



## Giant Cemento-Ossifying Fibroma

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### ABSTRACT

*The cemento-ossifying fibroma is classified as a non-odontogenic fibro-osseous neoplasm with a potential to form fibrous tissue, cement and bone, or a combination of such elements. It is a rare, benign, slow-growing tumour most commonly involving the mandible and can attain an enormous size with the resultant facial deformity if left untreated. We report a case of cemento-ossifying fibroma involving the right mandible in a seventeen year old male. The clinical, radiological and histopathological features and the course of treatment are described.*

**Keywords:** *cementoossifying fibroma, giant, mandible, fibro-osseous neoplasm, ossifying fibroma.*

### Introduction

Menzel gave the first description of a cemento-ossifying fibroma, describing a variant of ossifying fibroma in 1872 <sup>[1,2]</sup> The WHO defines cemento-ossifying fibroma as a well-differentiated tumour, occasionally encapsulated, comprising fibrous tissue containing variable quantities of calcified material resembling bone and/ or cement.<sup>3</sup> It is generally found to occur between the second and fourth decades, with a female

preponderance(5:1). Mandible is the most frequently involved bone (the premolar and molar regions). Rarely, the maxilla, paranasal sinuses and nasal cavity may be involved.<sup>4</sup> The progression is slow and recurrence following surgical excision rare.

### Case Report

A seventeen year old male presented to our department with the chief complaint of a painless

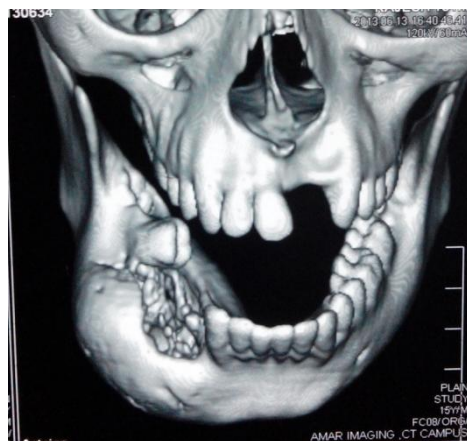
swelling of the right jaw of three years duration which was gradually increasing in size (figure 1). The medical and dental histories were unremarkable. On examination, we found a large, well-defined swelling around the right side of mandible measuring approximately 8cm X 8cm with a small pus-point over it (superimposed infection). On palpation, the swelling was non-tender with a uniform bony consistency. On intra-oral examination, there was buccolingual expansion of the lesion with the loss of overlying teeth (extracted during pre-operative biopsy of the lesion performed by the patient's referring doctor). No cervical lymph nodes were palpable and no sensory or motor nerve deficits were found in the region. The right temporo-mandibular joint and jaw movements were found to be in the normal range.

Routine blood investigations were performed and found to be within normal limits. CT scan revealed an expansile lytic lesion along the angle and body of mandible. The three-dimensional reconstruction of the CT demonstrated the full extent of the lesion (figure 2). A pre-operative biopsy confirmed the diagnosis of ossifying fibroma.

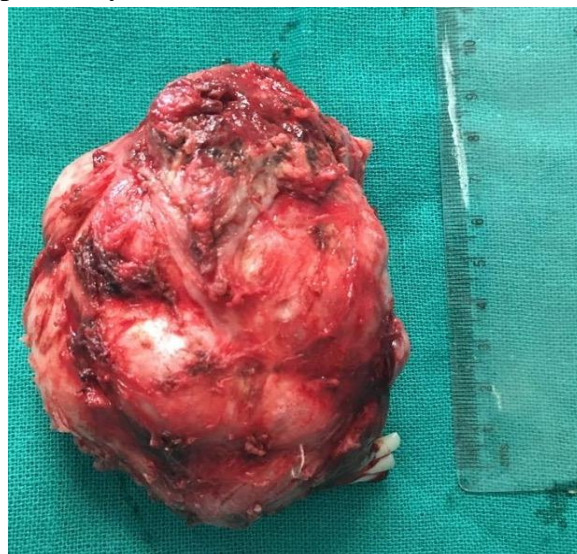
The patient underwent right segmental mandibulectomy for complete excision of the tumour (figure 3). The resultant defect was reconstructed by a free fibular graft using titanium plates for fixation. The post-operative period was uneventful and he was discharged one week after the surgery. The histopathology report of the operative specimen was consistent with the diagnosis of cemento-ossifying fibroma (figure 4). The patient is on regular follow-up and continues to be in good health.



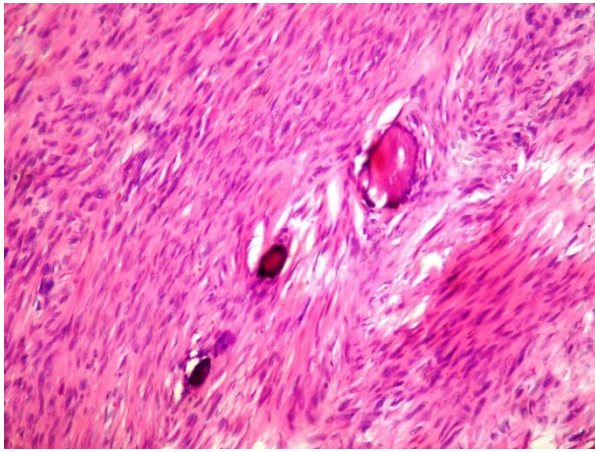
**Figure 1:** Preoperative image of the patient.



**Figure 2:** 3D- reconstructed computed tomography image of the tumor showing expansile lytic lesion of mandible.



**Figure 3:** Excised specimen.



**Figure 4:** Histopathological images showing cellular fibroelastic tissue with cementum-like material.

### Discussion

Cemento-ossifying fibroma is a benign osteogenic tumour with membranous ossification. It therefore involves exclusively the maxillofacial bones.<sup>5-7</sup> It arises from multipotent mesenchymal cells in the periodontal ligament and is generally regarded as one of a continuing spectrum of jaw tumours which form bone, cementum and fibrous tissue.<sup>8</sup> Its presence in anatomical regions not associated with periodontal membrane is unexplained and may be due to differentiation of primitive mesenchymal cells to produce calcified material. Clinically, it presents as a slowly enlarging lesion, most commonly in the premolar-molar area of the mandible, rarely in the maxilla, ethmoidal and orbital regions.<sup>9</sup> Majority of the cases in literature were found to have a history of trauma in the area of the lesion.<sup>10</sup> No history of trauma was given by our patient.

Radiographically, it may present as a radiolucent, radiopaque or mixed density lesion depending on the degree of maturity. It usually causes expansion of the bony cortex without any signs of erosion.<sup>9</sup> On CT, it presents as a well-differentiated mass having the same density as bone with central low-density areas, pushing the neighbouring structures without destroying them.<sup>5</sup> The differential diagnoses include fibrous dysplasia, cemento-osseous dysplasia, condensing osteitis, Pindborg tumour and odontoma, all of which can be differentiated due to their characteristic

radiological features.<sup>11</sup> Histologically, cemento – ossifying fibroma is usually composed of cellular fibroblastic tissue containing little or plenty of mineralized tissues- bone (woven and lamellar), cementum like material and dystrophic calcification.<sup>12</sup>

The treatment is complete resection of the tumour as was performed in our case. As the lesion is well-circumscribed it is also amenable to enucleation with the curettage of the residual cavity. Recurrence rates are variable: 10- 28% following enucleation and 5% after resection.<sup>13</sup>

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