

Cementifying Fibroma of the Mandible – A Case Report

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ABSTRACT

Cementifying fibromas are rare fibro-osseous lesions that affect the jawbone and that are included by Gorlin in the group of mesodermal odontogenic tumours. Four separate categories have been identified: Periapical cemental dysplasia, benign cementoblastoma, cementifying fibroma and a rare gigantiform variety. The current case is reported because of rarity of such lesions and the paucity of information concerning them in the dental literature. We believe that this case illustrates many of the clinical, radiographic and histologic features associated with cemento-ossifying tumours.

Key Words: Fibro-osseous tumors, Cemento-Ossifying Fibroma, mandible, radiology, histology.

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Cementifying fibroma is considered by most to represent a benign neoplasm arising from undifferentiated cells of the periodontal ligament tissues. This lesion has been referred to as osteofibroma, fibro-osteoma and benign fibroosseous lesion of periodontal ligament origin(1). This lesion shares identical clinical, radiographic and histopathological features with a lesion previously termed as cementifying fibroma. In fact it is now widely accepted that these lesions are one and the same, prompting use of the term cemento-ossifying fibroma by some. Support for a neoplastic etiology for ossifying fibroma includes examples of persistent, locally aggressive growth characteristics and the finding of recurrence in some cases. Chromosomal translocations have been described in a few cases of ossifying fibroma. In view of microscopic similarities with fibrous dysplasias and the cementoosseous dysplasias, some investigators regard the lesion as an example of a localized dysplastic process in which bone metabolism has been altered.

Clinically certain characteristics are true of entire group, slow growth and lack of symptoms are the cardinal features. On rare occasions, however, pain or paraesthesia may be elicited if pressure on an adjacent nerve ensues. Expansion of both buccal and lingual plates is associated with the larger lesions. Teeth in association with the lesion, retain their vitality and, as a rule, there is no associated root resorption(2).

Radiographically, various appearances may be observed that,

in some cases, may be highly suggestive of the diagnosis. Zegarelli and others(3), in a study of 67 lesions of Periapical cemental dysplasia in 30 patients, observed that the progression from the fibroid or radiolucent stage through the period of gradual calcification, until actively appeared to cease, either with complete sclerosis or at some stage short of this could take up to 20 years. Stafne believes that once calcification begins the growth of the lesion will not exceed the area of radiolucency(4).

The lesions that cause the main problems in diagnosis are the giant cemental tumors with a predominantly fibrous element represented as a radiolucent area in which some areas of calcification are usually evident.

Case report

A 24 year old female patient was referred by a dentist to the department of oral and maxillofacial surgery at ITS Centre for Dental Studies and Research, Murad Nagar, Ghaziabad, UP, India. She had been to the dentist four years back because of pain in right mandibular premolar region. The dentist at that time had done a root canal treatment for right mandibular lateral incisor, canine and premolars. The patient had become asymptomatic after that, but in due course of time the pain resumed again. When the patient reported to our hospital, there were no subjective symptoms other than the history of pain and swelling. No history of trauma to the mandible could be elicited. Her medical history was not contributory and a



Fig 1: Pre-Operative intra-oral photograph showing the lesion

physical examination disclosed no evidence of any systemic disease.

Extraoral examination

During the inspection, only a slight fullness was observed at the right body of mandible. Moreover, with palpation, obvious bony expansion was found to extend from the anterior border of masseter to the canine region, the lower border of mandible is also involved. The lesion was smooth, nontender and hard; there was no accompanying cervical lymphadenopathy.

Intraoral examination

Buccally, a bony hard swelling extending from distal aspect of the right second molar to the right canine region was seen (Fig. 1). It had obliterated the sulcus and extended to the lower border of the mandible. The mucosa over the area was normal. No sinuses, delayed healing or fluctuation could be found. The right mandibular lateral incisor, canine and premolars were firm, non vital and root canal treated. Apart from poor oral hygiene, the rest of the oral cavity showed no unusual features.

Radiographic examination

Radiographs of the skull, jaws, chest, intraoral occlusal, IOPA and OPG were taken. The only abnormal finding was a lesion in the right mandible (Fig. 2). The latter was a well-demarcated multilocular radiolucent area that contained small foci of calcification. It occupied the area corresponding to the clinical swelling ie anteroposteriorly from mesial surface of right mandibular canine to distal surface of right mandibular first molar. Superoinferiorly it involved the apices of the teeth 43 to 48 and extended inferiorly to within 2 mm of lower border. No root resorption or tooth displacement was seen. The inferior alveolar canal was noticeable and displaced towards the lower border of the mandible. The bone beyond the periphery of the lesion appeared normal. The occlusal radiograph disclosed

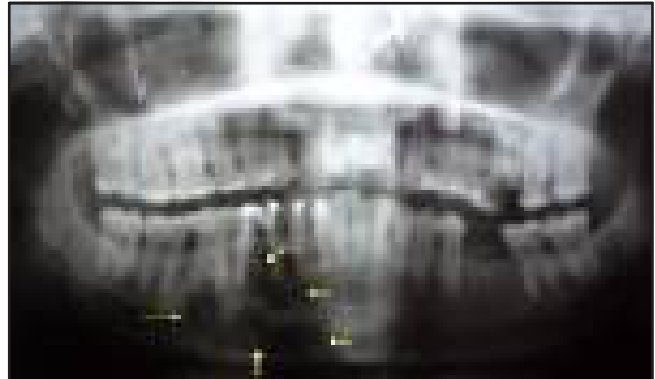


Fig 2: Panoramic radiograph showing lesion in the right mandible

reduced thickness of the buccal cortical plates with definite expansion but there was no evidence of subperiosteal new bone formation.

