



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL
OF ADVANCED RESEARCH

RESEARCH ARTICLE

Peripheral Ossifying Fibroma: Reactive or Neoplastic Lesion???

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Received: 15 September 2015

Final Accepted: 26 October 2015

Published Online: November 2015

Key words:peripheral ossifying fibroma,
periodontium, gingiva,
calcifications, reactive, neoplastic***Corresponding Author****Bhuvan Nagpal****Abstract**

Peripheral ossifying fibroma (POF) is a relatively common growth occurring exclusively on the gingiva. It has an uncertain pathogenesis, varying from being a reactive lesion to a true neoplasm. It predominantly affects young adults, has a female predilection and is usually located in the maxillary anterior region. The definitive diagnosis is established by histological examination, which reveals the presence of cellular connective tissue with central focal calcifications. We report a case of POF with unusual presentation with respect to age, gender and site of the lesion.

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Introduction

Peripheral ossifying fibromas (POFs) are fibrous growths that originate from the periodontium.¹ Synonyms of POF are peripheral cementifying fibroma, calcifying or ossifying fibroid epulis, and peripheral fibroma with calcification.^{2,3} POF is typically seen as a growth on gingiva which involves interdental papilla and accounts for 3.1% of all oral lesions and 9.6% of the gingival lesions.^{1,4} It is not clear whether POF represents proliferation of a reactive nature or a true neoplastic growth. It shows a clinically benign behaviour.⁵ Recurrence rate is almost 16-20%, the reasons being incomplete removal of the lesion, failure to eliminate local irritants, and difficulty in access during surgical manipulation due to intricate location of POF usually in interdental areas. Deep excisions have been preferred for recurrent lesions.⁶ We report a case of a 63 year old male patient with a growth of one year duration on the mandibular anterior gingiva. It had displaced the lateral incisor and canine. In the present case, the age of occurrence, its presence in a male patient in anterior mandibular gingival and causing displacement of adjacent teeth, are some of the occasional and uncommon findings of POF in the literature, which warranted its presentation.

Case Report

A 63 year old male patient presented with the chief complaint of swelling of gums in lower front tooth region since 1 year. The swelling was initially small in size which increased gradually to the present size of about 1.5 x 2 cm. Patient did not give any history of trauma in relation to that region. Patient had discomfort while eating, drinking and talking, but no pain associated with the swelling. Past medical and dental history was non contributory. On intraoral examination, a solitary, exophytic, nodular, sessile, painless swelling with well defined margins and lobulated surface was noted in the region of 41, 42, 43 region involving marginal, attached and interdental gingiva. Mucosa overlying the swelling was pale pink in colour with no secondary changes. The swelling caused displacement of adjacent 42 and 43 lingually and buccally respectively. (Fig. 1) The swelling was non-tender, non-compressible, non-reducible and soft to firm in consistency. Based on history and clinical examination, a provisional diagnosis of fibroma was given and the clinical differential diagnosis of focal fibrous hyperplasia,

fibrosed pyogenic granuloma, peripheral giant cell granuloma, peripheral ossifying fibroma and peripheral odontogenic fibroma were considered. Complete haemogram was done and all the parameters were within normal range. On radiological investigation, there was displacement of 42 and 43 and superficial erosion of the alveolar bone. The growth was excised and sent for histopathological investigation. The excised mass was oval in shape, measuring 2.0×1.0×0.5cm, white to brownish white in color and soft to firm in consistency. (Fig. 2) The whole tissue bit was grossed into two halves and the tissue was taken for processing. The patient was recalled after one week for review. Hematoxylin and Eosin (H&E) stained sections revealed epithelium and connective tissue stroma. Epithelium was hyperplastic, stratified squamous parakeratinized in nature. Connective tissue stroma showed dense bundles of collagen fibres, fibroblasts and areas of calcifications. (Fig 3) The calcifications were round to oval in shape and eosinophilic. (Fig 4) Blood vessels and chronic inflammatory cells were also evident. On the basis of history, clinical presentation, radiological and histopathological findings, a final diagnosis of peripheral ossifying fibroma was rendered.

