

Cementoblastoma: Report of a Case with a Long-Term Pain

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ABSTRACT

Cementoblastoma is a rare benign neoplasm of cementoblastic origin which is usually represented with marked swelling and severe pain. In this article, the mechanism of pain generation and definite diagnosis of a cementoblastoma related to the first mandibular molar with a long-lasting dull pain have been discussed.

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Introduction

Cementoblastoma, known as true cementoma, is a rare benign neoplasm of cementoblasts. It is distinguishable from non-neoplastic lesions, such as periapical cemental dysplasia or condensing osteitis which may produce a radiopacity around the apex [1]. Histologically, cementoblastoma and osteoblastoma have the same appearance, so the diagnosis is confirmed by observing connection of the tumor to the tooth [2]. The case in this study, with an eight-year history of pain, represents a cementoblastoma which is related to the first mandibular molar.

Case report

An 18-year-old woman with a severe pain in the premolar and molar regions of the right mandible was referred to Shiraz School of Dental Medicine. The dull and intermittent pain had started eight years ago. Many dental examinations were done without reaching any definite diagnosis. The pain threshold increased gradually until it was intolerable on biting. The pain was relieved by nonsteroidal anti-inflammatory drugs (NSAIDs) whenever it was felt.

Clinical examination revealed no significant swelling of the soft and the hard tissues. The overlying mucosa was normal and the right mandibular molars and premolars were good. No sign of dental caries and poor oral hygiene was either found.

The panoramic radiograph revealed a well-defined

round homogenous radiopacity (2 x 1.3 cm) with a radiolucent rim at the apex of the mesial root of the right mandibular first molar (Figure 1). A slight tumoral expansion could also be seen on the mandibular occlusal radiograph.



Figure 1 Panoramic view (right side). Radiopaque round lesion is attached to the mesial root of the 1st mandibular molar and surrounded by a radiolucent rim.

Then, excisional biopsy was done under local anesthesia and the tooth with the attached calcified mass was extracted and the wound was irrigated and closed. The specimen was spherical creamy-brown-colored, obtained from hard tissue mass, (2×1.3× 0.5 cm) which was enclosed with apex of the first mandibular molar (Figure 2). Histological sections showed large sheets of mineralized substances with prominent reversal lines similar to cementum. Few scattered osteoclast-like cells and many plump cementoblasts were seen at the periphery of large sheets and the trabeculae. The stroma was composed of a loose

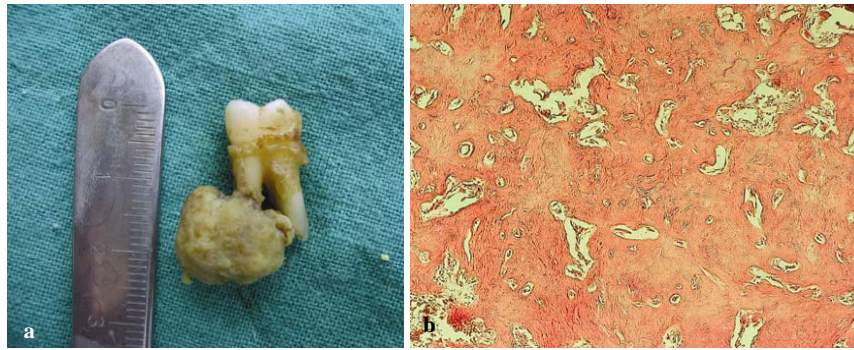


Figure 2a The Lingual aspect of gross specimen. A bony hard spherical mass is attached to the root. **b** Peripheral cementoblasts, osteoclast-like cells and dilated vascular channels in a loose fibrous stroma beside sheets of mineralized substances with reversal lines [Hematoxylin & Eosin Stain of decalcified section ; 100X]

fibrous connective tissue with scattered dilated vascular channels (Figure 3) which were fused with the involved tooth. The histopathological evaluation and radiographic findings revealed a benign cementoblastoma. Followed-up was taken one year after the biopsy and no sign of recurrent tumor or pain was seen in the patient.

