A Case Report of Cementoblastoma affecting Mandibular Molar

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Abstract

Cementoblastoma is a relatively rare tumor of odontogenic ecto-mesenchyme origin characterized by proliferating cementum like tissue occurring in juxtaposition to tooth roots. Nearly all benign cementoblastomas are closely related to and partly surround a root or roots of a single erupted permanent tooth and sometimes impacted / partially impacted tooth. Treatment modalities include extraction with tumor removal, curettage without extraction, root amputation with tumor removal, en bloc or segmental resection. Recurrence although rare, has been noted when curettage was attempted without extraction of the associated tooth/teeth. Recurrence is even rarer in cases treated with extraction and complete tumor removal. We present a case report of cementoblastoma, which was treated with extraction of tooth and complete tumor removal and recurred despite the adequate treatment.

Key words: Odontogenic tumors, Cementoblastoma, recurrence.

Introduction

Benign cementoblastoma, first described by Dewey in 19271, is a relatively rare tumor of odontogenic ecto-mesenchyme origin characterized by proliferating cementum like tissue occurring in juxtaposition to tooth roots. This tumor generally occurs in young population and accounts for 1% to 6.2%2 of all odontogenic tumors. Nearly all benign cementoblastomas are closely related to and partly surround a root or roots of a single erupted permanent tooth. Rarely, it may be associated with an impacted/partially impacted tooth3. Deep dull pain is a frequent finding4. Opinions have varied over the years regarding its nature and behavior. Some believe that the cementoblastoma merely represents an osteoblastoma occurring in a tooth-bearing area, and several investigators have discussed the overlapping clinical, radiographic, and histologic relationship between cementoblastoma and osteoblastoma of the jaws5.
Case Report

A healthy 14 year male patient reported to the department of Oral and Maxillofacial Surgery at Pb. GDCH, Amritsar in September, 2011 with chief complaint of painful swelling on right side of lower jaw (Fig. 1). The swelling was bony hard and tender on palpation. His medical and family history was noncontributory. There was no reported history of orofacial trauma. Swelling was first noted three months back by the patient who took medicine for it from his previous doctor, which failed to provide him any relief. There was a carious tooth (46) which was required Root Canal Therapy but was not followed by the patient (Fig. 2). The adjacent teeth (45,47) responded to vitality testing and presented neither dental decay nor dental restorations. Second premolar (45) was present in buccoversion (Fig. 2).

On palpation intraorally both lingual and cortical plates were found to be expanded. An extra oral radiograph was advised which showed a well described calcified mass surrounded by radiolucent halo with respect to 46 along with obliteration of approximately one third of the mesial root (Fig. 3). The patient was advised excisional biopsy.

During surgery (Fig. 4), the calcified mass was found to be well-demarcated (Fig. 5) and was easily extracted along with the associated tooth (46) and was sent for histopathological examination (Fig. 6).

Gross Examination

The specimen (Fig. 6) consisted of a right mandibular first molar (46) with one third of mesial root embedded in the round mass of hard tissue. The round mass measured 1.9 x 2.1 x 2 cm.

Radiographic and macroscopic examination led to diagnose the lesion as a cementoblastoma.

Microscopic Examination

The tumor had a uniform appearance with a thin fibrous capsule continuous with the periodontal membrane. Proliferating cementum was seen which was lined by numerous plump cells. Irregularly placed lacunae and prominent basophilic reversal lines were also seen. Neither cellular atypia nor mitotic figures were seen (Fig. 7).
cementoblastoma includes osteoblastoma, periapicalcemental dysplasia, hypercementosis, osteoma and fibrous dysplasia.

Treatment options include extraction of the involved tooth along with tumor, root amputation with tumor removal, curettage of lesion without tooth extraction. The most accepted treatment option is extraction of the involved tooth along with tumor.

Recurrence

Patient remained asymptomatic for 1 month after which he started experiencing pain in the operated area. Patient took painkiller for the same but the pain was not relieved. Patient reported to our department after 8 months in May, 2012. A clinical examination was done and definitive tenderness was noted in the same area. Patient was advised a lateral oblique radiograph which showed a radiolucent lesion with radiopaque areas (Fig. 8, 9). A NCCT scan was advised later on.

CT Scan

A well-defined heterogeneously calcified mass with a thin radiolucent rim was seen in the body of the mandible on right side (previous surgery site) (Fig. 10). The mass measured 32(AP) x 13(TR) x 17(SI) mm and extended posteriorly up to the border of unerupted third molar tooth and anteriorly up to the second premolar tooth (Fig. 10). The mass caused medial displacement of the root of second molar and was displacing the second premolar tooth.

In accordance with CT scan and a provisional diagnosis of Cementoblastoma (recurred) an excisional biopsy was planned. During surgery (Fig. 11), the mass was found to be non-homogenous and small denticle like structures were found (Fig. 12). The bone was thoroughly curetted and irrigated before wound closure (Fig. 13). The excised mass was sent for histopathological examination.

Histopathological Examination

The histopathological report suggested cementoblastoma with same histological picture (Fig. 14).
On second post-operative day, the continuous pain of patient was relieved. The same was noted on seventh post-operative day. The patient remained on follow up for 6 months and was completely asymptomatic (Fig. 15, 16).

Discussion

Previously, according to WHO classification the benign cementoblastoma was recognized as one of the cementoma neoplasias. In the latest classification (2005), it has been included into mesenchyme and/or odontogenic ectomesenchymeodontogenic tumours. The lesion derives from mesenchymal tissue, although its etiology is not known.

Benign cementoblastomas are predominantly seen in young persons. According to a study done by Urmsanskyet. al., approximately 73% of patients were under the age of 30. Although there is no sex predilection, some studies have reported male predilection where as others reported female predilection. Mandible is involved more often than maxilla. Virtually all benign cementoblastomas occur in premolar-molar region (permanent dentition), but cases have been reported in primary dentition.

The consensus among investigators is that the benign cementoblastoma has unlimited growth potential with growth rate of 0.5 cm per year. Cases have been reported in literature demonstrating aggressive nature in some cementoblastomas. The signs include local aggressiveness and destruction including bony expansion, erosion of cortical plates, displacement of adjacent teeth, maxillary sinus involvement and extension to and incorporation of adjacent tooth/teeth.

Radiographically the lesion characteristically shows a spherical, radiopaque mass encompassing and essentially replacing the apical half of the root. The mass is not periapical per se but arises from and obliterates the outlines of the roots apical half instead. There is a characteristic radiolucent margin around the mass giving the impression of a periodontal membrane. When intimate relation is evident the radiographic picture is nearly pathognomic.

The differential diagnosis includes osteoblastoma, osteoid osteoma or atypical osteosarcoma. These are not clearly related to tooth roots. Histopathological examination remains the ultimate diagnostic tool.

Treatment modalities include extraction with tumor removal, curettage without extraction, root amputation with tumor removal, en bloc or segmental resection. Recurrence although rare, has been noted when curettage was attempted without extraction of the associated tooth/teeth. However recurrence was also noted in cases treated by removal of tumor and tooth in continuity as is the case in the present case report. Therefore careful follow up protocol is to be followed to keep recurrence in check.

References