached to its advanced stages and its prognosis is very poor.

**Conclusion**

It is stated that OS of the jaw can be misdiagnosed as it is a rare case. Hence, this article would bring consideration in dentistry for such cases with greater care to diagnose them as earlier as possible for better prognosis.

**References**
