

Peripheral Cemento-Ossifying Fibroma: A Case Report

Bhavika Murkute^{1*} Arvind Shetty² Devanand Shetty³ Zinnia Patel⁴

¹PG Student, Department of Periodontology, DY Patil University School of Dentistry, Navi Mumbai, Maharashtra, India.

²Professor, Department of Periodontology, DY Patil University School of Dentistry, Navi Mumbai, Maharashtra, India.

³Professor and Head, Department of Periodontology, DY Patil University School of Dentistry, Navi Mumbai, Maharashtra, India.

⁴PG Student, Department of Periodontology, DY Patil University School of Dentistry, Navi Mumbai, Maharashtra, India.

ABSTRACT

Background: Peripheral Cemento-Ossifying Fibroma is a type of gingival growth of reactive nature and of unclear aetiology. Such over growth can either obstruct the typical tooth eruption or transform into a factor in plaque accumulation, which normally brings about formation of caries in recently erupted teeth. It dominantly affects the adolescents and adults with more predominance around 10 -19 years. It is a moderate developing benign tumor which may prompt pathologic migration and other periodontal issues, so it ought to be excised as quickly as time permits.

Keywords: Dentistry, gingival growth, peripheral cemento-ossifying fibroma.

INTRODUCTION

Ossifying fibroma is a benign neoplasm occurring in craniofacial bones, consists of proliferating fibroblasts with osseous products such as bone and ovoid calcifications; these lesions are well demarcated from the adjacent bone.¹ Cemento ossifying fibroma is defined as a well-demarcated and occasionally encapsulated lesion consisting of fibrous tissue containing variable amounts of mineralized material resembling bone (ossifying fibroma), cementum (cementifying fibroma), or both.^{2,3} Waldron (1985) discussed these lesions as localized fibro osseous cemental lesions presumably reactive in nature. Cemento-ossifying fibroma is a relative uncommon lesion considered as an osteogenic tumor (nonodontogenic) with variable expressions. Benign fibro-osseous lesions of the jaws present problems in diagnosis and classification. The 1992 WHO classification groups cemento-ossifying fibroma under two histologic types i.e. cementifying fibroma and ossifying fibroma that may be undistinguishable clinically and radiographically.⁴

Two types of ossifying fibromas have been described: The central type and the peripheral type.

The central type occurs from the periodontal ligament adjacent to the root apex and can cause expansion of medullary cavity or from the endosteum. The peripheral type occurs merely on the soft tissues covering the tooth-bearing areas of the jaws. It occurs exclusively on the gingiva and accounts for 3.1% of all oral tumors and for 9.6% of gingival lesions. The pathogenesis and aetiology of this benign tumor is yet unknown. Due to their clinical and histopathological similarities, some believe that peripheral cemento-ossifying fibromas may develop initially as a pyogenic granuloma, which is further subjected to form fibrous maturation and subsequent calcification. It is frequently associated with local irritants such as calculus, bacterial plaque, orthodontic appliances, ill-adapted crowns and irregular restorations.⁵ The mineralized substances are believed to probably originate from periosteal cells or from the periodontal ligament.⁶

Peripheral cemento-ossifying fibroma clinically manifests as a nodular mass, either can be pedunculated or may be sessile. It most normally seems to originate from interdental papilla. The color of the lesion ranges from red to pink, and the

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*Correspondence Dr. Bhavika Murkute.

Department of Periodontology, DY Patil University School of Dentistry, Navi Mumbai, Maharashtra, India.

Email: bhavikamurkute@icloud.com

surface is not generally ulcerated. It is generally found in the first and second decades of life and has a female predominance over males. The prevalence of the tumor that affects the maxillary anterior region and canines is about 60% and a potential of tooth migration has been accounted for the lesion.⁷

The present case report depicts an instance of Peripheral cemento-ossifying fibroma in a 37 year old female. The treatment of choice is surgical excision of the lesion with expulsion of local disturbance factors.

