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Case Report

Cementoblastoma of mandibular third molar- an incidental radiographic finding

Mithula Nair[1], Vidya Ajila[2], Shruthi Hegde[2], G. Subhas Babu[2], Rumela Ghosh[2]

[1]Department of Oral Medicine and Radiology, A.B Shetty Memorial Institute of Dental Sciences, Nitte University, Deralakatte, Mangalore, Karnataka, India, [2]Department of Oral Medicine and Radiology, A.B Shetty Memorial Institute of Dental Sciences, Nitte University, Mangalore, Karnataka, India

Address for correspondence:
Mithula Nair, Department of Oral Medicine and Radiology, A.B Shetty Memorial Institute of Dental Sciences, Nitte University, Deralakatte, Mangalore - 575 018, Karnataka, India.
E-mail: mithulanr@yahoo.com

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ABSTRACT

Cementoblastoma is an odontogenic neoplasm arising from neoplastic cemental tissue. It is rare as it accounts for less than 1% of all odontogenic tumors. Most cases are asymptomatic and detected on routine radiological examination although symptomatic cases have also been reported. The present report describes a case of cementoblastoma in association with the mandibular third molar which was asymptomatic but exhibited cortical plate expansion on clinical examination.

KEY WORDS: Cementoblastoma, cementoma, tooth root, neoplasm

INTRODUCTION

Cementoblastoma is an uncommon neoplasm of mesenchymal origin which is characterized by formation of hard cemental tissue in continuity with the tooth root [1]. The World Health Organization (WHO) classification has categorized cementoblastoma under tumors of mesenchyme and/or odontogenic ectomesenchyme with or without odontogenic epithelium. Cementoblastoma was first described by Noeberg in 1930 [2]. It is considered as the only true neoplasm of cemental origin and accounts for <1% of all odontogenic tumors [2,3]. It is a benign lesion which sometimes exhibits aggressive behavior [4]. The present report describes the clinical and radiographic features of a cementoblastoma in a mandibular right posterior tooth.

CASE REPORT

A 56-year-old male patient had come to the Department of Oral Medicine and Radiology with the chief complaint of loose teeth for 3 years. The patient gave a history of bleeding from gums while brushing. The patient was a known diabetic and under ayurvedic treatment for the same. Intraoral examination revealed Grade 1 mobility in the maxillary left lateral incisor and canine, mandibular left and right second premolar, and mandibular right third molar. Grade 2 mobility was seen with respect to maxillary right central and lateral incisor, maxillary left first premolar, mandibular right first premolar, mandibular left canine, and first premolar. Grade 3 mobility was present in the mandibular right and left central incisor and right mandibular first molar. On palpation, there was mild expansion of the

lingual cortical plate in relation to mandibular right third molar [Figure 1]. To evaluate the periodontal status of the dentition and to rule out any intrabony lesion in the region of lower right third molar, an orthopantomograph (OPG) was advised. OPG showed generalized horizontal bone loss extending till the apical third of the dentition. Periapical radiolucencies were present in the mandibular right first molar and lower anteriors. A well-defined radiopaque mass measuring approximately 2 cm × 1 cm in size was noticed attached to the apical end of the mesial root of lower right third molar [Figure 2a]. The radiopaque mass was surrounded by a radiolucent rim. Intraoral periapical radiograph was taken for further evaluation and showed similar findings [Figure 2b]. The third molar was extracted along with the lesion [Figure 3a and b]. Histopathological examination of decalcified section showed areas of radicular dentin with cementum-like tissue attached to it. A few reversal lines were also seen along with lacunae spaces in the cementum-like areas [Figure 4]. Based on the radiographic and histopathological features, a final diagnosis of cementoblastoma was made.

DISCUSSION

Cementoblastoma, sometimes called as true cementoma, is a rare lesion of the oral cavity. It is characterized by cementum-like tissue formation usually in continuity with the root of the affected tooth. The only true cemental neoplasms as classified by the WHO are benign cementoblastoma and cementifying fibroma [4]. Cementoblastomas are believed to arise from neoplastic cementoblasts [5].

