

## Benign Cementoblastoma and Radiological Differential Diagnosis: A case Report

Dr. Deepa Hugar<sup>1\*</sup>, Dr. Sangameshwar Sajjanshetty<sup>2</sup>, Dr. Santosh Hugar<sup>3</sup>, Dr. Shashi Ranjan<sup>4</sup>,  
Dr. Sridevi Tamagond<sup>5</sup>

<sup>1</sup>Senior lecturer, Department of Oral pathology and Microbiology H. K. E. Society's S. Nijalingappa Institute of Dental Science & Research, Gulbarga, Karnataka, India

<sup>2</sup>Senior lecturer Department of Pedodontics and Preventive Dentistry, H. K. E. Society's S.Nijalingappa Institute of Dental Science & Research, Gulbarga, Karnataka, India

<sup>3</sup>Reader, Department of Conservative & Endodontics, Bharatiya Vidyapeeth Dental College and Hospital, Sangli, Maharashtra, India

<sup>4</sup>Senior Lecturer, Department of Oral pathology and Microbiology, Budda Dental College & Hospital, Patna, Bihar, India

<sup>5</sup>Senior lecturer Department of Pedodontics and Preventive Dentistry, Bhartiya Vidyapeeth Dental College and Hospital, Sangli, Maharashtra, India

### \*Corresponding Author:

Name: Dr. Deepa Hugar

Email: [deepahugar12@yahoo.co.in](mailto:deepahugar12@yahoo.co.in)

**Abstract** In the past the benign cementoblastoma was recognized in the World Health Organization's classification of odontogenic tumors as one of the cementoma neoplasias. Recently the benign cementoblastoma is included into 'Mesenchyme and/or odontogenic ectomesenchyme, with or without odontogenic epithelium' odontogenic tumors. Benign cementoblastoma has characteristic radiologic and microscopic features and it appears to be fused to the tooth roots. Symptoms may be totally absent, and when they do occur, pain and swelling are frequent findings. The final diagnosis is usually made histopathologically, but the clinical diagnosis is comparatively easy if it is examined radiographically. The tumor has unlimited growth potential. Most frequently tends to be associated with an erupted permanent tooth, most often the first molar: rarely has an association with an impacted or partial impacted tooth been reported. This case represents a case of benign cementoblastoma associated with left mandibular first molar.

**Keywords:** Benign cementoblastoma, mandibular molar, odontogenic tumors, differential diagnosis

### INTRODUCTION

Benign cementoblastoma is a rare odontogenic tumor characterized by the formation of a mass of cementum or cementum-like tissue attached to the roots of a tooth [1]. It was first described in 1927 by Dewey [2]. Benign cementoblastoma is of mesenchymal origin. It usually presents as a distinct lesion with characteristic radiographic and histopathologic features [3]. The lesion is considered as the only true neoplasm of cementum origin, generally occurring in young persons, comprises less than 1% to 6.2% of all odontogenic tumors [4].

Most often they are asymptomatic but, pain and swelling are frequent findings when they do occur, [5-7]. Final diagnosis is generally made histopathologically, but the clinical diagnosis is comparatively easy if it is examined radiographically. The tumor has unlimited growth potential [5-8]. The recommended treatment is to completely enucleate the tumor mass with extraction of the involved tooth [6-8]. This case report describes a benign cementoblastoma attached to the lateral portion of the distal root of the left mandibular first molar.

### CASE REPORT

A 14-year-old male presented with a chief complaint of swelling in the left first molar area since 2 months. Intraoral examination revealed bony hard swelling in association with 36. The swelling was seen on the buccal gingiva of the 36. On palpation the lesion was asymptomatic and overlying mucosa appeared normal. His medical and family history was noncontributory. There was no reported history of orofacial trauma. The radiograph revealed a radiopaque, dense, amorphous, irregularly shaped mass measuring 2.2 x 1.5 cm was attached to the distal portion of lower left first molar roots surrounded by a radiolucent periphery (Fig. 1). Also there was a slight expansion of bone on the buccal side of the mandible. Electric pulp testing showed tooth was vital. Based on this clinical diagnosis of benign cementoblastoma was made. The surgical excision of the mass was done along with the tooth. The healing was uneventful after twelve months of follow up there was no evidence of recurrence.

Macroscopically, the lesion appeared as a hard mass measuring 20x10x10 mm, attached to the lateral portion of the distal root of left mandibular first molar (

Fig. 2). The surgical specimen was sent for pathologic examination.

