

Peripheral Ossifying Fibroma: Report of 2 Cases with Management

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ABSTRACT

Introduction: Peripheral ossifying fibroma (POF), accounting for about 9% of all gingival growths, is commonly seen in females in the interdental papilla and the anterior part of the maxilla. It is a clinician's concern because of its unknown etiology, unpredictable clinical course and chances of recurrence. The treatment of choice for such gingival growths is surgical excision, however the recurrence rate is reported to be 7–45%. Lasers have been used extensively in dental practice and hence excision of such lesions with the help of lasers has become a possible, and patient-preferred approach.

Case report: This case report presents 2 male patients with gingival overgrowth in the mandibular right lateral-canine region and in maxillary left central-lateral incisor region respectively. Surgical excision of the lesion was done with scalpel method in first case and laser excision in the second case followed by histopathologic confirmation with emphasis on the clinical aspect.

Conclusion: This case report showed similar healing following surgical excision using scalpel method and laser. However laser excision was better due to minimal bleeding and patient discomfort.

Keywords: Peripheral ossifying fibroma, gingival overgrowth, laser excision, excisional biopsy.

INTRODUCTION

Epulis refers to a series of reactive gingival lesions which is commonly produced by irritating agents. Their diagnosis is usually made on the basis of clinical and histologic findings. Many types of localized reactive lesions are reported on the gingiva, including pyogenic granuloma, peripheral giant cell granuloma (PGCG), and peripheral ossifying fibroma (POF).¹⁻² The POF exhibits a peak incidence between 20 and 30 years of age, but may also occur at any age.³ The lesions have a Female: Male ratio of 4.3:1. The recurrence rate can reach as high as 20%. The lesions are most often found in the interdental papilla region, located anterior to the molars and in the maxilla. Clinically, the lesions appear as a well-defined and slow-growing gingival mass which is usually lesser than 2 cm in size, although larger ones may also occur occasionally. In majority of cases, there is no apparent underlying bone involvement visible on the radiograph. The lesion may be sessile or pedunculated and the color resembles that of the gingiva or slightly reddish. This article presents two cases of Peripheral Ossifying Fibroma that was diagnosed and treated in our department.

CASE PRESENTATION

Case 1

A 51-year-old male patient reported to Department of Periodontics and Oral Implantology with the chief complaint of a “lump that causes difficulty in eating” in the right lower front region of the jaw since 1 year. The lesion had started as small growth, which gradually increased to the current size. The lesion did not bleed and there was no history of pain. The patient gave

a history of beedi smoking for the past 30 years and smoked 1 pack of beedis per day. There was no relevant medical and dental history. Clinical examination revealed a single, sessile, pale pink gingival overgrowth, measuring about 1.5 x 1 cm extending from mesial aspect of mandibular right lateral incisor up to the distal aspect of mandibular right canine (Figure-1). The growth was firm in consistency, had a non-ulcerated surface and was non-tender on palpation. The patient had a poor oral hygiene as determined by Oral Hygiene Index-Simplified (Greene and Vermillion 1964). Intra oral periapical radiograph (IOPA) of the involved area was taken which revealed a mild horizontal bone loss (Figure-2). Provisional diagnosis of POF and pyogenic granuloma was given. Surgical excision of the lesion was performed following scaling and root planing and sent for histopathological examination. A periodontal pack was placed. The patient was recalled after 10 days for pack removal. At 10 days follow-up, the area seemed to heal well. A 4-week follow-up photograph has been shown (Figure-1).