A male:female prevalence ratio of 2.1:1 with a mean age of 20.7 years has been reported [2]. The mandible is usually more involved than maxilla [4]. The mandibular first permanent molars followed by mandibular premolar are commonly affected, but it can also be associated with deciduous teeth, unerupted molars, or multiple teeth [4,6]. In the maxillary arch, the area which is predominantly favored is the posterior tooth. Cases of cementoblastoma of anterior maxilla have also been reported [5]. In our case, the right mandibular third molar was involved.

The associated tooth shows normal vitality. In the present case, the associated tooth was vital and gave a response at 3. The cementoblastoma usually presents as an asymptomatic swelling but may sometimes be accompanied with pain. Most often, cementoblastomas are discovered as an incidental finding during routine radiography [5]. The cortical bone expansion is considered as a typical feature of cementoblastoma [7]. In our case, the lingual cortical plate showed mild expansion. The growth potential of cementoblastoma is unlimited with the growth rate estimated to be 0.5 cm/year [2,4]. Thus, the expansion may proceed in an aggressive manner and may result in attachment to adjacent teeth, resorption of adjacent roots, tooth displacement, paresthesia, pulpal involvement, cortical



Figure 1: Clinical intraoral photograph showing lingually tilted mandibular right third molar with mild lingual cortical expansion

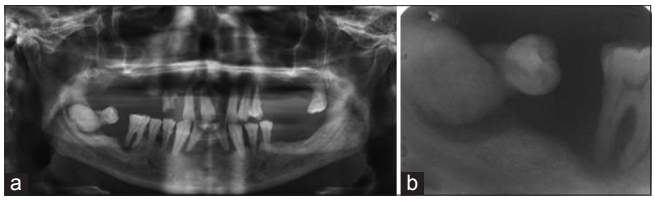


Figure 2: (a) Panoramic radiograph showing a radiopaque mass attached to the roots of the mandibular right third molar surrounded by a well-defined radiolucent rim. (b) Intraoral periapical radiograph of the mandibular right third molar showing a radiopaque mass attached to the roots. The mass is surrounded by a radiolucent rim which is continuous with the alveolar crest on the mesial aspect

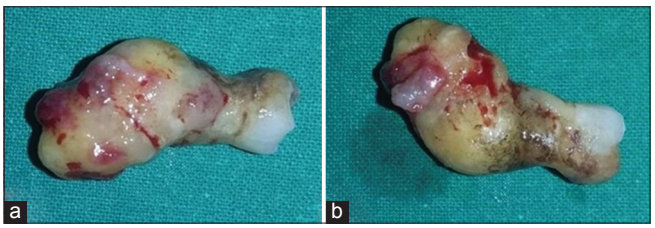


Figure 3: (a and b) Surgical specimen showing the extracted tooth along with the lesion. Yellowish white cemental mass seen attached to the tooth roots

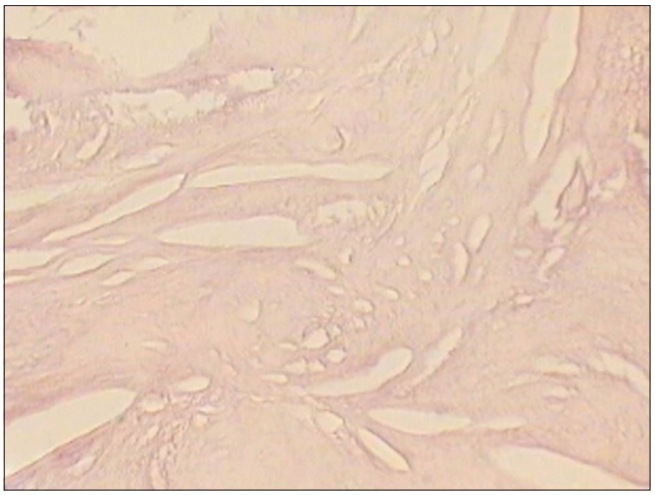


Figure 4: Photomicrograph (10 ×) showing areas of radicular dentin with cementum-like tissue attached to it along with a few reversal lines and lacunae spaces in the cementum-like areas

perforation, and even pathologic fracture [5,4]. There are reported cases of cementoblastomas which have involved the maxillary sinus [5].

