

# Cemento-ossifying fibroma

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## Abstract

The cemento-ossifying fibroma is classified as a fibro-osseous lesion of the jaws. It commonly presents as a progressively growing lesion that can attain an enormous size with resultant deformity if left untreated. A case of cemento-ossifying fibroma involving the left mandible is described in a 35 year old female patient. The clinical, radiographic and histological features as well as surgical findings are presented. The cemento-ossifying fibroma is a central neoplasm of bone as well as the periodontium which has caused considerable controversy because of the confusion regarding terminology and the criteria for its diagnosis.

**Keywords:** Cementifying fibroma, fibro-osseous lesion, jaw tumor

## Introduction

The concept of 'fibro-osseous lesions' of bone has evolved over the last several decades and now includes two major entities: fibrous dysplasia and ossifying fibroma, as well as the other less common lesions such as florid osseous dysplasia, periapical dysplasia and focal sclerosing osteomyelitis. Fibro-osseous lesions of the jaws have been classified by Waldron<sup>[1]</sup> and Kramer *et al.*<sup>[2]</sup> In the nomenclature by Kramer *et al.*<sup>[2]</sup> the cemento-ossifying fibroma is described as an osteogenic neoplasm, and the fibrous dysplasia has been described as a non-neoplastic bone lesion. The cemento-ossifying fibromas or ossifying and cementifying fibromas have been described as well demarcated or rarely encapsulated neoplasms, consisting of fibrous tissue containing varying amounts of mineralized material resembling bone and/or cementum.<sup>[2]</sup> These benign fibro-osseous lesions can arise from any part of the facial skeleton and skull with over 70 per cent of cases arising in the head and the neck region and principally in the jaws.<sup>[3,4]</sup> Menzel gave the first description of a variant of ossifying fibroma, which was a benign fibro-osseous neoplasm, calling it as a cemento-ossifying fibroma

in the year 1872.<sup>[5]</sup> In 1992, the World Health Organization (WHO) revised the nomenclature, and the separate lesions of cementifying fibroma and ossifying fibroma were named as a single entity of "cemento-ossifying fibroma".<sup>[6]</sup> Larger lesions with size over 80 mm in their greatest diameter have been termed as 'giant ossifying fibroma'.<sup>[7,8]</sup> The recurrence of these benign tumors following surgery is considered rare. However, Eversole and his co-workers in a study of 64 cases of cemento-ossifying fibroma reported a recurrence rate of as high as 28 per cent following surgical curettage of these lesions.<sup>[9]</sup> Radiologically, cemento-ossifying fibroma shows a number of patterns depending on the degree of mineralization of the lesion. The latter manifests as a well delimited unilocular lesion containing variable amounts of radio-opaque material.<sup>[2-4]</sup>

## Case Report

A 35 year old female patient reported with a complaint of swelling on the lower left jaw since past 2 months [Figure 1]. The swelling was gradually increasing in size. It was present on the body of mandible and extended along the inferior border of the mandible up to the submandibular region. It was bony hard in consistency, and tender along the mental nerve region. Intra-orally, the swelling was present in the buccal vestibule and was extending from 33 to 37 and approximately measured 3 cm x 1 cm. The overlying mucosa was normal in appearance. 35, 36 and 37 were mobile and tender on percussion. Patient also had a history of pus discharge from left ear, which resolved spontaneously. Lateral oblique radiograph revealed a well-defined radio-lucency of size approximately 6.5 x 3cm [Figure 2]. Computed tomography (CT) scan showed expansion of the buccal and lingual cortical plates of the mandible [Figure 3]. Provisionally, the lesion was diagnosed as fibro-osseous lesion/ameloblastoma. Surgical enucleation with curettage of the lesion was done [Figures 4, 5]. Histopathological picture had shown highly cellular fields with some calcified areas. Cellular component was composed of fibroblasts arranged in different patterns. Calcified areas appeared to be composed of cementum

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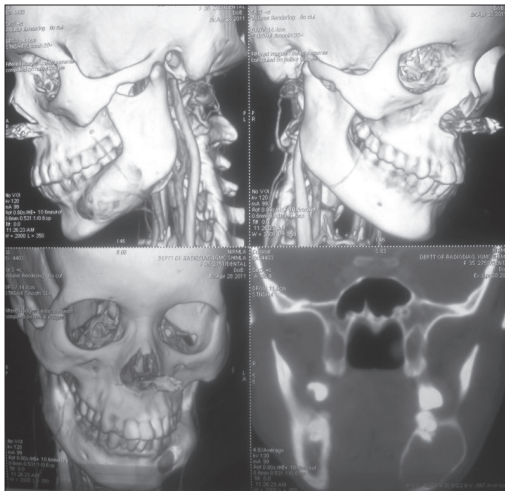
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**Figure 1:** Patient in the case report showing swelling in the region of the lower left mandible



