

Peripheral Ossifying Fibroma Diagnosis to Treatment Plan - A Case Report

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ABSTRACT

Introduction: Peripheral ossifying fibroma (POF) is a gingival overgrowth. Peripheral ossifying fibroma is an exophytic nodular growth, commonly occurring on the gingiva and consists of hyperplastic connective tissue containing focal areas of bone.

Etiology: The neoplasm develops as a result of reactive proliferation of either the periodontal or the periosteal tissues. Local irritation always plays a significant role in development of this lesion.

Aim: Diagnosis and treatment of a focal overgrowth on the gingiva.

Methodology: The purpose of this article is to highlight the case report of a 28 year old male patient reporting to the department of Periodontology and Implantology with the chief complain of pain in the lower front teeth region and discomfort while having meals since 6 months. On clinical examination the lesion was found to be soft in consistency, non-tender, no discharge, and the pockets were present.

Results: Based on the detailed history and clinical examination differential diagnosis of gingival polyp or pyogenic granuloma was given. An excisional biopsy was obtained and sent for histopath reporting. On histopathological examination diagnosis of peripheral ossifying fibroma was confirmed based on the findings.

Conclusion: This article outlines the diagnosis and management of gingival overgrowths commonly encountered in clinical practice.

INTRODUCTION

Gingival reactive lesions are very common. Peripheral ossifying fibroma comes under the spectrum of reactive gingival hyperplasias. It occurs as a gingival overgrowth in response to local irritants. The pathogenesis of this lesion is not been fully understood. (Patil et al. 2014). There are various terms which are used in reference to POF such as, peripheral fibroma with cementogenesis peripheral cementifying fibroma and peripheral fibroma with osteogenesis, peripheral fibroma with calcification, calcified fibroblastic granuloma and calcified or ossified fibrous epulis (Kale et al., 2014). Shepherd firstly reported POF in 1844 as alveolar exostosis. Later on in 1972 Eversol and Robin proposed the term peripheral ossifying fibroma (Reddy et al., 2011). Younger age groups are affected more as compare to adults and it has been found to be more prevalent in females than males. It has affinity for maxillary arch and occurs mainly in the incisor cuspid region (Mohiuddin et al., 2013). POF constitutes about 3.1% of all the oral tumors and about 9.6% of all the gingival lesions (Mishra et al., 2011). Although POF represents benign clinical behavior, the recurrence rate can reach up to 20% (Kale et al., 2014). The purpose of this article is to present a case of POF and reviewing the current literature on this condition and treating such condition through proper diagnosis and treatment planing.

CASE REPORT

A 28 year old male patient reported to the department of Periodontology and Implantology Jaipur Dental College with the chief complain of pain in the lower front teeth region and discomfort while having meals since 6 months. Pain was recorded 6 months ago and has been gradually increasing since then and gets aggravated during mastication and bleeding occurs while teeth brushing. On clinical examination the lesion was found to be soft in consistency, non-tender, no discharge, and the pockets were present. Also, the patient noticed spacing between 31 and 41 due to the same and this gradually increased in the last 6 months. On intra-oral examination, a 0.8 x 0.6 x 1 cm, brownish in colour, firm to hard in consistency, rough surfaced and irregular in shape non-tender gingival overgrowth was seen between 31 and 41 which extended from the interdental papilla to the attached gingival. (Figure 1, Figure 2, Figure 3)

Bleeding on probing present

There were no ulcerations seen with the lesion. Local factors were seen in relation to the teeth in and around the lesion. Probing depth was found to be >8 mm. (Figure 4)



Figure 1: Pre operative buccal view



Figure 2: Pre operative lingual view



Figure 3: Pre operative occlusal view



Figure 4: Probing depth > 8mm

Radiographic findings

An Orthopantogram (OPG) has been advised to the patient and based on the radiograph following findings have been revealed:

- Vertical bone loss can be seen in 31 and 41
- Pathological migration of 31 and 41(Figure 5)



Figure 5: OPG revealing the spacing and migration of 31 and 41

Blood investigations

Complete blood haemogram was found to be normal.

Bleeding time: 2.30 min
Clotting time: 4.45 min
Hemoglobin: 13.4 gm%
Neutrophils: 60%
Lymphocytes: 35%
Eosinophils: 4%
Monocytes: 2%
basophils: 0%
Random blood sugar: 131

Treatment protocol

Treatment started with non-surgical periodontal therapy including a thorough scaling and root planning and the patient was put on maintenance phase and was advised to stop habit.

Patient was recalled after 15 days. Local infiltration was given at the surgical site (Figure 6). Excision of the lesion was done using electrocautery (Figure 7, 8 and 9). Excisional biopsy was done and excised lesion was sent for histopathological analysis.(Figure 10) and Antibiotics and analgesics were prescribed to the patient after the treatment. Patient was periodically recalled for re-evaluation of gingival status after 2 weeks and 1month (Figure 11 and 12).



