

# Recurrent Cemento-Ossifying Fibroma of Mandible: A Case Report

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## Abstract

Cemento-Ossifying Fibroma is a slow growing, benign non-odontogenic neoplasm most commonly found in the jaws. This tumor is most common in jaws and is related to vast amount of mesenchymal cellular induction into the bone (Lamina Dura) and cementum required in odontogenesis. Mandible shows greater predilection than maxilla. .

A 45 year old female patient presented with a solitary swelling in left mandible posterior region with gradual increase in size within a period of 1 year. The patient also gave the history of two previous surgeries done before recurrence of the lesion one year back. CT scan report revealed heterodynes lesion with irregular expansion of buccal and lingual cortical plates following which Left Segmental Mandibulectomy was done for the patient. The excisional tissue showed connective tissue stroma comprising of cellular and fibrous component. The cellular component shows moderate degree of cellular and nuclear pleomorphism having nuclei shaped from oval to spindle and irregular. The fibrous stroma shows whorling, fascicular and storiform pattern and is mainly associated with the presence of immature bone, osteoid and cementum like spherules along with the fibro cellular component. No inflammatory cells are seen in the stroma with minimal atypia. Final diagnosis of Cemento Ossifying Fibroma was given.

**Keywords:** Fibro-osseous lesions, mandible, ossifying fibroma

## Introduction

Cemento-ossifying fibromas (COFs) are benign, non odontogenic tumors of the jaw, a subdivision of fibro-osseous lesions characterized by massive deposition of cementum, cementoid substance or calcified material admixed with predominantly fibrous tissue. Branon and Fowler were the first to use the term “OF” in place of COF, and the recent WHO (2005) edition of the classification of odontogenic neoplasms has replaced the term COF with OF(1). As early as 1872, Menzel gave the first description of a variant of OF, calling it a COF, in a 35-year-old woman with long-standing large tumor of the mandible. Radio graphically, COF presents as a well-defined unilocular or multilocular lesion with smooth contours. The maturity of the lesion will determine the degree of radiopacity [1-2].

The immature lesions may present as a complete radiolucent lesion whereas the mature lesion may appear completely radiopaque. However, they can present with varying degrees of radiolucency [1-2]. Histological, COFs are well-circumscribed, occasionally encapsulated, consisting of cellular fibrous tissues and thin isolated trabeculae of bones. The bone may show osteoblastic rimming and spherical deposits of calcified material, which are relatively acellular resembling cementum [1,2 and 4]. Fibro-osseous lesions are a heterogeneous group of

benign lesions of unknown aetiology, affecting the jaws and other craniofacial bones. Lesions in this category include fibrous dysplasia (FD), focal cemento-osseous dysplasia (FCOD) and COF1. The group often exhibits resemblance in clinical presentation, radiographic appearance and histological criteria, therefore, poses difficulties in classification, diagnosis and management [1].

## Case Report

A 45 year old female patient was referred to our hospital with a painless swelling in left mandible since 1 year. She gives history of swelling gradually increasing in a course of 1 year. Clinically extra oral swelling was evident and skin over the lesion was normal. No lymph node enlargement was noted. Patient gives a history of previous 2 surgeries for the same region. Upon palpation the swelling is smooth, non-tender and bony hard in consistency.

**Extra Oral View**

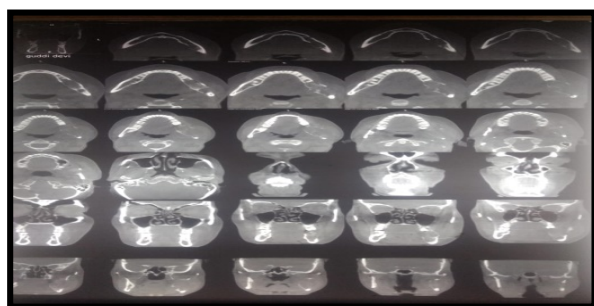
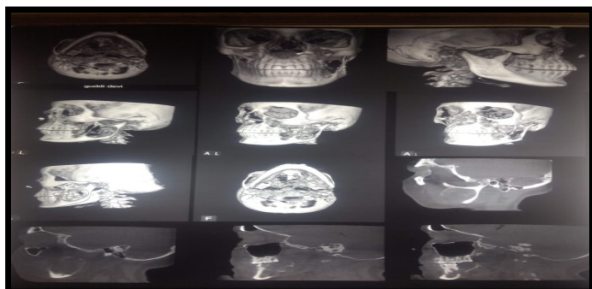


**Figure 1**



**Figure 2**

CT scan shows heterodynes lesion with irregular expansion of buccal and lingual cortical plates. Third surgery was planned and at the left segmental mandibulectomy was done.



