

Case Report

Benign Cementoblastoma — A Rare Case Report

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Abstract

Objective: The aim of this study is to describe a case of cementoblastoma associated with a lower second molar, with its clinical features, differential diagnosis, treatment instituted and determinants of treatment success.

Case description: A 60year-old female presented at the Maxillofacial Surgery clinic, from Dentistry School of Federal University of Bahia claiming to have an injury in the jaw, there was no significant facial asymmetry, imaging exams (CT Cone Bean) were analyzed and showed a hyperdense image associated with the roots of the tooth 37. The imaging findings suggested a cementblastoma. The lesion was excised and it was performed curettage with the extraction of the tooth 37. The histopathological analysis conclusion was cementoblastoma. After a follow-up of 12 months, the patient had no complaints and a good standard of healing.

Discussion and conclusion: Despite being a benign tumor, with low recurrence rate and associated in most cases to the first molar, the cementoblastoma can affect any age, gender, race and teeth. Therefore, the dentist should perform an accurate diagnosis of the pathology; the lesion should be completely excised with the extraction of the associated teeth. And in order to prevent further complications such as a reoccurrence of the tumor, it is recommended a follow up the patient.

INTRODUCTION

The cementoblastoma is classified by the World Health Organization (WHO) as a mesenchymal odontogenic tumor [1]. It is considered the only true neoplasm arising from the cementum [2]. This lesion accounts for 1% of all odontogenic tumor [2]. It has a predilection for male patients in the second decade of life. This tumor shows a slow growth rate and it has often been associated with the first molar [3].

Clinically, the cementoblastoma can cause pain, edema, cortical bone expansion, mobility and / or tooth displacement, paresthesia [4], fusion of adjacent teeth, root resorption, obliteration of periodontal ligament space and pathological fracture [3]. It can also be routinely diagnosed upon radiographic examination with no pain-related symptoms [4].

Radiographic features vary depending on the maturing stage. Incipient lesions usually are radiolucent; unlike when it is mature, which exhibits a mixed radiolucent-radiopaque pattern surrounded by a radiolucent halo, or totally radiopaque with a radiolucent halo, always adjacent to a dental root [2]. The fusion between the tumor and the dental root develops through replacement resorption [4].

The recurrence rate of cementoblastoma has some controversy in the scientific literature. Low rate has been observed until Brannon et al. [3], report a recurrence as high as 37%. Thus, it is imperative the use of a proper treatment, consisting of the full removal of the lesion including the involved tooth [3-5].

The aim of this study was to describe a case of cementoblastoma associated with a lower second molar by covering its clinical

features, differential diagnosis, treatment and the determinants of a successful therapeutic.

CASE PRESENTATION

A 60-year-old female reported to the Oral and Maxillofacial surgery clinic at the Dental school of Federal University of Bahia with a chief complain of jaw injury previously diagnosed by a general dentist.

During the anamnesis, the patient reported sporadic pain of unknown cause associated with a tooth for the past 6 months. No data referring drug allergy was informed. Anxiety and depressive symptoms were outlined by the patient who also referred take clonazepam 0.5 mg, promethazine 25 mg, and 2 mg trifluoperazine daily.

Clinical examination revealed no significant facial asymmetry. It was observed partial edentulism in the lower jaw and complete edentulism in the upper jaw. It was also noticed the presence of dental calculus in several teeth (Figure 1). The dental unit 3.7 showed occlusal amalgam filling and no mobility and/or periodontal pocket (Figure 2). No signs of infection were observed. Imaging exams (CT Cone Bean) were analyzed and showed a hyperdense image associated with the roots of the unit 3.7 these imaging findings suggested a cementoblastoma (Figure 3).

Thus, the excision and curettage of the lesion followed by the extraction of tooth 3.7 were proposed. The surgery was performed in a clinic under local anesthesia by left inferior alveolar nerve block. In the trans-surgical period, gross examination revealed a hard tissue growth surrounding the dental roots with.



Figure 1 Extra- oral photo: front without smile. There was no significant facial asymmetry.



Figure 2 Intra-oral photos: buccal left. A: No increased volume on both buccal and lingual sides in the unit 3.7. B: Note a good gingival healing after surgery.



Figure 3 Image by Cone Beam CT. Hyper dense image associated with tooth root without limitation is observed.



Figure 4 Photos of the trans-surgical period. Note bone cavity right after tooth extraction, excision of the lesion and increased volume around the tooth root.

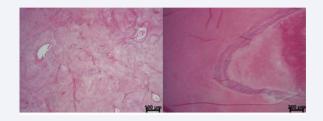


Figure 5 Micrograph of the blade. Note calcifying mass characterized by lamellar bone and numerous basophilic lines.