Discussion

In oral cavity, periodontium can show different types of focal overgrowths. These lesions arise due to overgrowth and proliferation of different components of connective tissue in periodontium, i.e. the fibers, bone, cementum, blood vessel or any particular type of cell. The terminology of focal proliferative lesions commonly occurring on gingiva includes fibroma, giant cell fibroma, pyogenic granuloma, peripheral giant cell granuloma, peripheral ossifying fibroma and peripheral odontogenic fibroma.⁷ Most of these lesions are reactive chronic inflammatory hyperplasias, with minor trauma or chronic irritation being the etiologic factors.⁸ The nomenclature of these lesions is done in such a way as to highlight the difference in nature of growth, location of growth, origin and the dominant proliferating histological cells and components in the lesion. The lesions which are present intraosseously are termed as “central lesions”, whereas their extraosseous counterparts or the lesions which appear on outer soft tissue (e.g. gingiva) are termed “peripheral lesions”. Also, a lesion may arise due to inflammatory stimulus and is called as a “reactive lesion” or it can be truly “neoplastic” where it is classified as a benign or a malignant neoplasm.¹

In 1872, ossifying fibroma was first described by Menzel, but Montgomery gave its terminology in 1927.⁹ Ossifying fibroma occurs in craniofacial bones mostly and are categorized into two types; central and peripheral. The central type of ossifying fibroma originates from the endosteum or the periodontal ligament (PDL) adjacent to the root apex and expands within the medullary cavity of the bone and the peripheral type occurs on the soft tissues overlying the alveolar process.¹⁰

The etiopathogenesis of POF is uncertain, but it is suggested that it is neoplastic and originates from cells of periodontal ligament. The reasons for considering periodontal ligament origin include excessive occurrence of POF in the gingival interdental papilla, the proximity of the gingiva to periodontal ligament, the presence of oxytalan fibres within the mineralized matrix of some of these lesions, and the fibrocellular response in periodontal ligament.^{2,10} However, due to their clinical and histopathologic similarity, it is considered that at least some cases of POF may arise as a result of maturation of a long-standing pyogenic granuloma.¹¹ Further, it is opined that POF is a separate entity and does not represent the soft tissue counter part of central ossifying fibroma.¹² In the present case, the aggressive nature causing displacement of teeth, absence of any signs of inflammation clinically with minimal inflammatory component histologically, favours a neoplastic rather than a reactive pathology.

POFs affect females more commonly.⁷ The site of occurrence of POF is usually anterior to molars in both maxilla and mandible, with predilection for maxilla.¹² Cundiff reported that the lesion is prevalent between ages of 5 and 25 years, with a peak incidence at 13 years of age.¹³ They are usually less than 1.5 cm in diameter, and diagnosis can be made based on clinical and histopathological findings.¹⁴ Clinically, POF is a slow growing, solitary, nodular mass which may be pedunculated or sessile, pink to red in color, with surface being usually, but not always ulcerated.¹ The most common location is the interdental papilla of gingiva between adjacent teeth.² In some cases, teeth migration with interdental destruction of bone has been reported.¹⁵ There is no apparent underlying bone involvement visible on the radiograph in vast majority of the cases. However, superficial erosion of bone is noted occasionally.^{2,10,15} In the present case, the lesion occurred in a 63 year old male, in mandibular anterior gingiva, as a nodular, pale to pink growth which was more than 1.5 cm causing displacement of adjacent teeth without surface ulceration.

Histopathologically, the lesion shows stratified squamous epithelium covering an exceedingly cellular mass of connective tissue made up of plump fibroblasts, fibrocytes, fibrillar stroma and areas of mineralization. The mineralization may consist of bone, cementum-like material or dystrophic calcifications. The dystrophic calcifications are usually seen in early, ulcerated lesions, whereas the older, mature, non-ulcerated lesions show well-formed bone and cementum-like material.¹² The present case was a long standing lesion of 1 year duration, showing histopathological features of POF consisting of cementum like calcifications.

POF has to be differentiated from traumatic fibroma, peripheral giant cell granuloma, pyogenic granuloma, and peripheral odontogenic fibroma, since all these lesions present similarly. Peripheral odontogenic fibroma is an uncommon neoplasm that is believed to arise from odontogenic epithelial rests in periodontal ligament or attached gingiva itself. Traumatic fibroma has a history of trauma or presence of chronic irritants. Pyogenic granuloma presents as soft, friable nodule, small in size, having lot of proliferating blood vessels and tendency to hemorrhage. It may or may not show calcifications but tooth displacement and resorption of alveolar bone are not observed. Peripheral giant cell granuloma has clinical features similar to POF, however POF lacks the purple or blue discoloration commonly associated with peripheral giant cell granuloma and radiographically shows flecks of calcification.¹² It is possible to histologically differentiate POF from peripheral giant cell granuloma, peripheral odontogenic fibroma, traumatic fibroma and pyogenic granuloma, as peripheral giant cell granuloma contains giant cells, peripheral odontogenic fibroma contains odontogenic epithelium and dysplastic dentine, traumatic fibroma shows dense cellular connective tissue stroma and pyogenic granuloma presents lot of proliferating blood vessels and inflammatory cells. In POF, a cellular fibrous stroma consisting of calcifications in the center of the lesion which could be dystrophic, cementum like or bone will be seen.^{12,16} Treatment includes local surgical excision and oral prophylaxis.¹⁷ Follow up is essential because of the high recurrence rate.² Diagnosis of POF was arrived at in the present case after ruling out other lesions, based on the histopathological examination. It was surgically excised and the follow up of one year till now has not shown any recurrence.

