Cemento Ossifying Fibroma – A Case Report

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Abstract

Cemento ossifying fibroma is a rare, benign, non-odontogenic, fibro-osseous neoplasm, commonly seen in jawbones and other cranial bones characterized by replacement of normal bone by fibrous tissue and varying amounts of newly formed bone or cementum-like materials, or both. They usually arise from tooth-bearing areas of the bone. A case of cemento-ossifying fibroma involving maxilla in a 58-year-old male patient is described here.

Keywords: Cemento ossifying fibroma, Fibro-osseous lesion, Odontogenic tumour.

Introduction

Cemento-ossifying fibroma (COF) is a rare benign fibro-osseous neoplasm, most commonly arising from the maxilla and mandible.[1] It is a subdivision of fibro-osseous lesions characterized by massive deposition of cementum, cementoid substance, or calcified material admixed with predominantly fibrous tissue.[2] They are more common in female, male to female ratio is 1:3.2 to 1:4.3 commonly seen in the third to fourth decades of life. About 79.6% of tumors were diagnosed before 40 years of age and 58.6% before 30 years of age.[3] Lesions arise most frequently in the molar region (52%) and are followed by the premolar area (25%), incisor area (13%), and cuspid region (11%). On 70–90% of all tumors are in the mandible.[4] The tumor appears as intrabony slow-growing asymptomatic mass causing expansion of cortical plate, displacement of the root, and facial deformity.[5] Radiographically in the early stages, the COF appears as a radiolucent lesion with no evidence of internal radiopacities. As the tumor matures, there is increasing calcification so that the radiolucent area becomes flecked with opacities until ultimately the lesion appears as an extremely radiopaque mass. Displacement of adjacent teeth is common. One additional important diagnostic feature is that there is a centrifugal growth pattern rather than a linear one and therefore the lesions grow by expansion equally in all directions and present as a round tumor mass.[6] The management of the tumor is done through surgical enucleation or resection. Recurrence rate is <5%. There is no evidence that ossifying fibroma can undergo malignant transformation.[7]

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Case Report

A 58-year-old male patient reported with the chief complaint of painful swelling on the left side of the face for 3 weeks. The swelling was painful and gradually increased in size. All routine investigations were done. The medical, social, and family histories were unremarkable. On general examination, the patient was calm, cooperative, conscious, well oriented, afebrile, well built, and well nourished. On extra-oral examination, facial asymmetry was seen. Diffuse swelling of size 4 × 3 cm (app.) was seen on the left side of the face on the zygomaticomaxillary region extending superoinferiorly from Zygomatic arch to commissure of the lip of left side, anteroposterior involving ala of the nose to the outer canthus of the eye. Obliteration of the Nasolabial fold was seen on the left side of the face. On palpation, the swelling was hard, tender, and afebrile. On intraoral examination, inspection revealed a well-defined swelling of size 5 × 4 cm (app.) on the left palatal region extending anteroposteriorly from 24 region to posterior aspect of maxillary tuberosity region, mediolaterally 1 cm from the midpalatal region to the gingivobuccal sulcus on the left side and buccal vestibule obliteration was seen. On palpation, it was tender and hard in consistency (Figure 1).

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Based on the history and clinical examination, the provisional diagnoses of central ossifying fibroma were considered and fibrous dysplasia, ameloblastic fibro-odontoma, calcifying epithelial odontogenic tumor, and odontogenic cysts were considered as the differential diagnosis.

CT of paranasal sinuses and CT of neck with contrast were done and the impression was a large, multilobulated well marginated calcified mass of size 3.7 × 4.2 × 3.5 cm. Sclerotic rim involving the left maxillary bone including the inferior wall and lower parts of anterior, medial, and lateral walls of the left maxillary sinus involving the apices of the left upper molars and first premolar. Involvement of the alveolus and extends medially involving the left half of the hard palate and bulges into the oral cavity. The nasal septum has deviated to left with a bony spur (Figure 2).

Fine-needle aspiration was negative and histopathological examination was done. The histopathology revealed elongated spindle shaped cells arranged in sweeping interlacing bundles also tend to form vague whorled pattern. Cells have moderate amount of cytoplasm and ovoid nuclei. They are interspersed with basophilic psammoma such as bodies and cementum. There are also areas of mature lamellar bone with osteoblastic rimming. Based on radiographic and histopathological examination, the final diagnosis of cemento ossifying fibroma was confirmed (Figure 3). It is then surgically managed and the rehabilitation was done with an obturator (Figure 4).