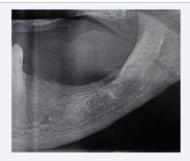


Figure 6 Post-operative radiography control after 12 months of follow-up. Observing bone healing in the region of unit 37.

Downwards, in the dental alveolus, it was observed a soft tissue which was removed by curettage of the bone walls (Figure 4).

Ematoxylin and eosin stained sections demonstrated the presence of a mass attached to the dental root with characteristics of lamellar bone with numerous basophilic reversal lines. On the histopathology, a diagnosis of cementoblastoma was given

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(Figure 5).

After a 12 months follow-up, the patient reported no complaints and a satisfactory post-operative tissue healing (Figure 2, 6).

DISCUSSION

Cementoblastoma is an odontogenic tumor derived from neoplastic cementoblasts. This neoplasm is originated from the odontogenic ectomesenchyme and it is normally located adjacent to adental root cementum or periodontal ligament, but not attached to the bone. Radiographically they exhibit a radiopaque area limited by a radiolucent halo, but it can also be featured as mixed lesions, or completely radiolucent Histologically, cementoblastoma is characterized by masses of hypocellular cementum embedded in a fibrous capsule [1,2,6-8].

The cementoblastoma is more often in white men [1,3,9] get between 20 and 40 years [1,7,8-10]. However, in this present case report the patient is a 60-year-old female and melanoderm. In addition, Brannon et al. [3], carried out a study with 44 patients associated with a review of the literature with 74 cases of cementoblastoma with age ranging from 6 to 77 years.

This injury has been strongly related to lower first molar [2,3,5,11,12] but it can also be associated with maxilla teeth [2,3], lower second molar [1], as illustrated in this case, lower third molar [6] and other teeth in the mandible [3,8]. Although it is a rare condition, it can also occur in deciduous dentition [7-10], and impacted teeth [1,2,5,8,9].

Radio graphically; the differential diagnosis of cementoblastoma includes lesions with similar characteristics such as periapical cement bone dysplasia, cementoma, hypercementosis, osteoblastoma and osteitis. Histologically, cementoblastoma differs from other injuries as it presents an overgrowth os cementum tissue [3,6,9,10,11].

As regards the histological perspective, the cementoblastoma resembles osteosarcoma, or benign osteoblastoma due to the presence of layers of immature cells in areas with dense cellular activity. However, it might be distinguished by the proliferation of cementoblasts, which has a similar appearance to the osteoblast, with radiated columns of cement [13].

Osteoblastomas and cementoblastomas are differentiated primarily by the attachment of cementoblastoma to the dental root, and histologically they differ because the osteoblastoma has nuclear pleomorphism and increased mitotic activity with abnormalities. The distinction between the lesions by radiographic examination is unreliable [3]. Dadhich and Nilesh [2] (2015), Brannon et al. [3], and Kumar et al. [6], consider the physical connection of the tumor to the dental root as the only parameter for the differential diagnosis, and they observe that cementoblastoma and osteoblastoma are closely related lesions and histologically very similar.

By means of radiographic diagnosis, the presence of a hyper dense image surrounded by hypodense line and a calcified mass characterized by lamellar bone with numerous basophilic lines, fibrous connective tissue wall and granulation tissue is a consensus in the scientific literature [7-8,12,14].

Despite a benign tumor and often asymptomatic lesion [5], Cementoblastoma may show signs of aggressiveness as expansion

and / or erosion of cortical bone [2,3,7,11,12] root resorption [3] incorporation of the roots of the affected teeth [3,8,11] and adjacent teeth [3,11] and involvement of the maxillary sinuses [7].

The majority of the studies available in the literature and this case report did not report relapses [1,2,8,7,11]. However, according to Brannon et al. [3], after a 66 months follow-up, a 37% recurrence rate was reported, thus emphasizing the need for a long-term monitorization.

This author, along with Huber and Folk [5] relate the recurrence of the cementoblastoma to the prevalence of some lesion tissue in the bone and argue that the appropriate treatment should be made by removing the tooth or teeth affected, followed by complete curettage or peripheral osteotomy.

According to Brannon et al. [3], there are several treatment options described in the literature, such as en bloc resection, root amputation followed by removal and curettage of the tumor, endodontic treatment of the affected tooth and complete tumor excision. However, this case report proposed a complete enucleation of the lesion and extraction of the associated teeth as it is considered the best treatment in the literature [1,2,5,6,7,11]. In addition, it was also included the curettage of the tooth socket, which is consistent with the therapy indicated by Sankari and Ramakrishnan [10].

The cementoblastoma is considered a benign tumor of low recurrence rate particularly associated to the first molar. It may affect any age, gender, race, and tooth. The dentist should perform an accurate diagnosis and total excision of the lesion including the associated tooth. A post-operative follow-up to prevent recurrence is required, thus providing a better quality of life.

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