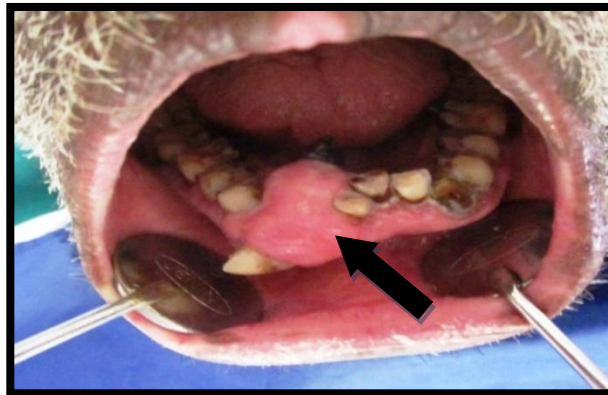


Figure 1: Intra-oral photograph showing irregular gingival growth in mandibular anterior region



Figure 2: Photograph revealing the excised specimen

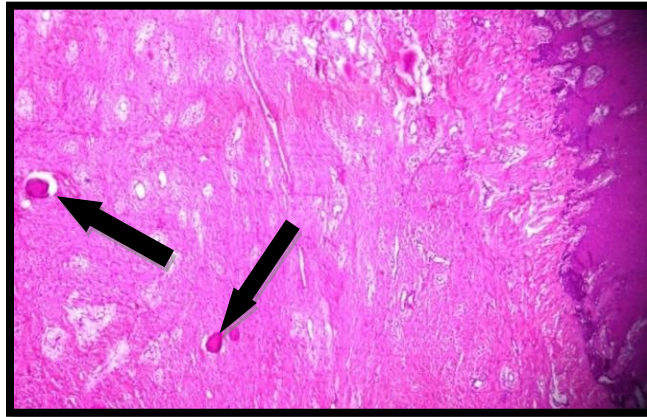


Figure 3: H & E stained section showing overlying epithelium, fibrocellular connective tissue stroma and few eosinophilic calcifications (marked with arrows). (x40 magnification)