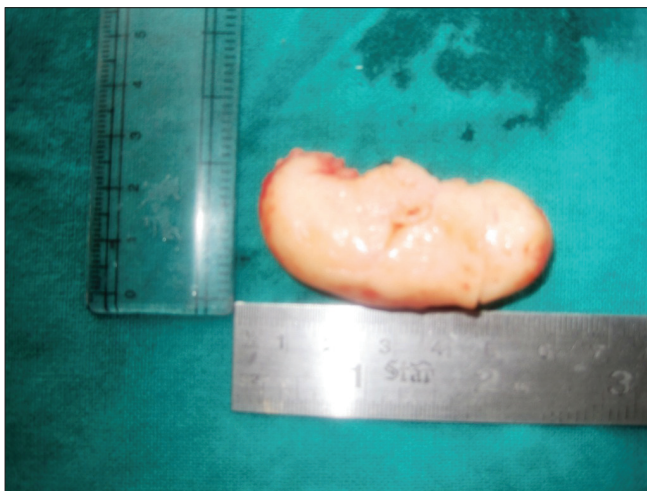
**Figure 2:** Lateral oblique radiograph showing a well defined radiolucency of the approximate size of 6.5 x 3 cm



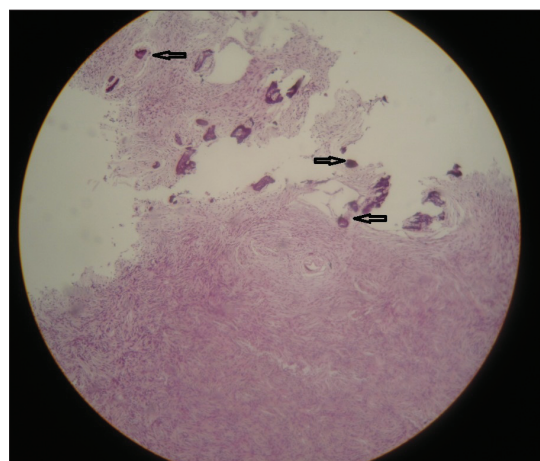
**Figure 3:** Computed tomography scan showing expansion of the buccal and lingual cortices of the mandible



**Figure 4:** Surgical enucleation with curettage of the lesion of the patient mentioned in this case report

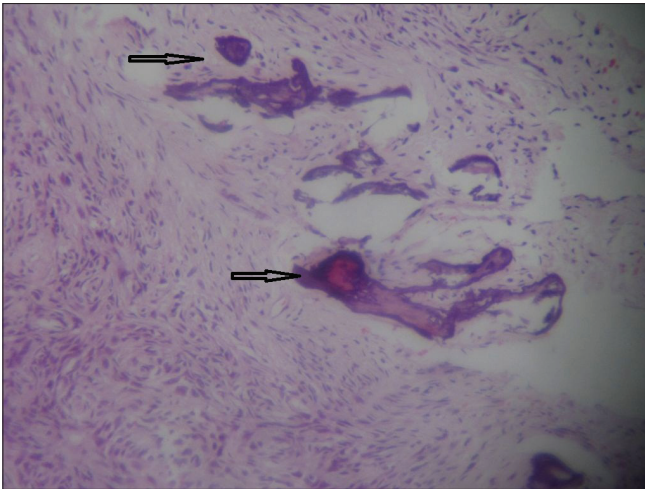


**Figure 5:** Enucleated lesion of the patient mentioned in this case report



**Figure 6:** Photomicrograph of the histopathological examination (H & E staining) of the lesion showing highly cellular fields with calcified areas (x10)





**Figure 7:** Photomicrograph of the histopathological examination (H & E staining) of the lesion showing highly cellular fields with calcified areas (x40)

like material [Figures 6, 7]. The lesion was diagnosed as a cemento-ossifying fibroma. Patient was reviewed after 2 months of surgery, and the follow up revealed that the size of the swelling had decreased and healing had taken place.

