

Central Cemento-ossifying fibroma – A rare case report in Maxilla

¹Dr. Veera Kumari, MDS, Asst. Professor, Dept of oral medicine and radiology, KIM's dental college Amalapuram

²Dr. Reddy Sudhakara Reddy, Professor and Head of Department, Department of Oral Medicine And Radiology, Vishnu Dental College, Bhimavaram

³Dr. Ramesh Tatapudi, Professor, Department of Oral medicine and radiology, Vishnu Dental College, Bhimavaram

⁴Dr. Hima Bindu Mannava, Asst Professor, Department of Oral medicine and radiology, Vishnu Dental College, Bhimavaram

Corresponding Author: Dr. Veera Kumari, MDS, Asst. Professor, Dept of Oral Medicine and Radiology, KIM's Dental College, Amalapuram.

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Abstract

Introduction: Cemento ossifying fibroma is benign lesions which affects craniofacial structures and jaws. It is predominantly seen in female between third and fourth decades of life and most common site of predilection is premolar and molar region of mandible. These lesions show slow expansile growth and some time they may behave in an aggressive manner.

Case report: A 33 year old male patient came with pain in right upper right back teeth region since 1 month. The patient presented with no medical history and intra oral examination revealed a diffuse oval swelling in 18 tooth regions. Radiovisiography and CBCT showed mixed radiolucent and radio opaque lesion in association with 18 tooth region. Excisional biopsy revealed a definitive diagnosis of central cement ossifying fibroma.

Discussion: The world health organisation classified cemento ossifying fibroma as fibro osseous neoplasm.

These lesions are 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. Due to good delimitation, surgical excision and curettage is the treatment of choice.

Keywords: cemento ossifying fibroma, benign fibro osseous lesions, maxilla, CBCT.

Introduction:

Ossifying fibroma has been referred to as fibro osteomas, osteofibroma, and benign fibro-osseous lesion. In 1872, Menzel first described as ossifying fibroma, but it was Montgomery who in 1927 coined the term ossifying fibroma. In 1993 Waldrom classified fibro osseous lesions into fibrous dysplasia, ossifying fibroma, Desmoplastic fibroma. Except Fibrous Dysplasia, other Fibro-osseous lesions seem to arise from the periodontal membrane¹. Periodontal ligament chiefly composed of collagen, mucopolysaccharides, oxytalan. Mesenchymal blastic cells, possessing the

capacity to differentiate into structures like cementum, fibrous tissues and alveolar bone. Under any pathologic conditions these cells proliferates and resulting in formation of cementum, bone or fibrous tissues resulting in formation of benign fibro osseous lesions². Fibro-osseous lesions are generally characterized by replacement of normal bone architecture by collagen fibres and fibroblasts that contain varying amounts of mineralized substances, which may be bony or cementum-like in appearance. There are two types of ossifying fibromas, namely, the central type and the peripheral type. The central type arises from the endosteum or the periodontal ligament adjacent to the root apex and causes expansion of the medullar cavity of the bone. The peripheral type occurs on the soft tissue overlying the alveolar process and is a “non-neoplastic,” reactive fibrous proliferation³.

Case report

A 33 year old male patient came to the outpatient department of oral medicine and radiology with a chief complaint of pain on his right upper back tooth region since 1 month. Pain which is moderate, intermittent, throbbing type, aggravating on intake of food, not interrupting sleep, pain partially relieved on medication. Patient was not associated with any symptoms like fever, parasthesia, ulceration or discharge and with no evident history of trauma associated with it. He also not reported any Discomfort while chewing, speech and swallowing. His past medical history was non-contributory, and dental history revealed his First dental visit, with oral cleansing habit of brushing once daily using tooth brush and fluoridated dentifrice in horizontal fashion and not associated with any deleterious or Para functional habits. On general physical examination patient is conscious, cooperative, well oriented, moderately built

and moderately nourished with all vital signs within the normal range and no clinical signs of cyanosis, clubbing, pallor or icterus are evident.

On extra oral examination face is symmetrical with no evident regional lymphadenopathy. Intra oral hard tissue examination reveals Missing teeth 16, Dental caries 47, 37 with mild calculus and stains. Soft tissue examination reveals A solitary oval swelling in region of 18 is seen which is of size 3cm x3.5 cm extending anteroposteriorly from mesial aspect of 17 region to distal aspect of 18 involving tuberosity, mediolaterally from buccal sulcus obliterating the vestibule in region of 18 tooth to attached gingiva of 18. color over the lesion is normal when compared with adjacent mucosa. On palpation all inspectory findings were confirmed with regard to site, size, and shape extensions. On palpation lesion is soft to firm in consistency, non tender, sessile, with no evident discharge and is associated with periodontal pocket 17, 18.

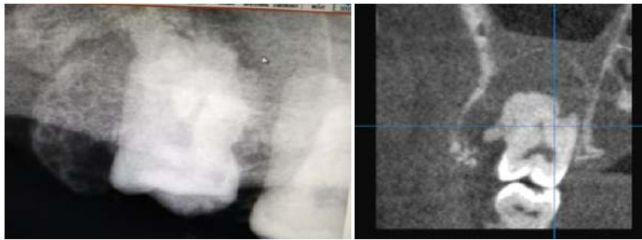


FACIAL PROFILE

INTRA ORAL PHOTOGRAPH

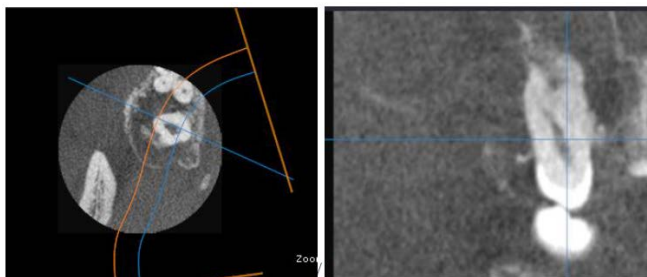
Radiovisiography in region of 18 reveals no abnormality regarding crown and root portion and is surrounded with mixed radiolucent radio opaque lesion seen extending from distal portion of 18 tooth region to maxillary tuberosity region. Cone beam computed tomography reveals well defined expansile unilocular heterogeneous mixed lesion seen in region of 18 causing Obliteration of floor of maxillary sinus. On axial section well demarcated mixed radiolucent lesion seen in association with 18 extending from Cemento Enamel junction on mesial aspect till above the

