

## AN INCIDENTAL FINDING OF CEMENTOBLASTOMA IN A 21 YEAR-OLD FEMALE

Karthik Rajaram Mohan, Saramma Mathew fenn, Ravikumar Pethagounder Thangavelu

Vinayaka mission's sankarachariyar dental college, Vinayaka mission's research foundation (Deemed to be University).  
Tamil Nadu, India.

**A** benign neoplasm called a cementoblastoma is characterised by the development of cementum-like tissue near the tooth root. The characteristic that separates a cementoblastoma from an osteoblastoma is a rounded or nodular mass connected to one or more dental roots (WHO, 2005). The lesion known as cementoblastoma is thought to be quite uncommon. Because it gives pathologists and surgeons information that can enhance diagnostic precision and enable them to make educated decisions and fine-tune their treatment plans to improve the clinical result, the epidemiological research of such lesions is crucial. This case report describes the cementoblastoma's radiological characteristics by cone-beam computed tomography.

Keywords: cementoblastoma, mandible, pulp vitality, cone-beam computed tomography.

Corresponding author: Karthik Rajarammohan, e-mail: drkarthik@vmsdc.edu.in

*For citation: Karthik Rajaram Mohan, Saramma Mathew fenn, Ravikumar Pethagounder Thangavelu. An incidental finding of cementoblastoma in a 21 year-old female. REJR 2022; 12(3):109-114. DOI: 10.21569/2222-7415-2022-12-3-109-114.*

Received: 27.06.22

Accepted: 15.09.22

## СЛУЧАЙНАЯ НАХОДКА ЦЕМЕНТОБЛАСТОМЫ У 21-ЛЕТНЕЙ ЖЕНЩИНЫ

Картик Раджарам Мохан, Сарамма Мэтью Фенн,  
Равикумар Петагоундер Тангавелу

Колледж Винайяка Миссионс Санкарачарияр Дентал, исследовательский фонд миссии Винайяка (Университет).  
Тамил Наду, Индия.

**Д**оброкачественное новообразование, называемое цементобластомой, характеризуется образованием цементоподобной ткани вблизи корня зуба. Характерной чертой, отличающей цементобластому от остеобластомы, является то, что это округлое или узловатое образование, связанное с одним или несколькими корнями зуба (ВОЗ, 2005). Цементобластома считается довольно редкой находкой. Эпидемиологическое исследование таких патологий имеет решающее значение, так как дает патоморфологам и хирургам информацию, которая может повысить точность диагностики и позволить им принимать обоснованные решения и корректировать лечение для улучшения клинических результатов. В этом клиническом случае описаны характеристики цементобластомы при проведении конусно-лучевой компьютерной томографии.

Ключевые слова: цементобластома, нижняя челюсть, жизнеспособность пульпы, конусно-лучевая компьютерная томография.

Контактный автор: Картик Раджараммохан, e-mail: drkarthik@vmsdc.edu.in

Для цитирования: Картик Раджарам Мохан, Сарамма Мэтью Фенн, Равикумар Петагундер Тангавелу. Случайная находка цементобластомы у 21-летней женщины. REJR 2022; 12(3):109-114. DOI: 10.21569/2222-7415-2022-12-3-109-114.

Статья получена: 27.06.22

Статья принята: 15.09.22

**Introduction.**  
**I** Cementoblastoma is a benign hamartomatous malformation of cementum lining the surface of the root. It most commonly occurs in the first permanent molar region in mandible. An odontogenic tumour of neoplastic cementoblasts is referred to as cementoblastoma. The lesion is regarded as the unique true neoplasm of cementum origin and was initially identified by Noeberg in 1930. The term "benign cementoblastoma" used to refer to the uncommon tumour known as cementoblastoma. It is thought to be a cementum hamartomatous deformity as well as an odontogenic ectomesenchymal tumour. It is also regarded as a genuine cementoblast neoplasm. It is distinguished by a live tooth with a mass of cementum or tissue that resembles cementum glued to its roots. Dewey originally provided a description of it in 1927. Less than 1-6.2 percent of all odontogenic tumours are mandibular molar or premolar tumours, which are frequently encountered in young people and frequently accompanied by the tumour. Cementoblastoma is a rare neoplasm characterised by proliferation of neoplastic cementoblasts and usually occur as a mineralised mass in the

apex of vital mandibular first molars. These tumours, which are frequently thought to be asymptomatic, might exhibit pain and oedema. The ultimate cementoblastoma diagnosis is typically established on histopathology, but some characteristic radiographic findings are enough to make the diagnosis. The preferred course of treatment is to remove the tooth and any related cementoblastomas. Despite the benign nature of the lesion, this article details an instance of aggressive nature of cementoblastoma [1].

