

CASE REPORT



Peripheral ossifying fibroma: A rare entity in pediatric maxilla

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Abstract

Gingival hyperplasia is considered to be one of most commonly encountered lesions in the intra oral cavity. Most of them occur due to localized irritational factors. Broadly, they are termed as “Epulis.” Peripheral ossifying fibroma (POF) is a soft-tissue growth that is usually seen on the interdental papilla. Our case report presented 14-year-old boy with gingival overgrowth on palatal side of the anterior maxillary region since 5 months, which was treated with combination of CO₂ laser and scalpel under local anesthesia. Post-operative follow-up was done for 1 year and no evidence of recurrence noted.

Introduction

The term “Peripheral ossifying fibroma” was proposed by Gardner in the year 1982, for a reactive lesion which was not the extraosseous counterpart of a Cemento Ossifying Fibroma of the maxilla and mandible.^[1,2]

Peripheral ossifying fibroma (POF) was first reported by Shepherd in the year 1844 as alveolar exostosis.^[3]

Most commonly seen in the younger age group with a female predilection. Maxillary arch is most commonly affected, with high occurrence in the incisor-cuspid region. Frequently seen as a, painless mass that grows on either the gingiva or alveolar mucosa measuring not more than 3 cm in diameter. Growth can be pedunculated or sessile. The early lesions are irregular and present as reddish growths of the gingival tissue, whereas in comparison, the older lesions show a smooth pink surface.

Case Report

A 14-year-old male patient reported to our department with the chief complaint of a swelling on inner side of the upper right front teeth region extending from 11 to 13 since 5 months [Figures 1 and 2]. Clinical examination the mass presented a solitary, well circumscribed, pedunculated, erythematous, and firm swelling measuring approximately 2 cm × 2 cm in size. The appearance of the lesion was reddish pink in color and non-fluctuant in nature. It was tender to firm pressure with a non-ulcerated surface

and normal overlying mucosa. No signs of bony involvement noted on the radiograph relating to any exophytic bony lesion. POF, peripheral giant cell granuloma, fibrous hyperplasia, and pyogenic granuloma were pondered as possible differential diagnosis for the lesion.

Treatment

Local anesthesia was administered, and then, the outline of the lesion was marked around 0.5–1 mm beyond the clinical extent of the growth in a slow and controlled fashion using CO₂ laser of wavelength of 10.6 microns at 1.5W with focus spot diameter of 0.4 mm followed by which the surgical excision was carried out to the desired depth of 2–3 mm below the epithelial surface including the underlying periosteum, using a Bard Parker handle and No. 15 blade [Figures 3 and 4]. Satisfactory hemostasis was achieved and the excised lesion was dispatched for histopathological examination [Figure 5]. Histologically, the specimen presented para keratinized stratified squamous epithelium overlying the connective tissue stroma. Hyperplastic epithelium was noticed in some areas. Connective tissue stroma comprised highly cellular mass of proliferating fibroblasts combined with fibrillar tissue. Based on the clinical presentation, radiological, and histopathological examination, a final diagnosis of peripheral ossifying fibroma was given with respect to the 11, 12, and 13 teeth region. Post-operative follow-up examinations were done up to 1 year, and no evidence of recurrence noted [Figure 6].



Figure 1: Pre-operative



Figure 2: Palatal extension



Figure 3: Intraoperative

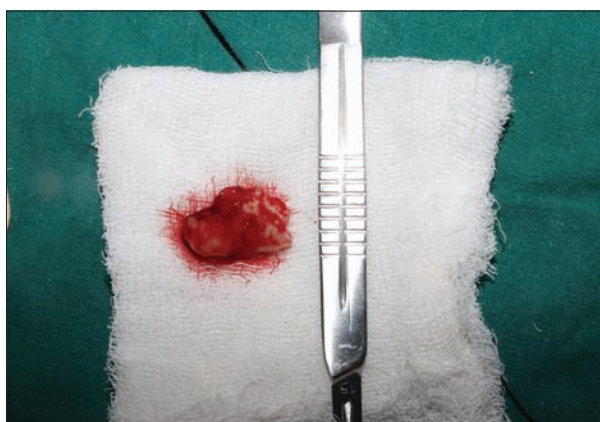


Figure 4: Excised lesion

Discussion

Eversole and Rovin in 1972 described POF as a reactive lesion of gingiva and Gardner in 1982 coined the term POF.^[2,4] POF is highly reactive in nature and is not the extrasosseous counterpart of central ossifying fibroma (COF).^[5] There is no clarity on the pathogenesis of POF, and it is challenging to ascertain the causative factor of its growth, but the local factors such as dental calculus, plaque, dental appliances, microorganisms, and restorations are considered to be the etiological factors.^[5,6]

