



Blurring The Line Between Gingival Swellings: A Case Report On Peripheral Ossifying Fibroma

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Abstract

The term “fibroma” has been used for many soft tissue lesion or in particular a gingival lesion by doctors and practionerors and hence an inadequate diagnosis is often concluded for many case entities. In adolescent female patients the presence of gingival lesions is a regular clinical finding. The site of occurrence of such a lesion is of prime significance, usually occurs in maxilla as compared to the mandible and the rarity of these lesions is determined by the site and size of the lesion. On the other hand, the dilemma over the diagnosis of peripheral ossifying fibroma (POF) versus peripheral odontogenic fibroma still continues. Commonly used synonyms for POF include calcifying fibroblastic granuloma, peripheral fibroma with calcification, peripheral cementifying fibroma, and ossifying fibrous epulis. The present case report deals with a unique case of POF between two right maxillary premolars in a female patient and its surgical treatment, with a 6 months follow up.

Keywords: peripheral ossifying fibroma, Maxillary Gingiva, Periodontal surgery

Introduction

Peripheral Ossifying Fibroma (POF) is a non-neoplastic disease entity which is usually seen to be occurring on the gingiva. It may occur due to any kind of trauma or irritants causing a reactive lesion of the connective tissue. Shephard in the year 1844 had first reported a case of POF and had named it as alveolar exostosis and the name was later changed to POF by Eversole^[1] and Robin in 1972. It is not a soft tissue counterpart of central ossifying fibroma and usually is addressed by various bewildering terms in literature such as peripheral cementifying fibroma, ossifying pyogenic granuloma and peripheral fibroma with calcifications, etc.^[2]

It usually has a higher predilection in younger females. There is a gender difference with 66% of the disease occurring in females. The prevalence of peripheral ossifying fibromas is highest around 10 –

19 years of age. It appears only on the gingiva, more often on the maxilla rather than the mandible, and is frequently found in the area around incisors and canines. The adjacent teeth are usually not affected. It is usually painless and does not exceed more than 3-4 cm in size. Clinically it maybe pedunculated or sessile, ulcerated or non-ulcerated, irregular with smooth shiny reddish or pale pink surface. Peripheral ossifying fibroma is easily mistaken with a pyogenic granuloma at its beginning or when already developed. Calcification, which is its most expressive histopathological feature, will differ it from other fibrous proliferation^[3] Unusually for benign lesions, the recurrence rate is high, up to 20%, occurring on average 12 months following initial excision. Therefore, regular follow-up is required.

The purpose of this article is to present a case of POF, briefly review the current literature on this condition and emphasize the importance of

discussion of a reasonable differential diagnosis of such a case presentation.

Case Report:

A 37- year old female patient presented in the Department of Periodontics, GNIDSR with a chief complain of a gingival swelling on the upper right posterior teeth region since the past 2- 3 months. The swelling was incipient in size in the beginning but later increased. Hence with problem in aesthetics and biting during food consumption, the patient presented to the hospital with the present condition. The patient gave no medical, habit or drug history. There was occasional bleeding during brushing on initial days of swelling but during check-up there was no bleeding, there was no pain or tenderness on palpation.

Clinical examination revealed a swelling on the maxillary right premolar region on the facial aspect. The shape was irregular and it measured approximately 15mm mesio-distally, 10mm apico-coronal direction and 4 m thick. The lesion appeared smooth & firm in consistency and colour was

reddish-pink with areas of white. The swelling was warm and it was pedunculated with what appeared to be a narrow attachment to the base. The edges were clearly defined, the lesion on palpation was not fluctuant, did not blanch with pressure, but had a rubbery consistency. It was soft to firm in consistency on palpation. It is non-pulsatile and non-tender on palpation.

Diagnosis:

The patient was advised to go for routine blood investigations and the reports obtained were within normal limits. The differential diagnosis consisted of irritation fibroma, pyogenic granuloma and peripheral giant cell granuloma (PGCG).

Materials:

Patient consent was obtained before the surgical procedure was carried out and instructions were given post-operatively. A mouth mirror, UNC-15 probe, BP blade handle, #15 blade, periosteal elevator, Curettes, castrovejo scissors, castrovejo needle holder were used for the surgery.