The H and E stained section showed a parakeratinised stratified squamous epithelium with pseudo epitheliomatous hyperplasia overlying a dense fibrous stroma. The connective tissue showed dense bundles of collagen fibers with spindle shaped fibroblasts along with focal areas of hyalinization. Stroma showed few calcified deposits in the form of irregular trabeculae of bone and dystrophic calcification. The histopathological examination confirmed the provisional diagnosis of Peripheral ossifying fibroma. (Figure-2)

Case 2

A 22-year-old male patient reported to the Department with a complaint of growth in the gums in the upper front left region. The patient noticed the lesion 12 months back which slowly progressed to the present size. It was painless and the patient's complaint was discomfort because of cosmetic reasons. Extraoral examination did not reveal any abnormalities with no palpable regional lymph nodes. Interdental papilla in the region of maxillary left central and lateral incisor revealed a pedunculated, enlarged lesion measuring around 0.9 cm x 0.7 cm. The growth was pinkish red, soft with a smooth surface and was not ulcerated (Figure-3). Bleeding was elicited when the lesion was gently handled with a blunt probe indicating

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How to cite this article: Ashutosh T, Manjusha K, Ranjeet S, Nahush C. Peripheral ossifying fibroma:report of 2 cases with management. International Journal of Contemporary Medical Research 2016;3(6):1652-1654.

inflamed and engorged tissue. The patient had a fair oral hygiene as determined by Oral Hygiene Index-Simplified (Greene and Vermillion 1964). Intraoral periapical radiographs revealed no abnormality with normal periodontal ligament space, lamina dura and periapical tissues (Figure-4). A provisional diagnosis of POF, pyogenic granuloma and irritational fibroma was considered. Teeth in the area of involvement were thoroughly debrided. Laser excision was performed 0.5-1 mm beyond the lesion's extent using diode laser of 980 nm (Hager and Werken GmbH and Co KG) delivered through an optical fiber with 320 μ m fiber-tip at 3 W and in a continuous wave and contact mode. A thorough curettage of the underlying surface and root planing was performed on the adjacent teeth with the periodontal curettes. During the entire procedure, tissues were well coagulated. A superficial layer of fibrin was seen following a week and 4 weeks after surgery the wound was completely healed (Figure-3).

The excised specimens after due processing were evaluated. The H and E stained section showed a slightly hyperplastic parakeratinised stratified squamous epithelium overlying a fibrocellular stroma. The stroma was highly cellular containing fibrillar collagen with numerous dense plump fibroblasts, fibrocytes and inflammatory cells chiefly composed of lymphocytes and plasma cells. Focal areas of osteoid like tissue and many areas of hyalinization were seen in the stroma. Few blood vessels engorged with RBC's were also present (Figure-4). A final diagnosis of POF was arrived at by the Pathologist.

DISCUSSION

Gingiva in the oral cavity has shown to present with the largest number of lesions which ranges from inflammatory to neoplastic, POF being one such lesion. POF is a non-neoplastic enlargement occurring in the interdental papilla and the anterior part of the maxilla. The predilection of POF to occur in the anterior part of the maxilla is disputable with another source stating that mandible especially the pre-molar and molar areas being the common sites of involvement.⁴ The higher incidence of POF is seen in the 2nd decade and declining incidence after the 3rd decade. POF may present as a pedunculated nodule, or it may have a broad attachment base. These lesions can be red to pink with areas of ulceration and their surface may be smooth or irregular. The lesion varies from 0.4 to 4.0 cm in size.⁵ However, a case of giant POF of 9 cm is also reported in the literature.⁶ The etiopathogenesis of POF is uncertain. However, local irritants like dental plaque or trauma causes the cells of the periodontal ligament to give rise to such a lesion. The reasons for considering periodontal ligament origin for POF include exclusive occurrence of POF in the gingiva (interdental papilla), the proximity of gingiva to the periodontal ligament and the presence of oxytalan fibers within the mineralized matrix of some lesions.⁷ Gingival injury, gingival irritation or subgingival calculus causes excessive proliferation of mature fibrous connective tissue. Chronic irritation of the periosteal and periodontal membrane causes metaplasia of the connective tissue and resultant initiation of formation of bone or dystrophic calcification.