POF clinically appears as a small, well-demarcated focal mass on the gingiva with a sessile or pedunculated base, arising from the interdental papilla. Histopathologically, the POF is a unencapsulated mass of a cellular fibroblastic connective tissue covered by stratified squamous epithelium. Haphazardly distributed calcification maybe noted throughout the cellular connective tissue stroma. The lesion take sits name from the histopathological presence of calcifications and ossifications. It may occur at any age but shows a greatest incidence between 2nd and 3rd decades of life with an average age of 28 years. The size of the lesion

is generally lesser than 1.5 cm in diameter, but it has been stated in the literature to occur at even larger sizes measuring about 4 cm in diameter. Considering the female predilection of the lesion as an hormonal influence, it can be measured as one of the pathological factor of the lesion. Although the pathogenesis remains an ambiguity, it has acknowledged the fact that the pluripotent cells present in the periodontal ligament and periosteum can undergo a metaplastic transformation into osteoblasts, fibroblasts, or cementoblasts under the influence of local aggravating factors.

The mineralized product appreciated in POFs feasibly instigates from periosteal cells or from the PDL.

Out of all lesions very few may reveal radiopaque foci of calcifications distributed in the central area of the lesion. Usually, POF does not involve the underlying bone; rarely, superficial bony erosion may be noted.^[7]

In literature, several investigations have been endeavored to institute a relationship between pyogenic granuloma and POF, asserting that PG and POF may epitomize extremes of the gamut of the same pathology.^[8]

Histopathologically, POF can divulge an ulcerated or intact stratified squamous epithelium.^[5]

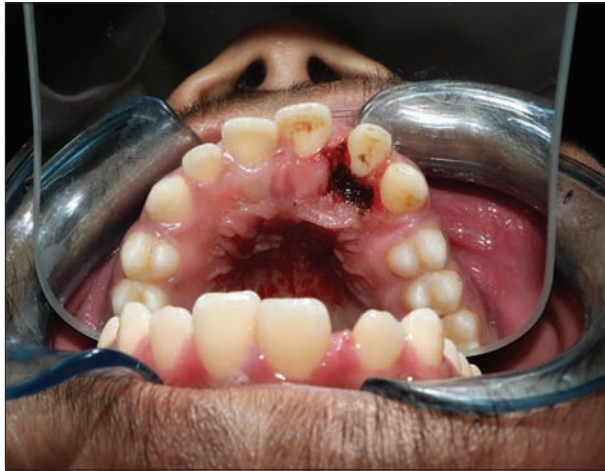


Figure 5: Immediate post-operative



Figure 6: Follow-up

The calcified material might reveal – (a) mature lamellated trabecular bone; (b) immature, extremely cellular bone; (c) circumscribed amorphous, almost acellular, eosinophilic or basophilic bodies, and miniature microscopic granular foci of calcification.^[9,10] POF is not considered as the counterpart of the COF which denotes a central benign neoplasm arising from endosteum or periodontal ligament. POF expresses a connecting relationship with PDL arising in the soft tissues covering the alveolar bone. Pyogenic granuloma, a vascular type reactive lesion of gingiva classically does not display any calcifications. However, recently, there is a belief that POF falls within the spectrum of pyogenic granuloma which undergoes maturation. Initially, the lesion appears as pyogenic granuloma which undergoes a process of the organization, leading to the decreased vascularity on long duration, increased fibrotic component and foci of calcifications seen histologically. Surgical excision is deliberated to be the gold standard treatment for POF.^[11]

Although the traditional method of scalpel excision is considered as the gold standard, lasers are not novel to maxillofacial surgery and have been in trend for the past 3–4 decades for various procedures such as surgical excision of gingival hyperplasias, frenectomies, hemangioma removal, and peri-implant soft-tissue surgery using the various wavelengths of laser therapy.^[12]

Excising pathologic tissues with biopsy laser offer edge over scalpel in various ways such as a dry and bloodless surgical field, reduced bacteremia at the surgical site, precise cutting of tissues, better accessibility to the complicated areas, reduced mechanical and psychological trauma for the patient, minimal scarring, and wound contraction promoting excellent recovery and post-operative function and most importantly, less recurrence.^[13]

Alam *et al.* performed surgical excision in a young patient diagnosed with cemento-ossifying fibroma measuring about 3 × 2.5 cm and claimed to be the first procedure where such kind of lesion was excised with laser (diode).^[14]

Conclusion

Bearing in mind the unidentified etiology, impulsive clinical course and high susceptibility of recurrence for POF is a clinician's cause for concern. The current case report of surgical excision with the combination of scalpel and laser with no recurrence noted over a period of 12 months makes this novel approach a gifted treatment option for POF.

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