Lesion	Clinical features	Histopathologic features	Others
Pyogenic granuloma	Age-Not definitive Site-gingiva (most common), lips, tongue, buccal mucosa Features - usually an elevated pedunculated or sessile, asymptomatic fast growing soft red mass, bleeds easily	Endothelium lined vascular channels engorged with red blood cells and chronic inflammatory cells	More in young females, often associated with pregnancy
Peripheral giant cell granuloma	Age- 4th to 6th decade Site - Exclusively on gingiva, mostly anterior to molars Features- Purple or reddish purple in colour rapidly growing soft or firm mass which may be sessile or pedunculated, usually 0.5-1.5 cm in size and shows surface ulceration.	Large number of multinucleated giant cells in vascularized fibro cellular stroma with inflammatory cell infiltration.	'Cupping' resorption of the underlying alveolar bone seen in radiograph
Peripheral ossifying fibroma	Age-10-19 years Site- Exclusively on gingiva Features - Firm, pedunculated mass, colour same as surrounding mucosa	Cellular fibrous connective tissue containing numerous calcified deposits Minimal vascular component.	No bone involvement on radiograph, on rare occasions superficial erosion of bone seen
Irritation fibroma	Age - Not definitive Site - mostly buccal mucosa, lips, gingiva Features - Round to ovoid, asymptomatic, smooth, pink, firm, sessile or pedunculated mass	Atrophic epithelium with dense collagenous matrix containing few fibroblasts and little or no inflammatory response.	Most common
Peripheral odontogenic fibroma	Age-5-65 years Site - gingiva Features - Slow growing solid, firmly attached gingival mass sometimes arising between teeth and sometimes even displacing teeth.	Islands of Odontogenic epithelium seen	Soft tissue counterpart of central odontogenic fibroma Uncommon
Metastatic cancer	Age -Not definitive Site- gingiva (commonly) Features- Swelling, destruction of underlying bone, loosening of teeth, paresthesia. Can be asymptomatic	Will resemble tumor of origin	Uncommon Can mimic gingival reactive lesions

TABLE 1: Showing the various differential diagnosis associated with gingival swelling



FIG 1: Pre-operative and Post-operative picture of the gingival swelling

Surgical Procedure:

Before the surgical phase, the patient was motivated and informed about the swelling and its treatment plan. Thorough scaling and root planing was done to achieve the goal of phase I therapy. Following this the patient was put on maintenance phase and evaluated for the same. Once the patient evaluation was satisfactory, the surgery was planned as follows. Local Anaesthesia was injected locally at the upper right maxillary canine and premolar region. The margins were marked and the pedunculated base was identified. Scalpel was used to incise the tissue with intact margins to avoid recurrence. Tissue forceps was used to pull the tissue and the pedunculated base was removed in order to obtain complete resection of the tissue. Following resection of the specimen, flap

was raised and it was apically repositioned after proper curettage to remove the possibility of all attachments of the cells from the periodontal ligament space. Because it is a lesion with a high rate of relapse (30.4%), the chosen treatment should be local excision, which should include the periodontal ligament involved, as well as any identifiable irritants. [4] The specimen so obtained was send for histopathological examination. Proper haemostasis was achieved and sutures were placed. Post-operative instructions were given and the patient was recalled after 7 days for post-operative check-up and suture removal. Adequate healing was observed on the day of suture removal. Follow-up was done after 7 days, 1 month and 3 months, which showed no signs of recurrence.



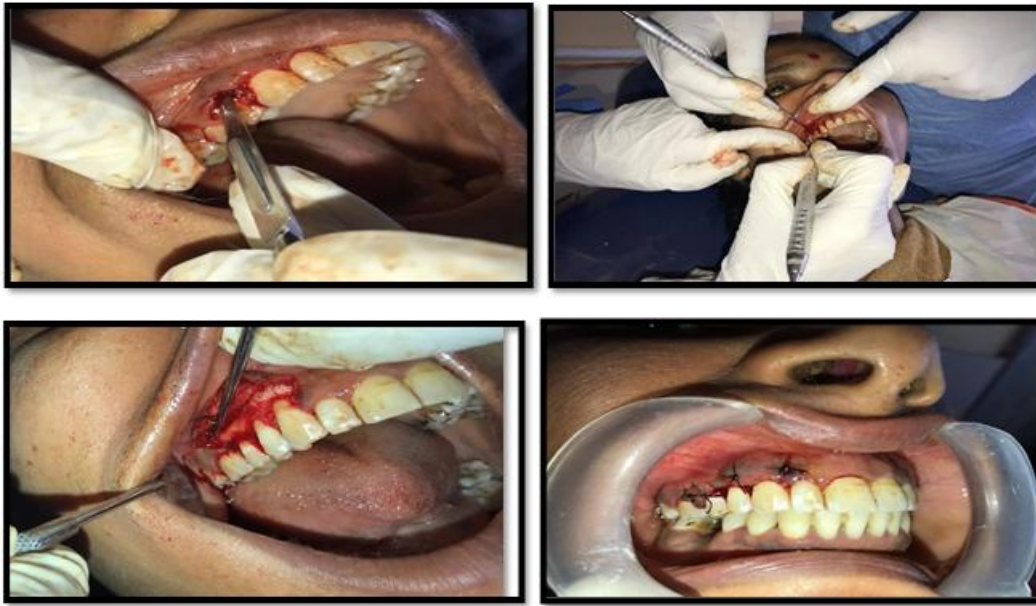


FIG 2: Shows clinical pictures of the surgery done for the excision of growth on the gingiva



FIG 3: Post – Operative picture on the 7th day from the day of surgery

Suture removal was done after 10 days and the healing so observed was satisfactory. The patient was satisfied with the results post – operative and was alleviated from all symptoms and unease.



