

# Benign Cementoblastoma: A Case Report

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## A b s t r a c t

The case of a 23-year-old with a benign cementoblastoma is presented. The clinicopathologic features, treatment and prognosis are discussed and a brief review of the literature is presented. Although this neoplasm is rare, the dental practitioner should be aware of the clinical features that will lead to its early diagnosis and treatment.

**MeSH Key Words:** case report; mandibular neoplasms/diagnosis; odontogenic tumours/diagnosis

© J Can Dent Assoc 2001; 67:260-2  
This article has been peer reviewed.

**B**enign cementoblastoma is a rare odontogenic neoplasm of mesenchymal origin. The World Health Organization has classified benign cementoblastoma and cementifying fibroma as the only true cemental neoplasms.<sup>1</sup> The benign cementoblastoma should be distinguished from non-neoplastic processes that may also produce a radiopaque lesion around the root apex, such as periapical cemental dysplasia or condensing osteitis.<sup>2</sup>

### Case Report

A 23-year-old Native Canadian woman presented with mild pain in the left mandible of 18 months' duration. Clinical examination revealed a small buccal swelling in the canine-premolar region, and radiographs of the area demonstrated a circular radiopaque mass, 1 cm in diameter, associated with the root of the first premolar (tooth 34). The lesion was well demarcated by a radiolucent halo (Fig. 1). The involved tooth was vital, as indicated by sensitivity to electric pulp testing and ethyl chloride. The remainder of the examination was within normal limits and oral hygiene was excellent.

The provisional diagnosis was benign cementoblastoma, and the patient was scheduled for surgical removal of the tumour and extraction of the associated premolar under general anesthesia. At the time of surgery, a buccal full-thickness envelope flap was developed to identify the mental nerve and the lesion. The lesion was easily differentiated from normal bone as it had perforated the buccal cortex in the region. The tooth was luxated with extraction forceps and delivered buccally with the associated mass

attached *in toto*. The periphery of the bony cavity was curetted and the wound was closed primarily.

The specimen was submitted for histologic evaluation. Gross examination showed a noncarious mandibular premolar with the root apex embedded in a spherical mass of hard tissue (Figs. 2a and 2b). A radiograph of the specimen revealed resorption of the apical third of the root and fusion of the resorbed root to a radiopaque mass with a radiating pattern at the periphery.

Histologically, the lesion consisted of broad trabeculae of sparsely cellular cementum. These merged with areas of cemental islands in a vascular stroma with prominent cementoblasts and multinucleated cementoclasts (Figs. 3a and 3b). The peripheral zone of the tumour showed



**Figure 1:** Periapical radiograph of cementoblastoma associated with the left mandibular first premolar.



**Figure 2a:** Buccal view of gross specimen of cementoblastoma, which is fused to the partly resorbed root of the premolar.



**Figure 2b:** Lingual view of cementoblastoma.



**Figure 3a:** Resorption of the tooth root by cementoblastoma. P, vital pulp; D, dentin, which is partly resorbed and fused to cementoblastoma, C. (Hematoxylin and eosin stain of decalcified section; original magnification x 25.)



**Figure 3b:** Moderately cellular and vascular stroma with islands and trabeculae of cementum lined by cementoblasts (arrow) and scattered cementoclasts. (Hematoxylin and eosin stain of decalcified section; original magnification x 25.)

characteristic radiating columns of cementum running perpendicular to the surface of the lesion. The diagnosis was established as a benign cementoblastoma.

The patient did well postoperatively, with no complications or paresthesia. Postoperative radiographs revealed complete excision. An 18-month follow-up examination revealed no evidence of recurrence.

### Discussion

The benign cementoblastoma or true cementoma is a slow-growing, benign odontogenic tumour arising from cementoblasts. The lesion, which was first recognized by Norberg in 1930,<sup>3</sup> is rare with fewer than 100 cases ever reported.<sup>4-8</sup> In a survey of the Diagnostic Biopsy Service at

the faculty of dentistry of the University of Toronto, we found only 5 cases of benign cementoblastoma (including the case reported here) over the 10-year period from 1990 to 1999, inclusive. The total number of accessions in that period was 56,836.

Most patients initially present with mild pain and bony swelling in the area of the lesion. At least 50% of the reported cases occurred in patients under the age of 20 and 75% under the age of 30 (age range, 6-75 years).<sup>5,9</sup> There does not appear to be any significant gender or racial predilection.<sup>10</sup> The mandible is by far the most common location; half of all reported cases were associated with the mandibular permanent first molar or second premolar.<sup>7</sup> When lesions in the maxilla and mandible are grouped together, over 90% of cases

affect a single tooth in the premolar–molar area; however, the tumour has been associated with multiple teeth, impacted molars and deciduous teeth.<sup>11-13</sup>

The cementoblastoma has a pathognomonic radiographic appearance. It appears as a well-defined solitary circular radiopacity with a radiolucent halo. The lesion is fused to the partly resorbed root(s) of the associated tooth. The internal structure of the mass may possess a mixed radiolucent-radiopaque quality often with a radiating pattern.<sup>14</sup> The differential diagnosis for a periapical radiopacity includes cementoblastoma, osteoblastoma, odontome, periapical cemental dysplasia, condensing osteitis and hypercementosis. The cementoblastoma and osteoblastoma are closely related lesions that are histologically very similar.<sup>15</sup> The cementoblastoma is distinguished from the osteoblastoma by its location in intimate association with a tooth root. The osteoblastoma arises in the medullary cavity of many bones, including the long bones, vertebrae and jaws.<sup>10</sup> The odontome is usually not fused to the adjacent tooth and appears as a more heterogeneous radiopacity, reflecting the presence of multiple dental hard tissues. Periapical cemental dysplasia usually produces a smaller lesion than cementoblastoma and shows a progressive change in radiographic appearance over time, from radiolucent to mixed to radiopaque. Condensing osteitis lacks a peripheral radiolucent halo. The radiopaque lesion of hypercementosis is usually small, and there is no associated pain or jaw swelling.

The cementoblastoma has been described as a benign, solitary, slow-growing lesion, although there have been reports of aggressive behaviour.<sup>16,17</sup> Due to the benign neoplastic nature of the lesion, the treatment of choice is complete removal of the lesion with extraction of the associated tooth. A more conservative technique, to retain the involved tooth and remove the lesion using a surgical endodontic approach, has been reported.<sup>18-20</sup> It can be used for small lesions on strategic teeth that can be completely enucleated without compromising adjacent teeth and that will maintain a sufficient crown-to-root ratio after apicoectomy.

The prognosis is excellent, as the tumour does not recur after total excision.<sup>5,10</sup> ♦

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*The authors have no declared financial interest.*

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## C D A R E S O U R C E C E N T R E

CDA members can borrow the Resource Centre's latest acquisition on mouth neoplasms: Robert Ord and R.H. Blanchaert, *Oral cancer: the dentist's role in diagnosis, management, rehabilitation and prevention*, Quintessence, 2000. Contact us at tel.: **1-800-267-6354** or **(613) 523-1770**, ext. 2223; fax: **(613) 523-6574**; e-mail: **info@cda-adc.ca**.