Cemento Enamel junction above on distal aspect with the expansion of buccal and lingual cortical plates. Based on history, clinical examination, radiographic findings, case was provisionally diagnosed as fibro-osseous lesion.



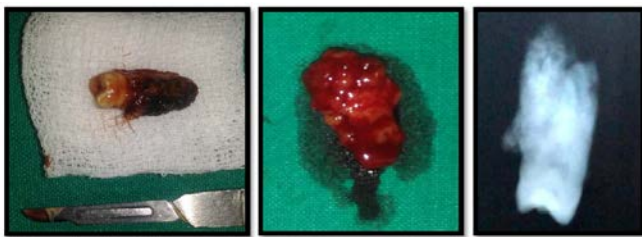
RVG

CBCT AXIAL VIEW



CBCT Sections with Hypodense and Hyperdense areas

Under strict aseptic conditions, Local anaesthesia was given. Excision of tumour along with tooth was done and sent for histopathological examination. After neutralising in 10% formalin solution, specimen radiograph was taken. It showed hazy opaque areas around the roots of tooth indicates calcified structures.

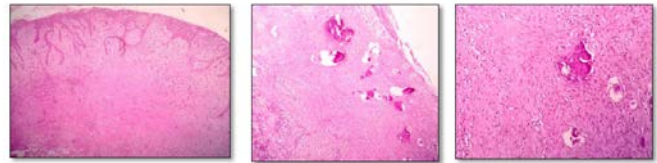


Extracted tooth with Tissue Specimen & Specimen Radiograph

Extracted tooth with Tissue Specimen & Specimen Radiograph

Histologically, hyperkeratinized stratified squamous epithelium with fibro vascular connective tissue is seen. The epithelium showed slender rete ridges with atrophy in some areas. The connective tissue exhibited

reticular arrangement of collagen bundles interrupted with vital bone. The section also showed numerous dilated capillaries. Basing all clinical, radiographic and histopathological features it was diagnosed as central cemento ossifying fibroma and patient under 3 month follow up postoperatively.



Histological Images Showing Vital bone and Collagen bundles



Postoperative photograph after 3 month follow up

Discussion

The term “ossifying fibroma” has been used since 1927, and since 1968 cementum-containing tumours have been grouped together⁴. According to World Health Organization (WHO) classification in 1992, Central ossifying fibroma is a well defined or rarely encapsulated neoplasm consisting of fibrous tissue with varying amount of mineralized material resembling bone or cementum⁵. Ossifying fibromas are rare lesions of the head and neck region, with greater incidence of occurrence in the third to fourth decade of life, without any sex predilection. The mandible most commonly involved more often than the maxilla⁶. Maxillary lesions present with a large mass indicating the capacity of tumor to expand freely within the maxillary sinus⁷.

In Postoperative photograph after 3 month follow up general, an ossifying fibroma is a slow-growing well circumscribed lesion that is easily removed. They are thought to arise from the periodontal ligament and are composed of varying amounts of cementum, bone, and fibrous tissue. Cementum is the mineralized connective tissue covers the root of the teeth. The hybrid name central cementoossifying fibroma is used because there is a spectrum of fibro osseous lesions that arise from the periodontal ligament, ranging from those with only deposition of cementum to those with only deposition of bone⁸.

Radio graphically lesion may be unilocular and multilocular. Degree of mineralization determines the radiographic presentation⁹. Cemento Ossifying Fibroma may follow different patterns based on the amount of mineralized tissue. It presents as a well demarcated unilocular lesion that might have a different degree of opacification. It may also cause root resorption and tooth displacement¹⁰.

The differential diagnosis of COF includes other lesions that contain radioopacities within a well-defined radiolucent mass. These lesions are chondrosarcoma and osteosarcoma, fibrous dysplasia, odontogenic cysts, squamous cell, carcinoma, Grolin's cyst (calcifying odontogenic cyst), and Pindborg tumour (calcifying epithelial tumour). The well-defined borders of COF help differentiate it from aggressive sarcomas and carcinomas. Fibrous dysplasia has a typical ground glass appearance. Grolin cysts and Pindborg tumours are difficult to distinguish and can only be done on histologic examination.

Microscopically, Cemento Ossifying Fibroma reveals many delicate interlacing collagen fibers, seldom arranged in discrete bundles, interspersed with large

numbers of active, proliferating fibroblasts and cementoblasts¹¹.

Cemento-ossifying fibroma is sharply circumscribed and demarcated from bone and thus it should be excised conservatively and should be under regular follow up. Eversole et al. reported a recurrence rate of 28% following curettage. Hence, a long term follow-up of the patients is recommended.

Conclusion

Cemento - Ossifying fibromas are a group of benign fibro osseous lesions though the etiopathogenesis is unclear. These are generally slow growing, asymptomatic lesions occasionally with aggressive behaviour. Treatment of cemento ossifying fibroma should always be conservative excision of the well circumscribed without resection of the adjacent structures unless involved by the lesion; this should be accompanied with extraction of involved teeth and primary closure of wound respectively with timely follow-up.

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