

Benign Cementoblastoma Involving Primary Molar: A Rare Case Report with Review of Literature

Anusuya Mishra, Jayanta Dash, Prasanna Sahoo, Ratna Baliarsingh, and Prayas Ray

S.C.B. Dental College and Hospital, Cuttack, India

Correspondence should be addressed to Anusuya Mishra, dranusuyamishra@gmail.com

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ABSTRACT

Cementoblastoma is a benign odontogenic tumor of mesenchymal origin, rarely seen in the primary dentition. The present study describes a case of cementoblastoma in the mandible involving primary molars, preventing the eruption of premolars in a boy aged 11 years old. Based on the clinical and radiographic findings, a provisional diagnosis was made as cementoblastoma. The lesion was surgically removed in toto along with the associated primary mandibular molar and the final diagnosis as cementoblastoma was confirmed by histopathological study. Postoperative follow-up showed uneventful eruption of premolars and healing of the lesion with no recurrence.

KEYWORDS

Cementoblastoma; True cementoma; Benign cementoblastoma; Odontogenic tumors; Primary teeth

INTRODUCTION

Cementoblastoma is a rare benign odontogenic neoplasm of the jaws derived from mesenchyme. It is the only true neoplasm of cementum origin thus justifying the name “true cementoma” [1,2]. The prevalence of this neoplasm is around 1-6.2% of all odontogenic neoplasm [3]. Mostly seen in young patients with the mean age of 20.7 years but rarely seen in primary teeth. To our knowledge a total number of 20 cases in relation to primary teeth have been reported in the literature so far (Table 1) [4-10]. Here we have reported the 21st case of cementoblastoma involving primary mandibular right 2nd molar.

CASE REPORT

A healthy 12-year-old boy reported to the Department of Pedodontics and Preventive Dentistry, S.C.B. Dental College and Hospital, Cuttack, Odisha with the chief complaint of asymmetry of face noticed for 4 months. The familial and medical histories were not contributory and there was no history of facial trauma.

On extraoral examination, there was facial asymmetry due to mild swelling in the right side extending from the angle of mouth to the angle of mandible along the inferior border of the mandible. The swelling was stony hard and tender on palpation with no extraoral discharge. Intraoral examination revealed poor oral hygiene and calculus deposition in the right mandibular posterior

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teeth. Retained primary teeth were 84, 85, 73. Swelling extended from 84 to 85 region of approximately 2.5 cm × 1.5 cm. The overlying mucosa was normal and positive response was seen with cold test in both primary right mandibular molars. There was no mobility with respect to 84, 85.

S. No.	Author	Year	Age(y)/ Sex	Involved teeth
1	Chaput and Marc	1965	10/F	85
2	Vilasco et al.	1969	8/F	85
3	Zachariades et al.	1985	7/F	84,85
4	Herzog	1987	7/F	84,85
5	Papageorge et al.	1987	6/M	85
6	Cannell	1991	8/F	85
7	Schafer	2001	8/F	85
8	Ohki	2004	12/M	85
9	Lemberg	2007	11/F	85
10	Vieira	2007	7/F	75
11	Netto	2012	4/F	74
12	Monti	2013	11/F	75
13	Ürs	2016	10/M	54,55
14	Nuvvula	2016	7/F	85
15	Jolehar	2016	5/M	85
16	Nagvekar	2017	12/M	65
17	Mohammadi	2018	4.5/M	85
18	Garg	2019	10/M	75
19	Pathak	2019	8/M	74
20	Hiremath	2020	11/F	85
21	Present case	2020	11/M	85

Table 1: Reported cases of cementoblastoma associated with primary teeth.

On radiographic examination, OPG (Orthopantomogram) showed a well-defined non-homogenized radiopaque mass surrounded by a radiolucent halo associated with roots of the primary right 2nd mandibular molar.

The clinical and radiographic features were suggestive of provisional diagnosis as “Benign cementoblastoma”.

The differential diagnosis included was: osteoblastoma, odontoma, periapical cemental dysplasia, condensing osteitis, hypercementosis (Table 2) [11-15].

The treatment plan was decided as oral prophylaxis followed by surgical excision and enucleation of the lesion in toto with the extraction of primary molars with respect to 84,85 under local anesthesia. All the efforts were made to preserve the underlying premolars.