**Case Presentation.**

A 21-year-old female reported to our department for occasional pain and discomfort in lower left back tooth region for the past 5 months. Her past medical history is non-contributory. General examination revealed her vitals are stable. Extraoral examination did not reveal any swelling resulting in facial asymmetry. Intraoral examination did not revealed any local odontogenic factors such as dental caries or periodontal factors such as calculus deposits or periodontal pocket, gingival recession in relation to 37 (fig. 1).

So a further radiological evaluation by cone beam computed tomography was done



Fig. 1 (Рис. 1)

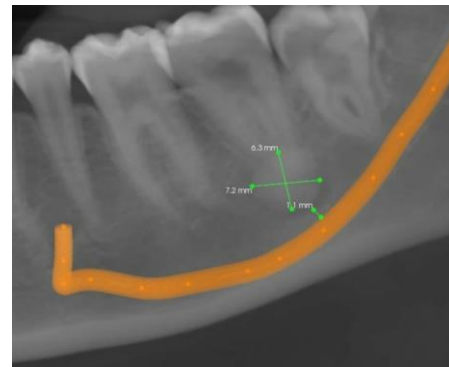


Fig. 2 (Рис. 2)

**Fig. 1. Photo.**

Intraoral clinical photograph.

**Рис. 1. Фотография.**

Интраоральный снимок нижней челюсти.

**Fig. 2. CBCT, sagittal section.**

The distance between the radiopaque mass and the inferior alveolar nerve canal is 1.1 mm.

**Рис. 2. КЛКТ, сагиттальная реконструкция.**

Расстояние между высокоплотным образованием и каналом нижнечелюстного нерва составляет 1,1 мм.

with the help of carestream cs-9600 CBCT machine with field of volume (FOV) of 5x5 cm in relation to left mandibular posterior tooth region in relation to 36,37.

Reconstructed panoramic image with carestream cs-9600 CBCT machine with exposure parameters of 120 kvp, 6.3 mA, 19 secs. The slices in panoramic mode CBCT made at 29.8 mm thickness revealed a well-defined homogenous radiopaque mass in the posterior region of left side mandible in relation to periapical region of 37 measuring mediolaterally 7.2 mm, superior – inferiorly 6.3 mm, obscuring the root-outline in relation to 37. The radiopaque mass surrounded by radiolucent rim. The distance between the radiopaque mass and the inferior alveolar nerve canal is 1.1mm (fig. 2).

Axial sectional images made at 1.1 mm thickness revealed a well-defined radioopaque mass fused with root 37 surrounded by radiolucent rim (fig. 3).

Cross sectional images made at 975µm thickness revealed a well-defined homogenous radiopaque mass attached to the apex of root of 37 surrounded by radiolucent rim with destruction of lingual cortex in relation to 37 tooth region. Axial section revealed perforation of lingual cortical plate in relation to radiopaque mass (fig. 4).

The patient did not consent to surgical removal of cementoblastoma, hence surgical procedure was deferred in this case. So pallia-

tive treatment for pain was initiated by prescription of a non-steroidal anti-inflammatory drug, a tablet. Ketorolac 10 mg prescribed b.i.d for three days. The patient's pain got subsided. The patient was informed of the aggressive nature of the lesion, and periodic follow-up and evaluation of the lesion is advised after a month.

**Discussion.**

Cementoblastoma is a benign, slow-growing hamartomatous mesenchymal neoplasms composed chiefly of cementum-like tissue. The tumour more common in males among 12 to 65 years of age. It occurs more often in mandible (78%) when compared to maxilla (22%), in relation to the roots of first molar (90%). The tumour occurs usually solitary, that is slow growing but eventually displace teeth. The vitality of tooth affected by such cementoblastoma is not compromised. Pain occurs in some cases, which can be relieved by nonsteroidal antiinflammatory drugs. The internal architecture of cementoblastomas is varied in the form of a dense amorphous or a mixed radiolucent-radiopaque in the form of wheel spoke appearance. The density of the radiopaque mass usually obscures the root outline. cementoblastoma, in some can perforate the outer cortical plate without a periosteal reaction [1]. Van Ho stated that cone beam computed tomography helps in surgical treatment planning for cementoblastomas, thereby preventing fracture of mandible during surgical

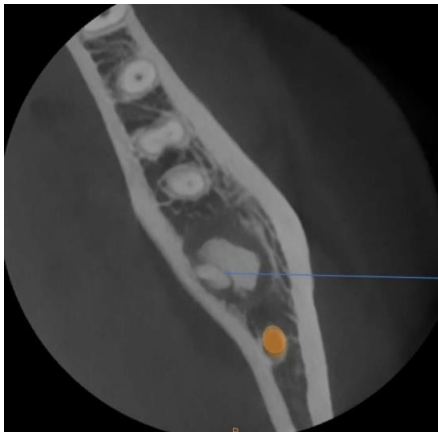


Fig. 3 (Рис. 3)

**Fig. 3. CBCT, axial section.**

A well-defined radioopaque mass fused with root 37 surrounded by radiolucent rim.