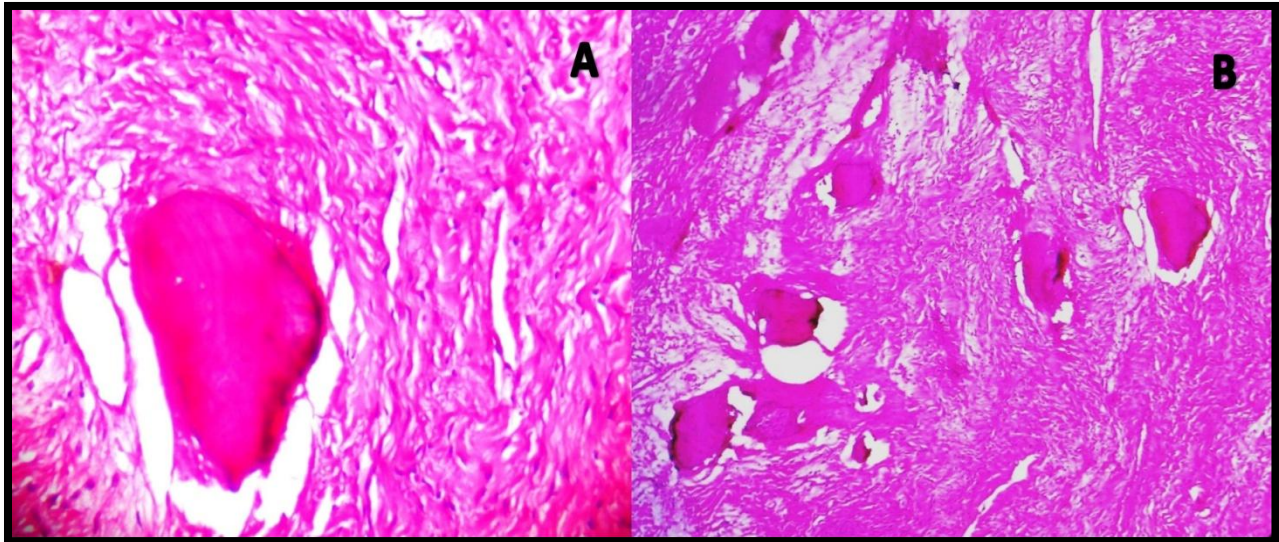


Figure 4: (A) H & E stained sections showing calcification resembling bone. (x100 magnification) (B) H & E stained section showing round to ovoid eosinophilic calcifications resembling cementum. (x40 magnification)

Conclusion

POF is one of the commonest solitary growths of the gingiva in the oral cavity. The clinical presentation mimicks various other growths on the gingiva, but histopathology helps in arriving at its definitive diagnosis. Although it is a well defined entity, its etiopathogenesis is still debated from being reactive to neoplastic. The present case supports a neoplastic origin rather than a reactive one. In view of recurrences reported, regular follow up of the patient is advised.

Acknowledgment: Nil

Declarations

Funding: Nil

Conflict of interest: Nil

Consent: The patient has given his informed consent for the case report to be published.

References

1. Mishra MB, Bhishen KA and Mishra S. Peripheral ossifying fibroma. *J Oral Maxillofac Pathol* 2011;15(1):65-68.
2. Eversole LR and Rovin S. Reactive lesions of the gingival. *Journal of Oral Pathology* 1972;1(1):30-38.
3. Gardner DG. The peripheral odontogenic fibroma: an attempt at clarification. *Oral Surgery Oral Medicine and Oral Pathology* 1982;54(1):40-48.
4. Bhaskar SN and Jacoway JR. Peripheral fibroma and peripheral fibroma with calcification: report of 376 cases. *Journal of the American Dental Association* 1966;73(6):1312-1320.
5. Rajendran R and Sivapathasundharam B. Shafers's textbook of oral pathology. 6th ed. Noida, India: Elsevier; 2009. p.128.
6. Shetty DC, Urs AB, Ahuja P, Sahu A, Manchanda A, and Sirohi Y. Mineralized components and their interpretation in the histogenesis of peripheral ossifying fibroma. *Indian Journal of Dental Research* 2011;22(1):56-61.
7. Chhina S, Rathore A, and Puneet A. Peripheral ossifying fibroma of gingiva: a case report. *International Journal of Case Reports and Images* 2011; 2(11):21-24.
8. Vaishali K, Raghavendra B, Nishit S. Peripheral ossifying fibroma. *J Indian Acad Oral Med Pathol* 2008;20:54-56.
9. Sujatha G, Sivakumar G, Muruganandhan J, Selvakumar J, and Ramasamy M. Peripheral ossifying fibroma-report of a case. *Indian Journal of Multidisciplinary Dentistry* 2012;2(1):415-418.
10. Miller CS, Henry RG, and Damm DD. Proliferative mass found in the gingival. *Journal of the American Dental Association* 1990;121(4):559-560.
11. Fausto KA. Robbins and Cotran Pathologic Basis of Disease. 7th ed. Philadelphia: WB Saunders; 2008. pp. 775-776.
12. Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and Maxillofacial Pathology. 2nd ed. New Delhi: Elsevier; 2005. pp. 563-4.
13. Cundiff EJ. Peripheral ossifying fibroma: A review of 365 cases. USA: MSD Thesis Indiana University; 1972.
14. Cuisia ZES and Brannon RB. Peripheral ossifying fibroma-a clinical evaluation of 134 pediatric cases. *Pediatric Dentistry* 2001;23(3):245-248.
15. Poon CK, Kwan PC and Chao SY. Giant peripheral ossifying fibroma of the maxilla: report of a case. *Journal of Oral and Maxillofacial Surgery* 1995;53(6):695-698.
16. Gardener D. The peripheral ossifying fibroma: an attempt at clarification. *Oral Surgery, Oral Medicine, Oral Pathology* 1982;54(1):40-48.
17. Farquhar T, MacLellan J, Dymont H, and Anderson RD. Peripheral ossifying fibroma: a case report. *Journal of the Canadian Dental Association* 2008;74(9):809-812.