Figure 6: Local infiltration given at the site



Figure 7: Excision of the lesion using electrocautery



Figure 8: Gingival contouring with electrocautery



Figure 9: Lingual view post excision



Figure 10: Excised soft tissue measuring 0.8 x 0.6 x 1 cms sent for biopsy



Figure 11: Lingual view 2 weeks post surgery



Figure 12: Buccal view 1 month post surgery

Healing was uneventful and no recurrence was observed even after 6 months. During this period, the patient did not report any complaints and no other treatment was needed.

Histopathological analysis

Histo-pathological examination revealed the following findings:

- Epithelium and connective tissue is seen
- Epithelium is parakeratinized
- Stratified squamous epithelium having rete ridges with basal cell hyperchromatism
- Loose bundles of collagen fibers and fibroblasts and blood vessels are seen
- Presence of bony trabeculae arranged in unorganised manner and shows no osteoblastic rimming and osteocytes
- Presence of epithelium in lot of bony trabeculae with calcifications and presence of mild chronic inflammatory cells chiefly of lymphocytes
- High degree of cellularity is present in the lesion
- Calcifications and ossifications are seen in the context of a hypercellular fibroblastic stroma.(Figure 13 a, 13b, 13c).

Based on the detailed history and clinical findings a provisional diagnosis of gingival polyp or pyogenic granuloma was given.

On histopathological examination diagnosis of peripheral ossifying fibroma was confirmed based on the histopathological features.

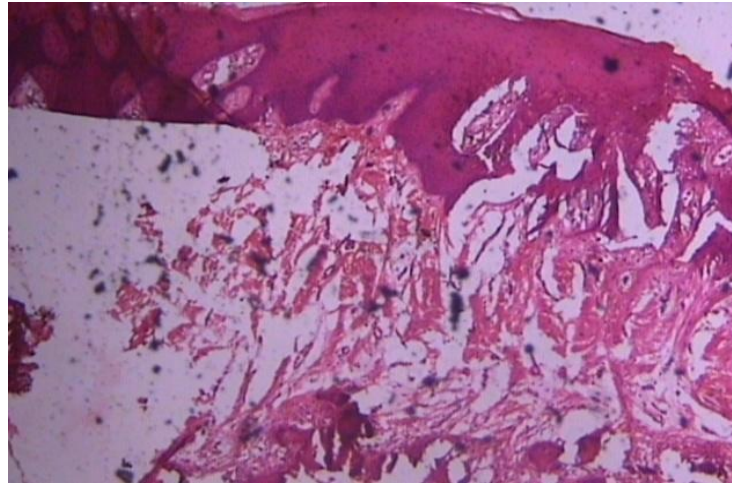


Figure 13 (a): Parakeratinized epithelium and Basal cell hyperchromatism

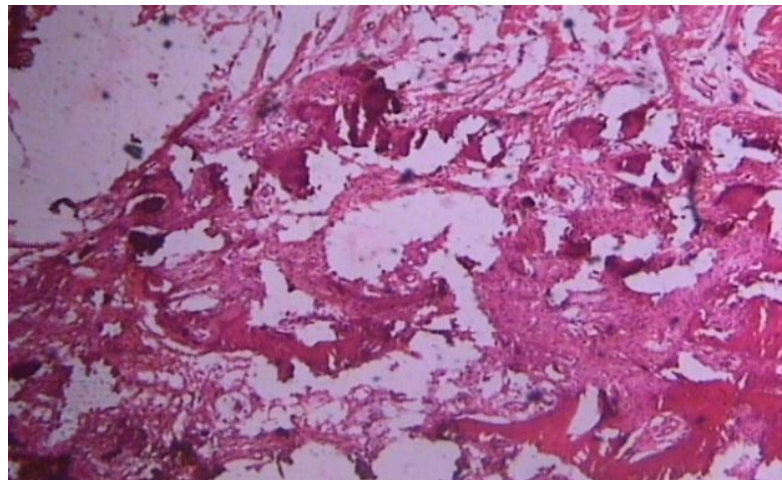


Figure 13 (b): Calcification of bone and loose bundle of collagen fibers and fibroblasts