The excised tumor of 2.5 cm × 2 cm × 2.5 cm was embedded in the root of primary right mandibular 2nd molar was sent to Department of Oral and Maxillofacial Pathology, S.C.B. Dental College and Hospital, Cuttack, Odisha for histological evaluation.

Cementoblastoma	Osteoblastoma	Odontome	Periapical cemental dysplasia	Condensing osteitis	Hypercementosis
Intimately associated with the tooth roots. Radiographically demonstrates radiopaque masses attached to teeth and surrounded by a radiolucent periphery.	Not associated with tooth roots and arises in the medullary cavity. Radiographically demonstrates absence of peripheral radiolucent rim.	Not linked to the tooth roots. Radiographically demonstrates heterogeneous radiopacity showing the presence of multiple dental tissues.	Fusion to the Tooth roots are not present. Radiographically demonstrates mixed radiographic appearance of radiolucent and radiopaque and in the later stage, the lesion shows a circumscribed dense calcification surrounded by a narrow radiolucent rim.	Radiographically demonstrates circumscribed radiopaque mass of sclerotic bone surrounding and extending below the apex of the root with widened periodontal ligament space but does not show the well-defined peripheral radiolucent rim	Radiographically demonstrates a thickening or blunting of the root surrounded by radiolucent periodontal ligament space and adjacent intact lamina dura

Table 2: Comparison of features of cementoblastoma with other differential diagnosis lesions.

Low power (4X) view of decalcified H & E (Hematoxylin & Eosin) microsection revealed sheets of mineralized material confluent with radicular dentin that enclosing pulpal tissue. High power (40X) view of

decalcified H & E microsection depicted mineralized trabeculae of cementum-like material lined by plump cementoblasts, irregular lacunae, and few basophilic reversal lines; in a fibrovascular stroma. Based on

histological findings and attachment of the lesion to the tooth root, the final diagnosis was confirmed as “cementoblastoma”. Postsurgical follow-up after 1 week showed healing of the incised mucosa. From OPG it was evident, there was adequate space for the eruption of teeth with respect to 44 & 45 so, no space maintainer was given. Postsurgical follow-up after 3 months showed clinically erupted tooth with respect to 44 with no recurrence. Postsurgical follow-up after 3 months in OPG showed a reduction in lesion size and formation of bone evident from radiopacity and there was a decrease in space between 44 and 45 due to an erupting tooth 45 in mesio-axial direction (Figure 1- Figure 9).



Figure 1: Intraoral appearance of swelling in relation to 84,85.

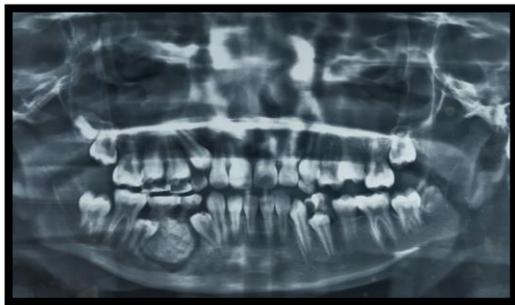


Figure 2: Preoperative OPG showing radiopacity surrounded by radiolucent border in relation to roots of 85.



Figure 3: Enucleation of tumor mass with tooth in toto.



Figure 4: Gross specimen after excision along with extracted tooth 84.

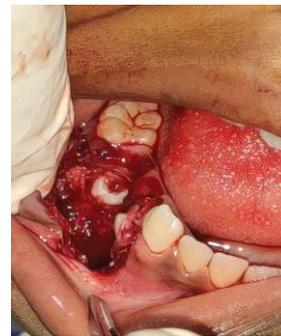


Figure 5: Surgical exposure of impacted teeth 44,45.

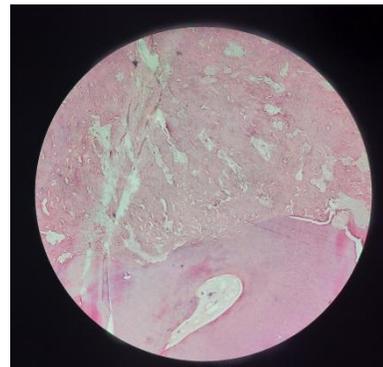


Figure 6: Low power (4X) view showing sheets of mineralized material confluent with radicular dentin that enclosing pulpal tissue.