CASE DESCRIPTION

A 37 years old female patient reported to the outpatient department with a chief complaint of a mass in mandibular left posterior teeth region and experienced difficulty in mastication approximately since 2 years. The lesion started as a small painless nodule which gradually increased to the present size since past 6-7 months history of bleeding, pain and suppuration. The patient showed no relevant medical history.

Intraoral examination showed a reddish pink, multilobular, firm, pedunculated growth in relation to interdental papilla to mandibular left 2nd molar region associated with deep proximal caries. The lesion occurred along the buccal and lingual aspect, measuring approximately 1.5 cm bucco-lingually 1 cm coronal-apically, extending bucco-lingually from interdental papilla of lower left 2nd molar and from marginal gingiva approximately 1 cm above the occlusal level of the involved teeth supero-inferiorly.(fig 1a-e)



Fig 1: a.Buccal view of the lesion. b & c. Lingual view of the lesion. d : occlusal view. e: tumor interfering with the occlusion. Note: open bite caused due to the tumor.

The investigations included intraoral periapical radiograph, complete hemogram, and excisional

biopsy of the lesion. Routine haematological investigations values were found to be within normal range. Radiographic features showed deep proximal caries and bone loss in Furcation area in mandibular left 2nd molar (fig2). A provisional diagnosis of pyogenic granuloma was made.



Fig 2: Radiographic features: deep proximal caries & radiolucency in the Furcation area of the mandibular left 2nd molar.

The possible differential diagnosis included chronic fibrous epulis, peripheral giant cell granuloma, pyogenic granuloma, irritational fibroma and peripheral odontogenic fibroma. Excisional biopsy was planned on the basis of the clinical and radiographic examinations 7 days after thorough oral prophylaxis. Excision of the lesion was done under local anesthesia, followed by curettage of the area and scaling of the involved teeth. (Fig 3).The patient was recalled after 1 week for evaluation of the surgical site. The endodontic therapy was performed in relation to the deep proximal caries.



Fig 3: surgical excision of the lesion.

The excised tissue specimen was sent to the Department of Oral Pathology for histopathological examination. Histopathological examination stained in H&E stain revealed a well encapsulated tumor of cellular fibrous tissue covered by parakeratinized epithelium with elongated rete pegs and dense fibrous connective tissue stroma under low power. Connective tissue also revealed cementum like material or extensive hematoxyphilic zones of calcifications and Focal areas of inflammation.(Fig. 4).

The histopathological evaluation gave a final diagnosis of peripheral cemento-ossifying fibroma.

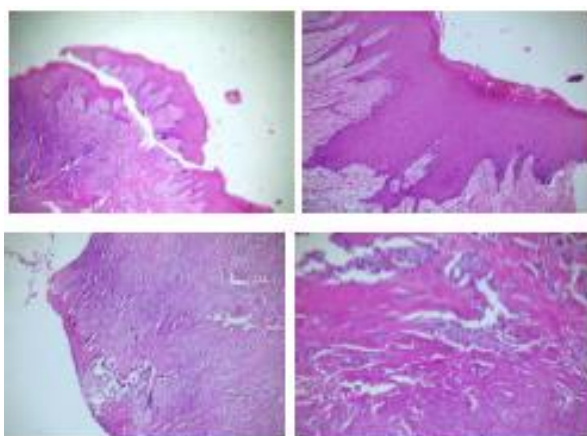


Fig 4: Histological section stained in H&E stains; c & b: Parakeratinised epithelium, rete pegs growing deep into connective tissue. c: Calcifications seen in connective tissue. d. Infiltration of connective tissue with inflammatory cells.



Fig 5: Post operative image of the site after 3 months.