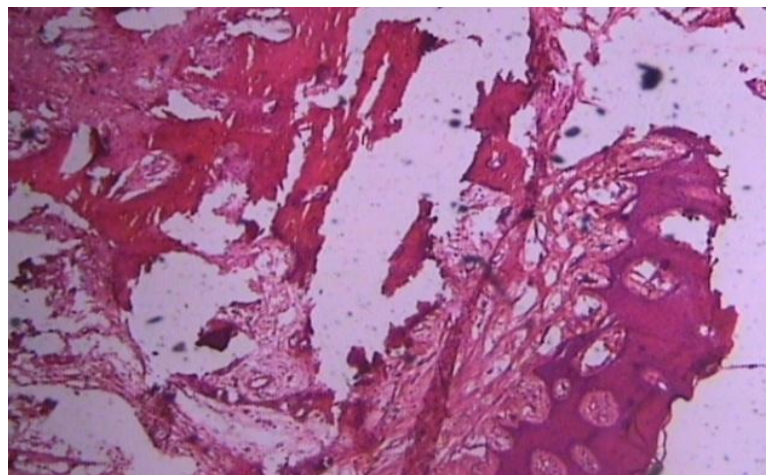


Figure 13 (c): Bony trabeculae not lined by osteoblasts and absence of osteocytes and presence of lymphocytes

DISCUSSION

Peripheral ossifying fibroma is reactive lesion, which occurs exclusively on gingiva. In the present case report the subject complained of bleeding gums and an interdental growth which increased in size. The etiopathogenesis for POF is the inflammatory hyperplasia of the cells of the periosteum or periodontal ligament, as there is excessive proliferation of mature fibrous connective tissue in response to gingival injury, gingival irritation, sub-gingival calculus

or a foreign body in the gingival sulcus. Chronic irritation of the periosteal and periodontal membrane causes metaplasia of the connective tissue and resultant initiation of formation of bone or dystrophic calcification. (Mathur et al., 2014).

One more hypothesis regarding the origin of POF is the development of POF secondary to fibrosis of the granulation tissue of pyogenic granuloma (PG). The basis of this hypothesis is that both PG and POF share similar sex and site predilection, as well as similar clinical and histological features.

Hence, these lesions may simply be considered as variable histological responses to irritation (Babu et al., 2010). Another pathology similar to this spectrum of chronic irritation induced gingival hyperplasia is Peripheral giant cell granuloma (PGCG) and is known to be a related pathology to both PG and POF. PGCG is a more intense response of periosteum to the irritation factors than that associated with the formation of the more common lesion that is pyogenic granuloma (Patil et al., 2014). Marcos A Jose et al., (2010) showed that the proliferating cells of connective tissue in POF are myo-fibroblastic in nature (i.e; cells sharing morphological characteristics with fibroblasts and muscle cells). When proliferating spindle shaped cells were subjected to immuno-histochemical analysis they were found to be positive to vimentin and actin further confirming its myo-fibroblastic nature. Clinically, POF usually appears as a pedunculated or sessile localized overgrowth on the gingiva. On palpation, it is found to be firm, non-tender and attached to the interdental gingiva. It is described as a slowly growing lesion which attains mostly the size of 1-2 cm in diameter. POF may occur at any age but commonly it shows incidence between the second and third decades. Almost 60% of the lesions occur in the maxilla and are seen usually anterior to the first molars, mostly, in incisor-cuspid region and during the second decade of life. Females predilection is more common than males (5:1 respectively) (Mathur et al., 2014). As a result the role of hormones is also postulated in the pathogenesis of POF (Ramu et al., 2012).

The histopathological report in the present case showed classical features of peripheral ossifying fibroma.

Cellular connective tissue of POF is characteristic to it, regardless of the presence or absence of calcification Gardner (1982). The mineralized component of peripheral ossifying fibroma varies from 23% to 75 %. It mainly consists of following components: Lamellar or woven osteoid tissue;Cementum like material; and Dystrophic calcification (Reddy et al., 2011). Dystrophic calcification is mostly seen in ulcerated lesions (Buchner et al., 1987).

Treatment includes proper surgical intervention with deep excision of the lesion including periosteum and affected periodontal ligament. Thorough scaling and root planing of the adjacent teeth and/or removal of other sources of irritants should be accomplished. Post operative follow-ups are required because of high rate of recurrence (8% to 20%). Recurrence of POF can be due to

- 1) Incomplete removal of the lesion,
- 2) Failure to eliminate local irritants and
- 3) Difficulty in accessing the lesion during surgical manipulation as a result of the intricate location of the lesion (usually an interdental area) (Shetty et al., 2011). In the above mentioned case report, no clinical signs of recurrence after 6 months of follow-up were seen.

CONCLUSION

POF has been found to be a slowly progressing lesion. In a couple of cases it will progress for long periods because of the lack of symptoms associated with the lesion. A slow growing pink soft tissue nodule in the gingival region should raise suspicion of a POF. Treatment modalities consists of surgical excision, including the periosteum, and scaling and root planing of adjacent teeth. Periodic post-operative follow-up is required because of the growth potential of the incompletely removed lesions and a high recurrence rate.

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