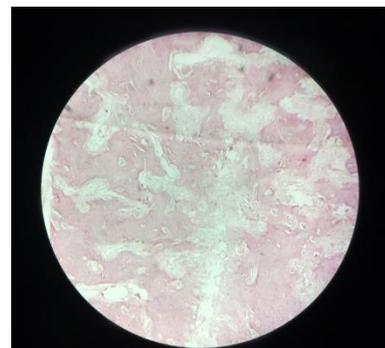


Figure 7: High power (40X) view showing mineralized trabeculae of cementum-like material lined by plump cementoblasts, irregular lacunae, and few basophilic reversal lines.



Figure 8: Postoperative OPG after 3 months showing healing by formation of bone and no evidence of recurrence.



Figure 9: Postoperative after 3 months showing clinically erupted tooth 44.

DISCUSSION

Cementoblastoma was first described by Dewey in 1927 and the first case of cementoblastoma was reported by Norberg as true cementoma in 1930 [16,17]. WHO defines it as “a neoplasm characterized by the formation of sheets of cementum-like tissue containing a large number of reversal lines and a lack of mineralization at the periphery of the mass or in the more active growth areas” [2]. Prevalence is more in male than female (2.1:1 ratio) and more in the mandible than maxilla (3:1 ratio) [11,18,19]. The recurrence rate is as high as 37.1% with a 0% recurrence rate in primary teeth [20].

Previously benign cementoblastoma got recognized as cementoma neoplasia in the World Health Organization’s classification of odontogenic tumors [21]. Recently in 2017 WHO classification of odontogenic tumors and cysts cementoblastoma is classified as ‘Benign odontogenic tumor of mesenchymal origin [1].

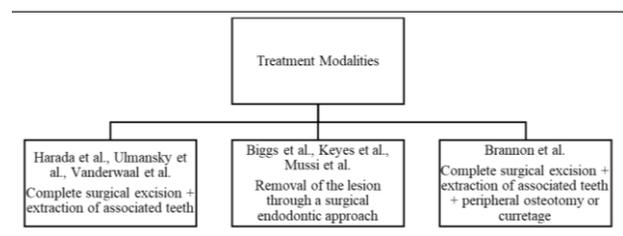
Cementoblastoma has 3 developmental stages [22-24]:

Stage 1: Osteolytic stage characterized by non-calcified matrix surrounding the apex of a vital tooth with the formation of a circular radiolucent area.

Stage 2: Cementoblastic stage characterized by radiopaque mass as a result of calcification from central nidus to the peripheral direction.

Stage 3: Maturation stage where the whole lesion is radiopaque surrounded by a radiolucent rim.

Different authors proposed different treatment modalities for the management of cementoblastoma (Flow chart 1) [25].



Flowchart 1: Treatment modalities in Cementoblastoma.

CONCLUSION

Though cementoblastoma is a rare neoplasm seen in primary dentition with no reported recurrence in primary teeth, it is very aggressive in nature and required immediate intervention. It is essential to create awareness regarding its clinical, radiographic, histological features, and treatment options among general and pediatric dentists which can provide better patient compliance.

CONFLICT OF INTEREST

The authors have disclosed no potential conflicts of interest.

REFERENCES

1. Soluk-Tekkeşin M, Wright JM (2018) The World Health Organization Classification of Odontogenic Lesions: A summary of the changes of the 2017 (4th Edn.). Journal of the Turkish Pathology Society 34(1).