The pathognomonic radiographic appearance for cementoblastoma includes a well-defined solitary circular radio-opacity with a radiolucent halo. The lesion is fused to the partly resorbed root of the associated tooth with the resorption having been initiated by the lesion itself [8]. The radiopacity of the lesion is determined by the degree of maturity, with immature lesions appearing radiolucent and mature lesions appearing radiopaque [5]. In our case, a well-defined radioopacity was attached to the roots of the lower right third molar which measured approximately 2 cm × 1 cm in size. The differential diagnosis for the periapical radiopacity includes condensing osteitis, osteoblastoma, odontoma, periapical cemental dysplasia, and hypercementosis [9]. A radiolucent rim around the benign cementoblastoma is usually well-defined and uniform when compared with cemental dysplasia. Periapical cemental dysplasia is small in size and undergoes progressive changes from radiolucent to mixed to radiopaque over time and can be appreciated in the radiographs. Osteoblastoma and cementoblastoma are lesions that are histologically very similar where osteoblastoma arises in the medullary cavity of long bones. The feature which distinguishes cementoblastoma from osteoblastoma is by its location which is in an intimate association with the involved tooth root. Another differential diagnosis which can be put forward is odontoma which is usually not fused with the tooth root and appears as a heterogenous radiopacity which will be consistent with the dental tissues (enamel, dentin, and cementum). Condensing osteitis lacks a peripheral radiolucent rim. Hypercementosis is a smaller lesion and is not associated with pain or jaw swelling [7,9].

Although a benign lesion, due to its locally aggressive nature, the treatment of choice is a complete removal of the lesion along with the associated tooth. A more conservative approach using a surgical endodontic technique to retain the associated tooth and removal of the lesion has been reported. This technique is applicable in case of smaller lesions with adequate crown root ratio following apicectomy and when the lesion can be removed without injuring the adjacent tooth. Recurrence is rare but if it occurs, it is mainly due to the incomplete excision of the lesion [7]. In our case, since the patient needed total extraction, the affected tooth was removed along with the lesion.

The gross specimen appears as a round to ovoid, well-circumscribed hard calcified mass attached to the root of the affected tooth. Macroscopically, the usual diameter is 2-3 cm, but cementoblastomas up to 4.5 cm have been reported in literature [10]. Histologically, cementoblastoma is characterized by masses of hypocellular cementum embedded in a fibrovascular stroma along with osteoclastic giant cells and plump cementoblasts. Prominent cementoblastic rimming and formation of basophilic reversal lines within the cementum give the lesion a Pagetoid appearance. Multinucleated osteoclast-type giant cells and plump cementoblasts may be present within the fibrovascular stroma [3]. Brannon *et al.* [11] in 2002 analyzed 44 cases of cementoblastoma with special emphasis on the clinical behavior, treatment, and recurrence rate of these relatively rare benign odontogenic neoplasms. Recurrence was documented in 13 cases (37.1%) [8]. Other studies have reported lower recurrence rates of around 5.9% [5].

CONCLUSION

The present case describes a cementoblastoma associated with an erupted mandibular third molar. Cementoblastomas are true cemental odontogenic neoplasms which are mostly asymptomatic and detected on routine radiological examination. Hence, radiographic examination is the main means for diagnosis of cementoblastomas. The characteristic radiological picture of a radiopaque mass attached to the tooth roots and surrounded by a radiolucent rim is pathognomonic of cementoblastomas. Due to their unlimited growth potential and the possibility of aggressive behavior, it is necessary to diagnose and treat such lesions at the earliest.

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