There have been suggestions that the POF represents a different clinical entity and not a transitional form of pyogenic granuloma, PGCG, or irritation fibroma. Eversole and Rovin¹



Figure-1: Pre-operative view and 4 weeks follow up of case 1 following scalpel excision

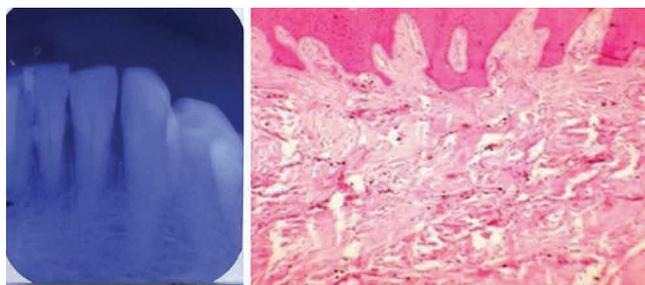


Figure-2: IOPA and Histopathological picture of case 1



Figure-3: Pre-operative view and 4 weeks follow up of case 2 following laser excision



Figure-4: IOPA and Histopathological picture of case 2

stated that with the similar sex and site predilection of pyogenic granuloma, PGCG and POF, as well as similar clinical and histologic features, these lesions may simply be varied histologic responses to irritation. Gardner² stated that POF cellular connective tissue is so characteristic that a histologic diagnosis can be made with confidence, regardless of the presence or absence of calcification. Buchner and Hansen³ hypothesized that early POF presents as ulcerated nodules with little calcification, allowing easy misdiagnosis as a pyogenic granuloma. Pyogenic granuloma shows surface ulceration on a red mass with vascular proliferation resembling granulation tissue microscopically. Giant cells are seen scattered in a fibrous stroma in cases of PGCG. Accordingly, POF should be differentiated from such reactive lesions of a gingiva.

Radiographic features of POF may vary. Radiopaque foci of calcifications have been reported in some cases and are scattered in the central area of the lesion. POF usually does not involve

the underlying bone. However, superficial erosion of bone could be seen in some cases.⁵

The basic microscopic pattern of the POF is fibrous proliferation associated with the formation of mineralized components. A confirmatory diagnosis of POF is made by histopathologic evaluation of biopsy specimens. Microscopic examination usually reveals intact or ulcerated stratified squamous surface epithelium; benign fibrous connective tissue with varying numbers of fibroblasts; sparse to profuse endothelial proliferation; mineralized material consisting of mature, lamellar or woven osteoid, cementum-like material or dystrophic calcifications; and acute or chronic inflammatory cells in lesions.^{7,5} Moreover, histopathologically, lamellar or woven osteoid pattern predominates; hence, the term "POF" is considered more appropriate.

If surgical intervention in an early stage is not done, POF can become large, causing extensive destruction of adjacent bone and significant functional or aesthetic alteration.⁶ Different treatment modalities include surgical excision by scalpel, laser or electrosurgery. Surgical excision includes the removal of involved periodontal ligament and periosteum and hence is also the preferred treatment,⁶ which was performed in the first case. The advantages of laser excision are minimal post-surgical pain and no need for suturing the biopsy site. Alam *et al.*, claimed to perform the first laser excision (diode) of cemento-ossifying fibroma of 3 cm × 2.5 cm.⁸ Iyer *et al.*, suggested that laser excision is one of the best option for management of POF following a case of successful laser excision of POF with minimal intraoperative bleeding, post-operative pain, and excellent healing at the end of 1 week.⁹

Close postoperative follow-up is required because of the growth potential of incompletely removed lesions, as well as 8% to 20% recurrence rate.¹⁰ It is important to remove lesions completely by including subjacent periosteum and periodontal ligament, besides the possible causes, to reduce recurrence. The first recurrence is usually noted within 12 months.⁸

CONCLUSION

POF stands a concern for the physician owing to its unknown etiology and pronicity for recurrence which is 8-20%. It is a benign, slowly progressive lesion, with limited growth. Histopathologic confirmation is mandatory as clinical diagnosis is difficult. Many cases will progress for long periods before patients seek treatment, because of the lack of symptoms associated with the lesion. Treatment consists of surgical excision, including the periosteum and scaling of the adjacent teeth. In the above cases, laser excision was better due to the minimal bleeding and discomfort to the patient. However post-operative healing in both the cases were similar. The recovery of the current patients were uneventful and the patients have not shown recurrence of the lesion for about one year.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 25-04-2016; **Published online:** 22-05-2016