**Рис. 3. КЛКТ, аксиальная плоскость.**

Визуализируется четко очерченное высокоплотное образование, исходящее из корня зуба 37, окруженное ободком низкой плотности.

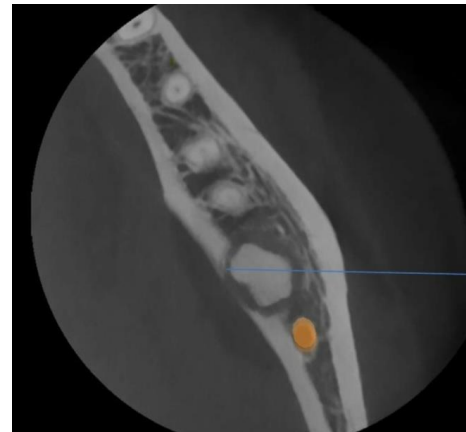


Fig. 4 (Рис. 4)

**Fig. 4. CBCT, axial section.**

Perforation of lingual cortical plate.

**Рис. 4. КЛКТ, аксиальная плоскость.**

Перфорация язычной кортикальной пластинки.

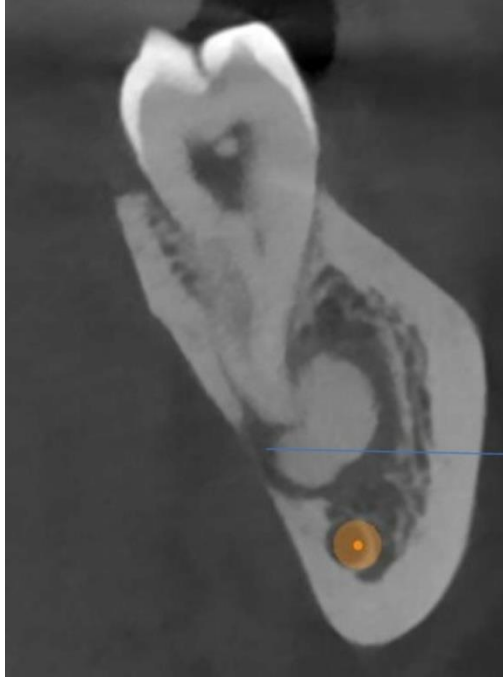


Fig. 5 (Рис. 5)

Fig. 5. CBCT, coronal section.

Radiopaque mass is in close proximity to the left inferior alveolar nerve canal.

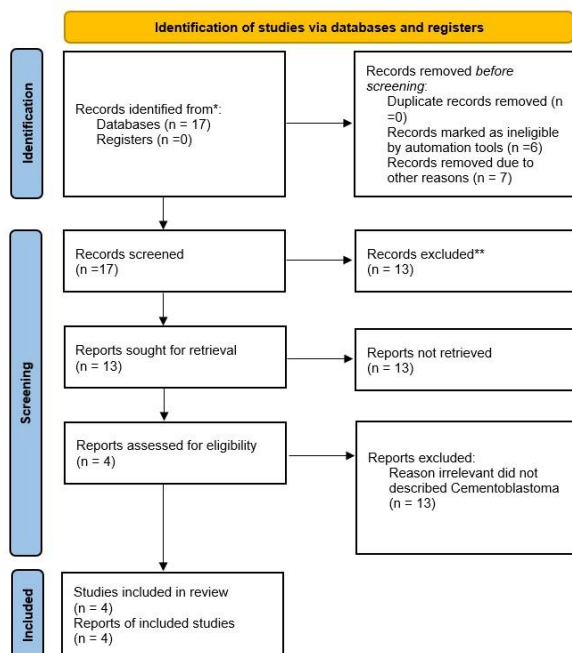
Рис. 5. КЛКТ, корональная реконструкция.