Special investigations

Heamoglobin estimation, total and differential white blood cell counts, serum protein, calcium, phosphorus and alkaline phosphatase estimations were all within normal limits, as were result of a urine analysis. Aspiration of lesion was attempted no fluid was obtained; the lesion appeared to be solid throughout.

On the clinical evidence, a differential diagnosis of a benign odontogenic tumor was made. Ameloblastoma was not excluded in view of the definite bony expansion, site of the lesion and multilocular area of radiolucency.

Operative procedure and findings

An anesthetic was administered through a nasal endotracheal tube. A buccal mucoperiosteal flap was reflected exposing the buccal cortical plate from the lower right lateral incisor to the second molar. There was a solid, graywhite mass that occupied the right body of the mandible from canine to the first molar region. The periphery could be traced, it extend superiorly to



Fig 3: Intra-Operative photograph showing the lesion

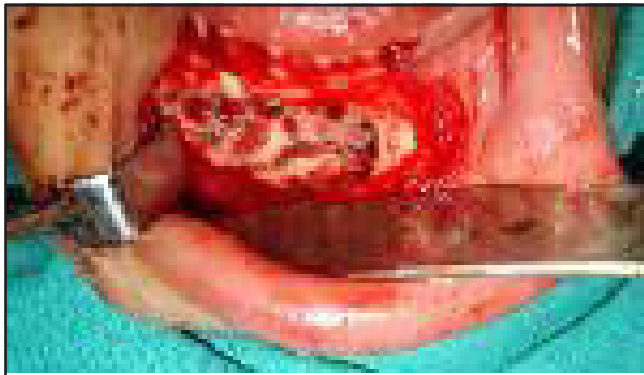


Fig 4: Intra-Operative Photograph Showing the lesion after enucleation and chemical cauterisation

involve the root of the right mandibular canine, premolars and first molar (Fig. 3). Although not encapsulated, the tumor was easily dissected out from the mandible. The neurovascular bundle was located beneath but firmly attached to the lesion and was left intact. After enucleation of the tumor, peripheral ostectomy was done and the bony wall of the cavity and roots of the teeth were thoroughly curetted to ensure that no remnants of the lesion remained. Bleeding was controlled with hot saline gauze sponges. The bony walls were then chemically cauterized using carbolic acid (Fig. 4). The buccal flap was then sutured into position, with number 3-0 black silk sutures.

The specimen consisted of a mass of pinkish-white tissue 4cmx4cmx2cm. The surface was bosselated and smooth, a section was solid throughout and had a gritty texture when cut. The outer 1 cm was gray and firm; the remainder was brown and rather hemorrhagic.

Microscopic examination

Microscopic examination of tissue section showed the lesion to consist mainly of a mass of proliferating fibrous tissue with



Fig 5: Histopathological Picture of the Cementifying Fibroma

the cellular elements predominating (Fig. 5). Several spherical masses of a cellular calcified material resembling cementum were seen through the fibrous tissue and appeared in some region to be merging to form conglomerate masses. Polarizing microscopy confirmed masses were cemental in nature. A diagnosis of Cementifying fibroma was made.

Postoperative process

The patient was discharged from the hospital on the fourth postoperative day and was then seen at two week intervals. This was discontinued two months after surgery, at which time the wound had healed (Fig. 6) except for a mild extraoral swelling and some mental nerve paraesthesia. When the patient was last seen there had been no recurrence of the lesion.

Discussion

25 years ago, Bernier and Thompson(5), observed that the role of the periodontal membrane in the production of cementomas was essentially similar to the process by which fibro-osteoma, ossifying fibroma, and fibrous dysplasias arise. Central cementifying fibromas are a distinct form of benign fibro osseous lesions of the maxilla and mandible. They are thought to arise from the periodontal ligament and are composed of varying amounts of cementum, bone and fibrous tissue.(6) The hybrid name central cementoossifying fibroma is used when there is a spectrum of lesions that arise from the periodontal ligament, ranging from those with only deposition of cementum to those with only deposition of bone. Central cementifying fibromas occur most frequently in women then in men. They arise in 62% to 89% of patients, 77% occurring in the premolar region. Most are diagnosed between 20 to 40 years of age. When this tumor arises in children, it is called as the aggressive cemento-ossifying fibroma which presents at an earlier age and is more aggressive clinically and more vascular at pathologic examination(6). Central cementifying fibromas are



Fig 6: Post-operative intra-oral photo after healing

asymptomatic until they cause expansion. Thus they are generally not diagnosed until the tumor has had time for calcification. Central cementifying fibromas are typically well-circumscribed, solitary radiolucencies with scattered radiopaque foci. They maintain a spherical shape, expand the surrounding cortical bone without cortical perforation, and may cause tooth divergence. Large tumors may involve the nasal septum, orbital floor, and infraorbital foramen. The extent of the tumor guides surgical therapy.

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