Histologically, the section depicted deposition of cemental trabeculae rimmed with plump, active cementoblasts in a fibrous stroma. Many cemental trabeculae showed basophilic reversal lines. At areas cemental trabeculae has coalesced. Fibrous stroma shows fibroblasts and fibrocytes alongwith few blood vessels (Figure 3 & 4).

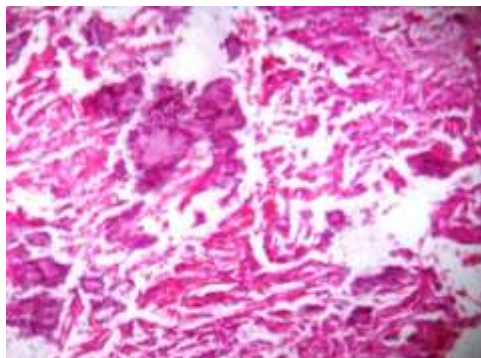
Based on clinical and histopathology final diagnosis of benign cementoblastoma was made.



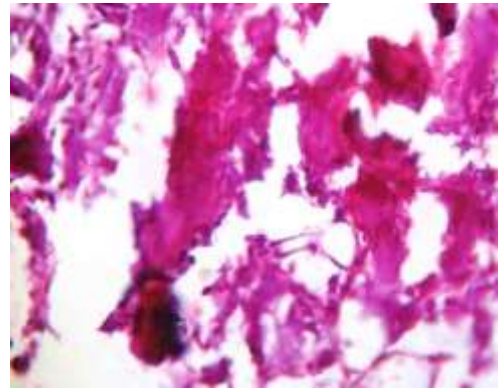
**Fig. 1: Orthopantomograph showing a radiopaque mass attached to the distal portion of lower left first molar roots surrounded by a thin radiolucent rim**



**Fig. 2: surgical specimen showing detached mass along with extracted teeth**



**Fig. 3: Showing moderately cellular and vascular stroma with islands and trabeculae of cementum lined by cementoblasts**



**Fig. 4: Deposition of cemental trabeculae showing basophilic reversal lines rimmed with plump, active cementoblasts in a fibrous stroma**

## DISCUSSION

Cementoblastoma is also called as true cementoma. The benign cementoblastoma was first recognized by Norberg in 1930 which is a slow-growing, benign odontogenic tumor arising from cementoblasts [9]. The World Health Organization has classified benign cementoblastoma and cementifying fibroma as the only true cemental neoplasms [10]. 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 [11]. Recently the benign cementoblastoma has been included into 'Mesenchyme and/or odontogenic ectomesenchyme, with or without odontogenic epithelium, odontogenic tumours [12]. Its etiology is unknown [7, 8].

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 [13, 14]. Benign cementoblastomas are predominantly seen in young persons. There is no significant sex predilection between two sexes [15, 16], some authors indicate that males are affected more frequently than females.

The mandible is more involved than maxilla [17]. It is usually associated with roots of mandibular molar followed by mandibular premolar [18, 19].

The lesion is usually grows slowly and asymptomatic. But pain and swelling had been reported in many cases with common features like cortical expansion and facial asymmetry [6, 8, 15].

Radiographically, the lesion usually shows a radiopaque mass often fused with a root or roots of a tooth, surrounded and limited peripherally by a radiolucent halo. The present case providing this parameter had the same characteristics. The differential diagnosis for such a periapical radiopacity includes lesions such as osteoma, benign osteoblastoma,

odontome, periapical cemental dysplasia, hypercementosis, chronic focal sclerosing osteitis, osteomyelitis and osteosarcoma, etc. [5, 7, 8, 15]. The cementoblastoma and osteoblastoma are closely related lesions that are histologically very similar [20]. 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. 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 radiopaque and mixed. The radiopaque lesion of hypercementosis is usually small, and there is no associated pain or jaw swelling. Condensing osteitis lacks a peripheral radiolucent halo. The cementoblastoma has been described as a benign, solitary, slow-growing lesion, although there have been reports of aggressive behavior [21, 22]. 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 [23-25]. 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.

## CONCLUSION

In this case report; a case of benign cementoblastoma of a 14-year-old male is presented involving a left mandibular first molar and arising from the lateral portion of the root of the involved tooth which had a very characteristic macroscopic appearance.

## ACKNOWLEDGEMENT

Author would like to convey gratitude to Dr Vijayalakshmi S. Kotrashetti, Reader, Department of Oral Pathology and Microbiology for her constant help throughout the preparation of manuscript and also would like to thank Dr Ramakant Nayak, Dean, MM NGH Institute of Dental sciences, Belgaum for his constant support.

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