FIG 4: 1 Month post – operative picture



FIG 5: 3 Months Post – operative picture

Results:

The histopathological specimen sent for investigation to the department of Oral Pathology presented with the final diagnosis of “Peripheral Ossifying Fibroma” which was viewed distinguishably on the HE slide.

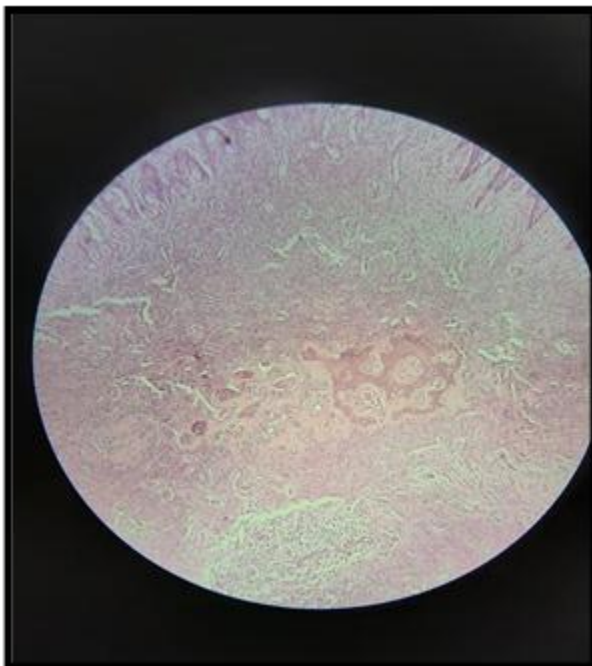


FIG 6: Histopathological specimen reveals the diagnosis of lesion on both HE slide & report

Discussion:

The gingival fibromas usually arise from either the connective tissue or the periodontal ligament cells. In this regard, one of the categories of fibromas is the Ossifying fibroma which is a benign neoplasm arising mainly from the craniofacial bones. This lesion is well demarcated from the adjacent bone and is composed of proliferating fibroblasts along with interspersed bone or calcified masses as seen in the histological picture.^[5] Ossifying fibromas can be broadly divided into two types: central and peripheral. The nidus of origin for the central type lies in the endosteum or the periodontal ligament adjacent to the apex of the root which over a period causes the expansion of the medullary space producing the associate extra oral swelling whereas the peripheral type arises in relation to the soft tissues in the tooth-bearing areas of the jaws.^[6] The various causes for considering this fibroma of having a periodontal ligament origin is due to its excessive occurrence on the gingiva in the interdental papillary region, the close proximity of the gingiva to periodontal ligament, the presence of oxytalan fibres present in the mineralized matrix, and the fibrocellular response in periodontal ligament.^[7]

Histologically, the lesion exhibits a proliferation of fibroblasts associated with the formation of mineralized material which may consist of bone, cementum-like material or dystrophic calcifications^[8]. Radiographically, they may exhibit areas of diffuse radiopaque calcifications, but many lesions do not exhibit this appearance^[9]

Kumar et al^[10] postulated on histopathological examination that the POF originates due to the secondary fibrosis which occurs in the longstanding pyogenic granuloma. Following any chronic irritation of the periodontal membrane there is metaplasia of the connective tissue and there is also the formation of bone or any dystrophic calcified masses. It is important to remove the lesion completely by including subjacent periosteum and periodontal ligament, besides the possible causes, to reduce recurrence.

New innovations in the realm of biosensors, nanotechnology, ultrasonography, optical imaging systems and proteome analysis of oral fluids such as GCF and saliva are being encouraged with a view to better determining the health and disease status of

patients with a complaint of gingival swelling. The emergence of these various new technologies will certainly increase understanding of periodontal diseases as well as examination of the swelling will also be easier and tactful in terms of treatment planning. This will eventually result in the development of risk assessment tools that will support the better prediction of disease events.

Conclusion:

Peripheral ossifying fibroma is a reactive lesion which slowly progresses and requires complete removal of the pathology down to the periosteum and periodontal ligament along with regular post excision follow-ups to minimize the possible chances of recurrence.

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