Discussion

Cementoblastoma or true cementoma, firstly recognized by Norberg in 1930, is known as an odontogenic tumor of ectomesenchymal origin by many oral and maxillofacial pathologists [3]. It is a rare neoplasm representing less than 1% of all odontogenic tumors [4]. It resembles the lesions such as bone tumors, especially osteoblastoma, cementifying fibroma, periapical cemental dysplasia, condensing osteitis [1] and also atypical hypercementosis [5] which may make the diagnosis a challenging task. A few number of cementoblastoma has been reported and it is due to incorrect diagnoses of these similar lesions. The primary distinguishing feature of the cementoblastoma is fusion of the tumor with the involved tooth, a feature which should be considered in its definite diagnosis [2, 6].

The clinical features of this case were like those of other similar cases which have been reported in the literature. The disease occurs predominantly in children and young adults; with an incidence rate of 50% in cases under the age of 20. More than 75% of incidence of the disease has been reported in the mandible, and yet with a 90% of it in the molar and premolar region. The first permanent molar is involved with almost 50% [4, 7]. Although some researchers reported no significant sex predilection for this lesion [4, 7], others found a

male preponderance [2-3, 6]. It is also stated that multiple teeth, deciduous teeth and impacted teeth are rarely involved in triggering the disease [1, 8-11].

To the authors' knowledge and according to the literature, there have been no other cases with a lasting pain of more than 2 years [8-9, 12] and this case has had the longest term of pain; about 8 years (table 1). The probable reasons for the late diagnosis with regard to this case can be the nature of the pain which was dull, intermittent and relieved by NSAIDs. The absence of clinical signs, such as tooth displacement, cortical erosion and distinct bony expansion, which were observed in other cases, may be among other reasons. Beside, the social and cultural status of this case may also have a role in the late diagnosis of the disease.

Etiologically, this long-term dull pain and its recent increase in this case may be due to the gradual compression of the nerve endings, especially those of the inferior alveolar nerve by the neoplasm; that is, the overgrowth of neoplasm in the last few months led to the severe pain. After total removal and decompression of the nerve, the pain was relieved. Yet, with regard to the etiology, another reason which can be enumerated is its occasional local aggressive behaviors, such as peripheral osteolysis [13]. This can disturb the adjacent nerve bundles and lead to infiltration of the tumor into the pulp chamber and root canals [7]. So it seems that the pain was more related to the increase in the lesion size and the tumor growth, rather than the nature of the lesion and the products of the neoplastic cells. These assumptions must be further investigated, so an evaluation of the lesion behavior in relation to the teeth and the investigation of the neoplastic cell products such as

Table 1 Reported cases of cementoblastoma considering pain duration

Author	Year of conducting the research	Age(Y)/sex	Location	Duration of pain (months)
Pynn et al [1]	2001	23/F	Left mandibular 1 st premolar	18
Ohki et al [8]	2003	12/M	Right maxillary 2 nd molar	2
Sumer et al [9]	2006	46/M	Left mandibular 3 rd molar	2
Huber et al [17]	2009	18/M	Left mandibular 1 st molar	0
Bilodeau et al [18]	2010	9/M	Left mandibular 1 st molar	7
Neelakandan et al [19]	2011	11/F	Right maxillary 1 st molar	3
Present case	2011	18/F	Right mandibular 1 st molar	96

interleukins, prostaglandins and the other pain mediators in cementoblastoma cases are recommended. Treatment of a benign cementoblastoma usually consists of surgical extraction of the tooth together with the attached calcified mass [4]. However, the tooth can be saved by endodontic treatment followed by apical root resection and surgical enucleation of tumor, if an early diagnosis is established [14-15]. According to Sumer's review, there have been 13 recurrent cases associated with cementoblastomas. Extraction of the involved tooth or teeth along with removal of the lesion was performed in 9 out of 13 recurrent cases and four cases were treated with curettage only [9]. It seems that whatever the treatment is, the prognosis is excellent and the tumor does not recur after total removal [16].