Высокоплотное образование находится в непосредственной близости от канала левого нижнечелюстного нерва.

removal of such cementoblastomas [1]. Preto K.A. et al suggested that cone beam computed tomography is helpful and aids in diagnosis and treatment planning of cementoblastomas [2]. Kumar S et al reported the occurrence of an infected cementoblastoma in mandibular ramus region, that resulted in pain [3]. Qureshi et al suggested the concurrent bilateral occurrence of cementoblastomas with cemento-ossifying fibromas [4]. Wu Y.H. et al reported bilaterally occurring cementoblastomas in two mandibular molar regions [5]. Ahire M.S. et al reported 2.4% of cementoblastomas in a retrospective study among 250 odontogenic tumours in Maharashtra [6]. Suhasini G.P. reported the occurrence of cementoblastomas among pediatric population in the region of deciduous molar [7]. Hiremath M.C. et al reported the occurrence of cementoblastoma in relation to primary deciduous mandibular second molar teeth [8]. Lam et al suggested that immunohistochemical studies revealed diffuse staining of fos in 16 cementoblastomas (71%), identified by fluorescent in-situ hybridization (FISH) [9]. Bruno Ramos Chranovic et al studied 258 cases of cementoblastomas and stated that a significant prevalence was seen in the second and third decades of life, in the posterior areas, and in the mandibular first molars. Lesions were frequently correlated with bone growth (74.9%), the existence of clinical complaints (70.2%), the presence of healthy teeth (78%) and root resorption (59.8 percent). Observations that are less common include inferior displacement of the mandibular canal and cortical bone perforation (16.3%) (23.6 percent) [10].

The differential diagnosis of cementoblastoma includes mature lesions of periapical cemental dysplasia, hypercementosis, dense bone island. The mature lesions of periapical cemental dysplasia often occurs in the mandibular anterior region, whereas the lesions of cementoblastoma usually involves mandibular molar region. The outline of periapical cemental dysplasia is more irregular, when compared to cementoblastoma, which have a circular, smooth, uniform, regular outline. The cementoblastomas usually have a soft-tissue capsule, which do not occur in dense bone island, periapical cemental dysplasia. Periapical sclerosing osteitis can occur from long standing periapical inflammatory reactions in bone from inflammatory products released from death of pulp tissue caused by dental caries. It results in a sclerotic reaction of the cancellous bone around the small region of tooth apex. The tooth affected by periapical sclerosing osteitis do not respond to pulp vitality tests, whereas

Table №1. PRISMA strategy.



**Table №2. Research studies on cementoblastoma in mandible.**

Author	year	Age/gender	site	Results
Çalışkan, A., Karöz, T. B., Sumer, M., Açıkgöz, A., & Süllü, Y.	2016	31/ Female	Anterior mandible	Cementoblastoma is a rare neoplasm that develops from odontogenic ectomesenchyme. It is characterized by a mineralized mass attached to the apex of the root produced by neoplastic cementoblasts. Cementoblastoma occurred in impacted right mandibular canine tooth
Sharma N.	2014	16/ Male	Right mandibular first molar -extracted site	Cementoblastoma occurred in extraction site right mandibular first molar
Grewal H.K.	2014	26/ Male	Impacted Left mandibular third molar and right mandibular first molar	Cementoblastoma associated with swelling and pain near impacted mandibular third molar
Iannaci G., Luise R., Iezzi G., Piattelli A., Salierno A.	2013	60/ Male	Right Mandibular second molar	cementoblastoma is a rare neoplasm, the dental practitioner should be aware of the clinical and radiographic features that will lead to its early diagnosis and treatment

in Cementoblastoma, the involved tooth is vital and responds to pulp vitality tests, such as thermal test carried out by heated gutta percha sticks. Hypercementosis is not usually associated with root resorption, whereas cementoblastoma can cause external root resorption and cortical perforation, even bony expansion of the jaw. Dense bone islands, also called enostosis or periapical idiopathic osteosclerosis are localized growths of compact bone that develop within cancellous bone. They are internal components of exostoses. Such dense bone islands, usually lack a radiolucent capsule or shadow, which are characteristically appreciated radiographically in cementoblastoma. The borders of dense bone islands, usually blends with the trabeculae of surrounding bone. Inflammatory etiology, such as a long standing dental caries or large restoration is usually seen in periapical condensing osteitis. The lesions of periapical condensing osteitis occur on the root apex of the tooth and extend in a more symmetric form in every direction [10].

**Conclusions.**

Cementoblastomas are benign, slow-growing hamartomatous malformation of ce-

mentum. Such cementoblastomas are incidentally discovered on radiographic examination when a patient complains of tooth pain without obvious odontogenic causes, such as dental caries or periodontal findings such as a periodontal pocket, gingival recession, and calculus deposits around the tooth. The advent of new imaging techniques like cone-beam computed tomography is helpful in three-dimensional visualisation and exact location of cementoblastoma, its effects such as cortical perforation resulting in inflammatory periosteal reaction and bone expansion. The pain arising from cementoblastomas usually responds to non-steroidal anti-inflammatory drugs. Patients must also be educated about their aggressive nature, even though they have benign, slow-growing potential.