DISCUSSION

Peripheral ossifying fibroma is thought to be neoplastic in nature. The fibrous lesions of the gingiva with or without calcifications have been archived in literature under an assortment of terms or synonyms like peripheral cementifying fibroma, ossifying fibroepithelial polyp, peripheral fibroma with osteogenesis, peripheral fibroma with

cementogenesis, peripheral fibroma with calcification, calcifying or ossifying fibrous epulis and calcifying fibroblastic granuloma.⁸ In 1884, Bhasker et al designated this tumor as peripheral fibroma with calcification.⁹ Eversol and Robin coined the term peripheral ossifying fibroma.¹⁰ Ossifying fibromas show detailed bone, cementum and spheroidal calcifications, which has offered ascend to different terms for these fibro-osseous benign neoplasms. When bone prevails, the term 'ossifying' is designated, while the term 'cementifying' has been designated when curvilinear trabeculae or spheroidal calcifications are contended.¹⁰ Whenever bone and cementum-like tissues are detected, the lesions have been called to as cemento-ossifying fibroma.

Cementifying fibromas may be clinically and radiographically difficult to distinguish from ossifying fibromas.¹¹ An endeavour has been made by Endo et al to differentiate cementifying fibromas from ossifying fibromas and fibrous dysplasias by utilizing a immuno-histochemical analysis to evaluate the reactivity for keratan sulfate and chondroitin-4-sulfate, the cementifying fibromas demonstrated positive immuno-reactivity for keratan sulfate and ossifying fibromas and fibrous dysplasias demonstrated positive immuno-reactivity for chondroitin-4-sulfate.¹² Clinical picture of the present lesion with less vascularity precludes the possibility of pyogenic granuloma. The reported gingival tumor has been diagnosed as peripheral cemento-ossifying fibroma after histopathologic evaluation.

The etiopathogenesis peripheral cemento-ossifying fibroma of is unknown, however the local factors like subgingival plaque and calculus, orthodontic appliances, poor dental restoration, food lodgement, iatrogenic factors and trauma may dominate the progress of the lesion. A origin from cells of periodontal ligament has been proposed for peripheral ossifying fibroma because of its appearance in interdental papilla, the vicinity of gingiva to periodontal ligament and the mineralised matrix shows presence of oxytalan fibres in some lesions.⁸ The prevalence of the tumor is 2-4 times more frequently in females than in males between the age range of 25-35 years. Approximately 60% of Peripheral cemento-ossifying fibromas are found in the maxilla and they often occur in the anterior

region, with prevalence of 55-60% in the incisor-cuspid region.¹³In our present case, lesion was present in mandibular left molar region (with minor ulceration). The surface is often but not always ulcerated. Mulcahy and Dahl and Cundff demonstrated that there is a high prevalence of ulceration i.e., 62% and 65% and low prevalence of 22.5% to 36%.¹⁴⁻¹⁵

Radiographic appearance of peripheral ossifying fibroma may show Foci of radiopaque material, bone formation or dystrophic calcification, particularly in large lesions or lesions with overt mineralization. Peripheral cemento-ossifying fibromas can induce pathologic migration of teeth with interdental bone destruction.¹⁶

In the present case, the features correlate with the general characteristics of the lesion and further the diagnosis was confirmed by histological evaluation. Treatment of choice for these lesions is complete surgical excision¹⁷ and elimination of local etiological factors, scaling of adjacent teeth¹⁸, which was successfully performed for the present case and follow-up was done at 6 months to check for any recurrence of the lesion.

The Recurrence rate for the cementifying fibroma is approximately 16% -20%.¹⁹It is important to excise the lesions completely including subjacent periosteum and periodontal ligament to minimize recurrence of the lesion.

CONCLUSION

The peripheral cemento-ossifying lesions are benign,slow growing neoplasms, and their growth is often limited.The tumor clinically favours as pyogenic granuloma or peripheral giant cell granuloma, therefore a radiographic and histopathological examination is necessary for precise diagnosis. Because of the incomplete removal of the lesion and high growth potential the long term postoperative follow-up is especially important to evaluate the recurrence of the lesion.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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