Discussion

COF is a benign fibro-osseous tumor. These tumors are thought to arise from the periodontal ligament and are composed of varying amounts of cementum, bone, and fibrous tissue.[8] There are three clinicopathological variants: COF, juvenile trabecular ossifying fibroma, and juvenile psammomatoid ossifying fibroma.[9] In 1971, within the WHO histological typing of odontogenic tumors, jaw cysts, and allied lesions, cementifying fibroma was placed in the subcategory, benign cementoma, under neoplasms, and other tumors related to the odontogenic apparatus, while ossifying fibroma was placed in the subcategory, osteogenic neoplasms, under neoplasms, and other tumors related to bone, implying it to be a separate entity. Further, in 1992, within

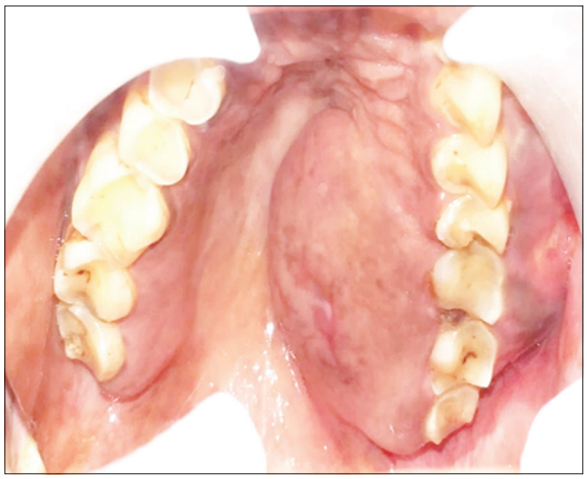

Figure 1: Pre-operative intraoral

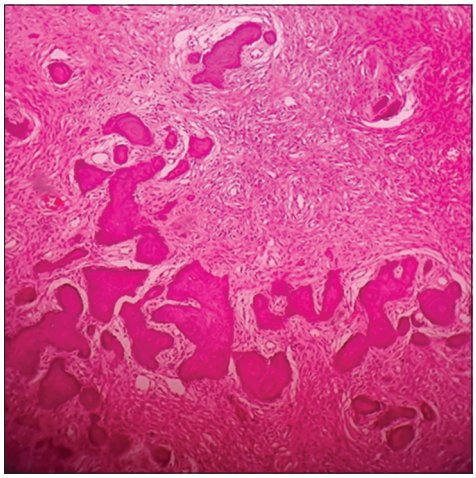

Figure 3: Histopathological photomicrograph using H/E stain (×10)

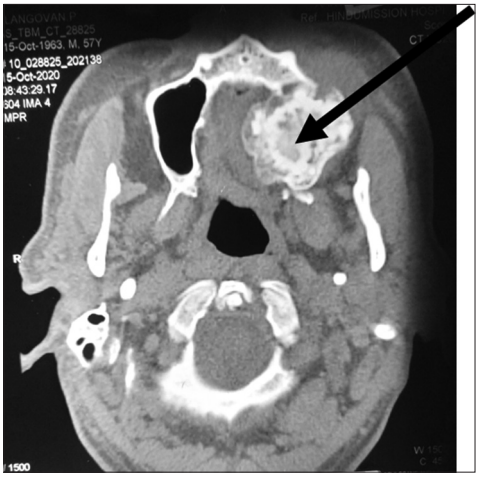

Figure 2: CT image showing the lesion

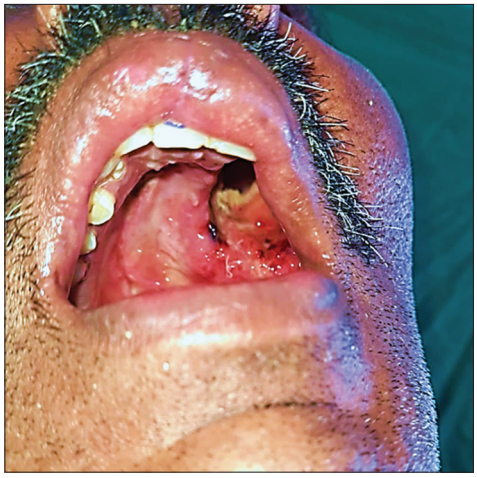

Figure 4: Post-operative intraoral image

the WHO histological typing of odontogenic tumors, COF (cementifying fibroma and ossifying fibroma) was grouped in the subcategory, osteogenic neoplasms, under neoplasms, and other lesions related to bone.[10] There are different views in the literature regarding sex predilection several authors report COFs as having a female predilection, and a few suggest equal distribution between genders. However, in a review of 75 patients, by Su *et al*.,[11] there was equal sex predilection among different age groups but female predominance was noted only in the fourth decade of life. The mandible was the site of predilection, accounting for 89% of the cases Lesions arose most frequently in the molar region (52%), followed by the premolar area (25%), incisor area (13%), and cuspid region (11%). On radiographic measurements they varied in size from 1 cm to more than 5 cm in diameter.[12] Histologically, COF is composed of hypercellular fibroblastic stroma containing variable amounts of osteoid or bone and cementum-like tissue osteoblastic rimming of bone trabeculae is evident. And moreover, a critical approach toward the clinical, radiological, and histopathological features are warranted for a definitive diagnosis. Treatment varies from enucleation to *en bloc* resection; the prognosis is known to be fair and recurrence is rare. The recurrence rate of maxillary central COFs is likely to be higher because of the greater difficulty of their surgical removal and larger size at the time of presentation.[13]

Conclusion

Cemento-ossifying fibroma is a rare odontogenic benign tumour, occasionally seen in men, and having a significant site predilection for the mandibular molar. The most common clinical presentation is asymmetry of the face with cortical expansion. The radiological pattern varies with the stage and progression of the tumour. Moreover, a critical approach towards the clinical, radiological and histopathological features is required for a definitive diagnosis.

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