**Funding.**

The Author(s) declare(s) that there is no conflict of interest.

**Data availability statement.**

Data available on request from corresponding author.

**Ethical approval.**

Ethical approval was obtained from insti-



tution.

**Patient consent.**

Informed written consent was obtained from the patient for publication of her clinical images

**Methodology.**

A database literature search was made by using the key word “cementoblastoma mandible” in Pubmed database, which revealed only 17 articles from 2012 to 2022.

**References:**

1. Van Hoe S., Shaheen E., de Faria Vasconcelos K. et al. Contribution of three-dimensional images in the planning of cementoblastoma resection. *BJR case reports*. 2021; 7: 20200156. 10.1259/bjrcr.20200156
2. Preto K.A., Neto D.B., Tjioe K.C. et al. Relevance of Cone-beam computed tomography on diagnosis and surgical planning of the cementoblastoma. *Journal of clinical and experimental dentistry*. 2021; 13: 1271-1274. 10.4317/jced.58869.
3. Kumar S., Prabhakar V., Angra R. Infected cementoblastoma. *Natl J Maxillofac Surg [serial online]*. 2011; 2: 200-3. 10.4103/0975-5950.94482
4. Qureshi M.B., Tariq M.U., Abdul-Ghafar J. Et al. Concomitant bilateral mandibular cemento-ossifying fibroma and cementoblastoma: case report of an extremely rare occurrence. *BMC oral health*. 2021; 21: 437. 10.1186/s12903-021-01794-8
5. Wu Y.H., Hu K.Y., Kuo Y.S. et al. Bilateral cementoblastomas of the two mandibular first molars. *Journal of the Formosan Medical Association = Taiwan yi zhi*. 2019; 118: 530-532. 10.1016/j.jfma.2018.09.022
6. Ahire M.S., Tupkari J.V., Chettiankandy T.J. et al. Odontogenic tumors: A 35-year retrospective study of 250 cases in an Indian (Maharashtra) teaching institute. *Indian journal of cancer*. 2018; 55: 265-272. 10.4103/ijc.IJC\_145\_18
7. Suhasini G.P., Wadhwan V., Garg N. Cementoblastoma of a primary molar: A rare pediatric occurrence. *Journal of oral and maxillofacial pathology: JOMFP*. 2020; 24: 548-553. 10.4103/jomfp.JOMFP\_307\_19
8. Hiremath M.C., Srinath S.K., Srinath S. Et al. Benign cementoblastoma associated with primary mandibular second molar: A rare case report. *Journal of oral and maxillofacial pathology*. 2020; 24 (suppl 1): 11-14. 10.4103/jomfp.JOMFP\_2\_20
9. Lam, Suk Wai, Cleven, et al. FOS Rearrangement and Expression in Cementoblastoma, *The American Journal of Surgical Pathology*. 2021; 45: 690-693. 10.1097/PAS.0000000000001695
10. Bruno Ramos Chrcanovic, Ricardo Santiago Gomez. Cementoblastoma: An updated analysis of 258 cases reported in the literature. *Journal of Cranio-Maxillofacial Surgery*. 2017; 45: 1759-1766. 10.1016/j.jcms.2017.08.002
11. Çalışkan A., Karöz T.B., Sumer M., Açıkgöz A., Süllü Y. Benign cementoblastoma of the anterior mandible: an unusual case report. *J Korean Assoc Oral Maxillofac Surg*. 2016; 42 (4): 231-5. doi: 10.5125/jkaoms.2016.42.4.231. Epub 2016 Aug 24. PMID: 27595092; PMCID: PMC5009199.
12. Iannaci G., Luise R., Iezzi G., Piattelli A., Salierno A. Multiple cementoblastoma: a rare case report. *Case Rep Dent*. 2013; 2013: 828373. doi: 10.1155/2013/828373. Epub 2013 Aug 21. PMID: 24027644; PMCID: PMC3763579.
13. Sharma N. Benign cementoblastoma: A rare case report with review of literature. *Contemp Clin Dent*. 2014; 5: 92-4.
14. Grewal H.K., Goel P., Batra R., Chopra S. A tender swelling of the left posterior mandible: An unusual case. *J Oral Maxillofac Pathol*. 2014; 18 (2): 332. doi: 10.4103/0973-029X.140929. PMID: 25328327; PMCID: PMC4196315.