Cementoblastoma is a rare odontogenic neoplasm which is distinguishable from similar lesions by its fusion to the involved tooth. The amount and the duration of pain varies in patients and this has different effects on the establishing a definite diagnosis of the disease.

References

- [1] Pynn BR, Sands TD, Bradley G. Benign cementoblastoma: a case report. *J Can Dent Assoc* 2001; 67: 260-262.
- [2] Slootweg PJ. Cementoblastoma and osteoblastoma: a comparison of histologic features. *J Oral Pathol Med* 1992; 21: 385-389.
- [3] Pacifici L, Tallarico M, Bartoli A, Ripari A, Cicconetti A. Benign cementoblastoma: a clinical case of conservative surgical treatment of the involved tooth. *Minerva Stomatol* 2004; 53: 685-691.
- [4] Neves FS, Falcão AF, Dos Santos JN, Dultra FK, Rebello IM, Campos PS. Benign cementoblastoma: case report and review of the literature. *Minerva Stomatol* 2009; 58: 55-59.
- [5] Napier Souza L, Monteiro Lima Júnior S, Garcia Santos Pimenta FJ, Rodrigues Antunes Souza AC, Santiago Gomez R. Atypical hypercementosis versus cementoblastoma. *Dentomaxillofac Radiol* 2004; 33: 267-270.
- [6] Brannon RB, Fowler CB, Carpenter WM, Corio RL. Cementoblastoma: an innocuous neoplasm? A clinicopathologic study of 44 cases and review of the literature with special emphasis on recurrence. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2002; 93: 311-320.
- [7] Neville BW, Damm DD, Allen CM, Bouquot JE. *Oral and maxillofacial pathology*. 3rd ed., Missouri: WB Saunders; 2009, p.731.
- [8] Ohki K, Kumamoto H, Nitta Y, Nagasaka H, Kawamura H, Ooya K. Benign cementoblastoma involving multiple maxillary teeth: report of a case with a review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2004; 97: 53-58.
- [9] Sumer M, Gunduz K, Sumer AP, Gunhan O. Benign cementoblastoma: a case report. *Med Oral Patol Oral Cir Bucal* 2006; 11: 483-485.
- [10] Piattelli A, Di Alberti L, Scarano A, Piattelli M. Benign cementoblastoma associated with an unerupted third molar. *Oral Oncol* 1998; 34: 229-231.
- [11] Lemberg K, Hagström J, Rihtniemi J, Soikkonen K. Benign cementoblastoma in a primary lower molar, a rarity. *Dentomaxillofac Radiol* 2007; 36: 364-366.
- [12] Pynn BR, Sands TD, Bradley G. Benign cementoblastoma: a case report. *J Can Dent Assoc* 2001; 67: 260-262.
- [13] Reichart PA, Philipsen HP. *Odontogenic tumors and allied lesions*. 1st ed. London: Quintessence; 2004, p.199-204.
- [14] Cundiff EJ. Developing cementoblastoma: case report and update of differential diagnosis. *Quintessence Int* 2000; 31: 191-195.
- [15] Keyes G, Hilderbrand K. Successful surgical endodontics for benign cementoblastoma. *J Endod* 1987; 13: 566-569.
- [16] Ulmanky M, Hjørting-Hansen E, Praetorius F, Haque MF. Benign cementoblastoma. A review and five new cases. *Oral Surg Oral Med Oral Pathol* 1994; 77: 48-55.
- [17] Huber AR, Folk GS. Cementoblastoma. *Head Neck Pathol* 2009; 3: 133-135
- [18] Bilodeau E, Collins B, Costello B, Potluri A. Case report:

a pediatric case of cementoblastoma with histologic and radiographic features of an osteoblastoma and osteosarcoma. *Head Neck Pathol* 2010; 4: 324-328.

[19] Neelakandan RS, Deshpande A, Krithika C, Bhargava D. Maxillary cementoblastoma-a rarity. *Oral Maxillofac Surg* 2012; 16: 119-121.