## Discussion

Cemento - ossifying fibroma is a benign fibro-osseous-tumor.<sup>[10]</sup> These tumors are thought to arise from the periodontal ligament, and are composed of varying amounts of cementum, bone, and fibrous tissue. Eversole *et al.* reported that the production of these cementum like structures may be associated with membranous bone, and may not only be related to cementogenesis.<sup>[9]</sup> The WHO classifies cemento-ossifying fibroma as a fibro-osseous neoplasm, included among the non-odontogenic tumors, derived from the mesenchymal blast cells of the periodontal ligament, and with a potential to form fibrous tissue, cement and bone, or a combination of such elements.<sup>[11]</sup> However, there is controversy over such an origin, since tumors of similar histology have been reported in bone lacking periodontal ligament and not located in the maxillary or mandibular regions, such as the ethmoid bone, frontal bone or even long bones of the body (cementiform fibrous dysplasia).<sup>[12]</sup> The hybrid name central cement - ossifying fibroma is also used, as these tumors can display a spectrum of fibro-osseous lesions, ranging from those with only deposition of cementum to those with only deposition of bone, and arising from the periodontal ligament.<sup>[13]</sup> These lesions are slow-growing, and are most often seen in women between the third and fourth decades of life.<sup>[1,3]</sup> While one-half of all cases being asymptomatic, the growth of the tumor over time may lead to facial asymmetry; the mass causing discomfort or mandibular expansion, and the possible displacement of dental roots.<sup>[14]</sup> Although the underlying exact cause is not known yet, majority of the cases in literature have

been found to have a history of trauma in the area of the lesion.<sup>[15]</sup> In accordance with the data found in the literature, our patient reported to have suffered from trauma in the affected area 7 years ago. Thus, this points to trauma as a possible triggering factor, postulating the lesion to be a connective tissue reaction rather than a genuine neoplasm.<sup>[16]</sup> The recommended treatment of the central cemento-ossifying fibroma is excision. Due to the good delimitation of the tumor, surgical removal and curettage is also a treatment of choice.<sup>[17]</sup>

## References

1. Waldron CA. Fibro-osseous lesions of the jaws. *J Oral Maxillofac Surg* 1993;51:828-35.
2. Kramer IR, Pindborg JJ, Shear M. Histological typing of odontogenic tumours. 2<sup>nd</sup> ed. Berlin: Springer-Verlag; 1992. p.27-33.
3. Cakir B, Karaday N. Ossifying fibroma in the nasopharynx: Acase report. *Clin Imag* 1991;15:290-2.
4. Mitrani M, Remsen K, Lawson W, Biller H. Giant ossifying fibroma of the maxillary sinuses. *Ear Nose Throat J* 1988;67:186-92.
5. Hamner JE 3rd, Scofield HH, Cornyn J. Benign fibro-osseous jaw lesions of periodontal membrane origin: An analysis of 249 cases. *Cancer* 1968;22:861-78.
6. Ghom AG. Text book of Oral medicine, 2nd edition. New Delhi: Jaypee Brothers Medical Publishers; 2010. p. 308
7. Van Heerden WF, Raubenheimer EJ, Weir RG, Kreidler J. Giant ossifying fibroma: A clinicopathologic study of 8 tumours. *J Oral Pathol Med* 1989;18:506-9.
8. Khanna JN, Andrade NN. Giant ossifying fibroma: Case report on a bimaxillary presentation. *Int J Oral Maxillofac Surg* 1992;21:233-5.
9. Eversole LR, Leider AS, Nelson K. Ossifying fibroma: A clinicopathologic study of sixty-four cases. *Oral Surg Oral Med Oral Pathol* 1985;60:505-11.
10. Galdeano-Arenas M, Crespo-Pinilla JI, Álvarez-Otero R, Espeso-Ferrero A, Verrier-Hernández A. Fibroma cemento-ossificante gingival mandibular. presentación de un caso. *Med Oral* 2004;9:176-9.
11. Liu Y, Wang H, You M, Yang Z, Miao J, Shimizutani K, *et al.* Ossifying fibromas of the jaw bone: 20 cases. *Dentomaxillofac Radiol* 2010;39:57-63.
12. Goh EK, Cho KS, Lee IW, Chon KM. A case of isolated ossifying fibroma of the mastoid cavity of the temporal bones. *Am J Otolaryngol* 2006;27:358-61.
13. Tamiolakis D, Thomaidis V, Tsamis I. Cementoossifying Fibroma of the Maxilla: a Case Report, *Acta Stomatol Croat*, 2005;39:319-21.
14. Sanchis JM, Peñarrocha M, Balaguer JM, Camacho F. Fibroma cemento-ossificante mandibular: Presentación de dos casos y revision de la literatura. *Med Oral* 2004;9:69-73.
15. Brademann G, Werner JA, Janig U, Mehdorn HM, Rudert H. Cemento-ossifying fibroma of the petromastoid region: case report and review of the literature. *J Laryngol Otol* 1997;111:152-5.
16. Feller L, Buskin A, Raubenheimer EJ. Cemento-ossifying fibroma: case report and review of the literature. *J Int Acad Periodontol* 2004;6:131-5.
17. Rangil JS, Silvestre FJ, Bernal JR. Cemento-ossifying fibroma of the mandible: Presentation of a case and review of the literature *J Clin Exp Dent* 2011;3:e66-9.

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