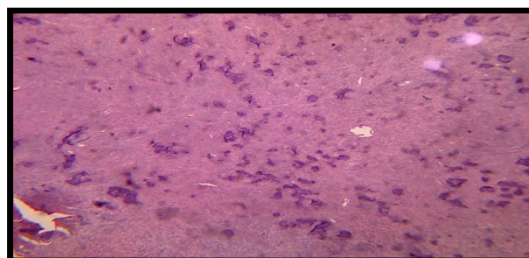
**Figure 3(left) & Figure 4(right) Computed Tomography reveals heterodynes lesion with irregular expansion of buccal and lingual cortical plates, involving coronoid, ramus and angle of mandible. Expansion is both anteroposteriorly and buccolingually.**

Grossly, specimen consisted of left partial mandibulectomy with 35, 36 intact and missing 37. The lesion extends and involves completely the coronoid process, the ramus and the angle of mandible extent ending both anteroposteriorly and buccolingually. Cortical bone expansion was evident. Margins of the lesional tissue were inked using INDIA INK.

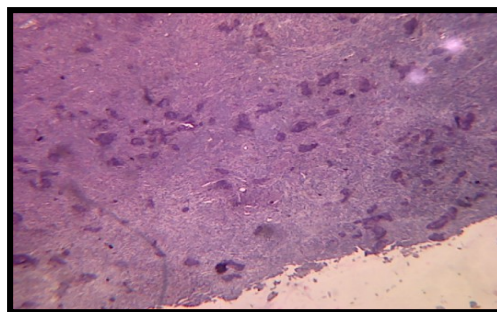


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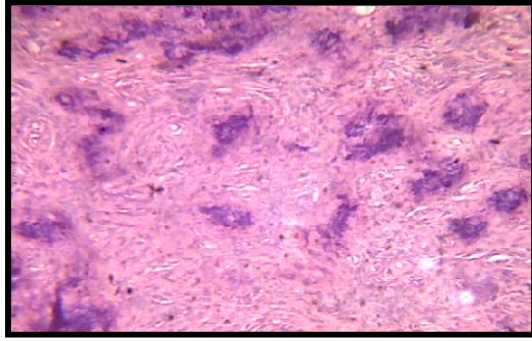
Histopathologically areas of ossification and cementum like deposits or spherules seen within the background of cellular fibrous connective tissue stroma. The lesion was given a final diagnosis of **Cemento-Ossifying Fibroma**



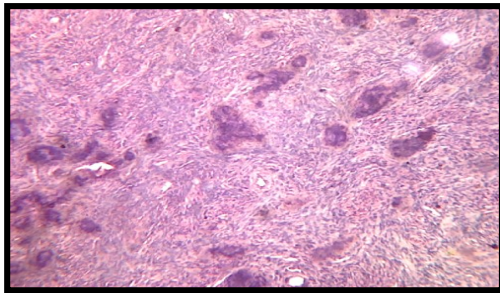
**Photomicrograph 1: 4x**



**Photomicrograph 2: 10x**



Photomicrograph: 20x



Photomicrograph: 40x

Photomicrograph shows connective tissue stroma comprising of cellular and fibrous component. The cellular component shows moderate degree of cellular and nuclear pleomorphism having nuclei shaped from oval to spindle and irregular. The fibrous stroma shows whorling, fascicular and storiform pattern and is mainly associated with the presence of immature bone, osteoid and cementum like spherules along with the fibro cellular component. No inflammatory cells are seen in the stroma with minimal atypia

## Discussion

Cemento-ossifying fibroma is a benign fibro-osseous tumor. It is a slow-growing lesion most often seen in women between the third and fourth decades of life. While one-half of all cases are asymptomatic, the growth of the tumor over time may lead to facial asymmetry, with the appearance of a mass causing discomfort or mandibular expansion, and the possible displacement of dental roots.

This case was previously operated two times for the same region with a diagnosis of Ameloblastoma, but its recurrence led to another diagnosis of Cemento-Ossifying Fibroma when she was referred to our hospital. The World Health Organization 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, with a

potential to form fibrous tissue, cement and bone, or a combination of such elements. 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 region, such as ethmoid bone, frontal bone or even long bones of the body (cement form fibrous dysplasia). Clinically, the tumor tends to present as a slow-growing intrabony mass most often located in the region of the mandibular premolars and molars and in the ascending ramus. Radio logically, these tumors may present a number of patterns depending on their degree of mineralization Two basic patterns have been defined: one characterized by the presence of a unilocular or multilocular radio transparent image, and another showing mixed density due to a variable internal amount of radiopaque material [1]. The margins of the lesion are relatively well defined and present a peripheral osteocondensation zone. The histological study shows the presence of generally hypercellular fibrous tissue with the occasional presence of islands of bone tissue or cementiform calcifications. Within the fibrous stroma we observe mineralized tissue masses of basophilic appearance, corresponding to osteoid material or cement distributed throughout the lesion to one degree or other, and accompanied by dystrophic calcifications with darker or basophilic staining characteristics Due to the good delimitation of the tumor, surgical removal. The prognosis was good as segmental hemimandibulectomy was performed. Patient is on follow up on every 6 months.

## Conclusion

This is an unusual case of Cemento Ossifying Fibroma (COF) in which a well circumscribed bony swelling persisted even after 2 surgical procedures. Normally COF's, shell out easily at surgery because of its well circumscribed nature. The recurrence rate of mandibular COF's is as high as 28%- 30% with overall good prognosis and in this case after third surgical exploration was done through segmental mandibulectomy unlike conservative surgical enucleation done in previous two occurrences , the chances of recurrence or any residual tumor is minimum.

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