2. Kramer IR, Pindborg JJ, Shear M (1992) Histological Typing of Odontogenic Tumors. World Health Organization, International Histological Classification of Tumors. New York: Springer-Verlag; p. 23.
3. Lu Y, Xuan M, Takata T, et al. (1998) Odontogenic tumors. A demographic study of 759 cases in a Chinese population. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology & Endodontics* 86(6): 707-714.
4. Nuvvula S, Manepalli S, Mohapatra A, et al. (2016) Cementoblastoma relating to right mandibular second primary molar. *Case Reports in Dentistry* 2016: 2319890.
5. Jolehar M, Khalili M, Baghaee F (2016) A rare odontogenic tumor known as cementoblastoma; A case report. *Journal of Research in Dental and Maxillofacial Sciences* 1(2): 41-45.
6. Nagvekar S, Syed S, Spadigam A, et al. (2017) Rare presentation of cementoblastoma associated with the deciduous maxillary second molar. *BMJ Case Reports*.
7. Mohammadi F, Aminishakib P, Niknami M, et al. (2018) Benign cementoblastoma involving deciduous and permanent mandibular molars: A case report. *Iranian Journal of Medical Sciences* 43(6): 664-667.
8. Garg B, Chavada R, Pandey R, et al. (2019) Cementoblastoma associated with the primary second molar: An unusual case report. *Journal of Oral and Maxillofacial Pathology: JOMFP* 23(Suppl 1): 111-114.
9. Pathak J, Hosalkar RM, Sidana S, et al. (2019) Benign cementoblastoma involving left deciduous first molar: A case report and review of literature. *Journal of Oral and Maxillofacial Pathology: JOMFP* 23(3): 422-428.
10. Hiremath MC, Srinath SK, Srinath S, et al. (2020) Benign cementoblastoma associated with primary mandibular second molar: A rare case report. *Journal of Oral and Maxillofacial Pathology* 24(Suppl 1): S11-S14.
11. Schafer TE, Singh B, Myers DR (2001) Cementoblastoma associated with a primary tooth: A rare pediatric lesion. *Pediatric Dentistry* 23(4): 351-353.
12. Pindborg JJ (1971) Histological typing of odontogenic tumours, jaw cysts, and allied lesions. *International histological classification of tumors* 1-44.
13. Papageorge MB, Cataldo E, Nghiem FTM (1987) Cementoblastoma involving multiple deciduous teeth. *Oral Surgery, Oral Medicine, Oral Pathology* 63(5): 602-605.
14. Slootweg PJ (1992) Cementoblastoma and osteoblastoma: A comparison of histologic features. *Journal of Oral Pathology & Medicine* 21(9): 385-389.
15. Neville BW, Damm DD, Allen CM, et al. (2002) *Oral and maxillofacial pathology* (2nd Edn.) Philadelphia, WB Saunders. p. 541-593
16. Dewey KW (1927) Osteoma of a molar. *The Dental Cosmos* 69: 1143-1149.
17. Norberg O (1930) Zur kenntnis der dysontogenetischen geschwulste der kieferknochen. *Vrtljsschr f Zahn* 46: 321-355.
18. Cundiff II, James E (2000) Developing cementoblastoma: Case report and update of differential diagnosis. *Quintessence International* 31(3): 191-195.
19. Shastri S, Ravikanti V, Thoondla M, et al. (2012) Benign cementoblastoma. *Indian Journal of Oral Sciences* 3(3): 165-165.
20. Brannon RB, Fowler CB, Carpenter WM, et al. (2002). Cementoblastoma: An innocuous neoplasm? A clinicopathologic study of 44 cases and review of the literature with special emphasis on recurrence. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 93(3): 311-320.
21. Ulmansky M, Hjørting-Hansen E, Prætorius F, et al. (1994) Benign cementoblastoma: A review and five new cases. *Oral Surgery, Oral Medicine, and Oral Pathology* 77(1): 48-55.

22. Stafne EC (1943) Periapical fibroma: Roentgenologic observations. *The Journal of the American Dental Association* 30(9): 688-692.
23. Frank RM, Nicolas P (1962) Contributions al'étude de la pathologie du cement. *Bulletin du Groupèment International Pour la Recherche Scientifique en Stomatologie & Odontologie* 5: 30-51.
24. Cherrick HM, King OH Jr, Lucatorto FM, et al. (1974) Benign cementoblastoma: A clinicopathologic evaluation. *Oral Surgery, Oral Medicine, & Oral Pathology* 37(1): 54-63.
25. Sayd S, Vyloppilli S, Gopinath KA, et al. (2018) Cementoblastoma - A review of literature. *International Clinical Pathology Journal* 6(2): 97-98.