CASE REPORT

PERIPHERAL OSSIFYING FIBROMA OF MANDIBLE –CASE REPORT WITH LITERATURE REVIEW

ABSTRACT

Focal reactive gingival overgrowths (FRGO) are commonly occurring lesions in the oral cavity. The incidence of these lesions in the clinical dental practice is moderate and may occur in response to external or internal chronic stimuli in the fibrous connective tissue of the gingiva. Peripheral ossifying fibroma (POF) is one among them whose pathogenesis is uncertain. It is more common in women and maxilla is the most common site of occurrence. The aim of this paper is to present a case of peripheral ossifying fibroma in mandible, which is an uncommon site of occurrence. The patient was painless but had difficulty in phonetics and mastication. The radiographic findings showed no bone involvement and the histological analysis confirmed the diagnosis. The case was solely managed with diode laser excision with minimal patient compliance. The patient was under follow-up and had not shown any signs of recurrence 6 months after the excision.

Keywords: Ossifying fibroma, Gingival overgrowths, Periodontal ligament, Laser ablation, Case Report.

INTRODUCTION

The gingiva and the periodontium, which covers the tooth and the alveolar process are the most imperative areas in the oral cavity. Focal reactive gingival overgrowths (FRGO) is a broad clinical group of lesions ranging from reactive lesions to benign neoplasms where the cause of origin is found to be from either gingival or periodontium[1]. Peripheral ossifying fibroma is one among them and clinically exhibits as a reactive soft tissue growth, pale pink to dark red in colour with a smooth or rough surface attached by a sessile or pedunculated base adhering to the underlying tissue [2]. It

accounts for 2% to 9% of all gingival lesions and 3% of all oral biopsy specimens.[3] There is an uncertainty in developing a diagnosis due to the clinical presentation, which often confuses with other lesions, like pyogenic granuloma or irritational fibroma. Hence, an accurate diagnosis is mandatory through appropriate investigations, thereby managing the lesion concurrently and minimizing the recurrence. These focal reactive gingival overgrowth lesions need a holistic management which includes removal of etiology, meticulous plaque control and surgical excision of the lesion. Eventually, various approaches like scalpel, cryosurgery and electrosurgical excision have been recommended in dentistry. Lasers are the latest treatment modality and are being effectively used in the management of gingival overgrowths nowadays. Diode soft tissue laser has added advantages like bloodless surgical field, reduced bacteremia, minimal intra and postoperative patient discomfort over conventional surgical procedures. Thus it is highly effective in the surgical management of FRGO. Among the lasers, diode lasers are the most versatile and frequently employed for the management of FRGO due to its high affinity for hemoglobin and melanin. This article describes a case report of a peripheral ossifying fibroma in a 28-year-old female patient involving the mandibular anterior gingival region which is successfully managed by diode laser excision.

Comment [Rev1]: It is a telangiectatic granuloma, (it can be clarified that it was previously called Pyogenic Granuloma of pregnancy or gravidarum).

In addition, it can be added, consulting the other pathologies reported in the literature, with which this peripheral ossifying fibroma is often confused (for example, peripheral giant cell granuloma, giant cell fibroma, simple fibroma...)

CASE REPORT

A 28 year- old female patient presented with a chief complaint of swelling in the right lower front teeth region for the past six months which occurred as a smaller in size initially and gradually increased in size associated with difficulty in mastication and phonetics. Her medical history was non-contributory, and her dental history revealed that she had visited a private dental clinic before two years for the excision of similar swelling in the same region where they performed partial removal of that swelling initially, and the patient missed the consecutive appointments for the total removal.

Intraoral examination revealed single sessile nodular growth involving the gingival region of 42,43 and 44 of size 3 x 3 cm on the lingual aspect and 1x1.5 cm on the buccal aspect which is connected through the interdental space of lateral incisor and canine with the labial displacement of canine. On palpation, the growth was non-tender with firm in consistency on the lingual aspect and soft in

consistency on the buccal aspect. The lesion appears pale pink in colour. No evidence of paraesthesia and mobility of the teeth associated. (Fig 1).x

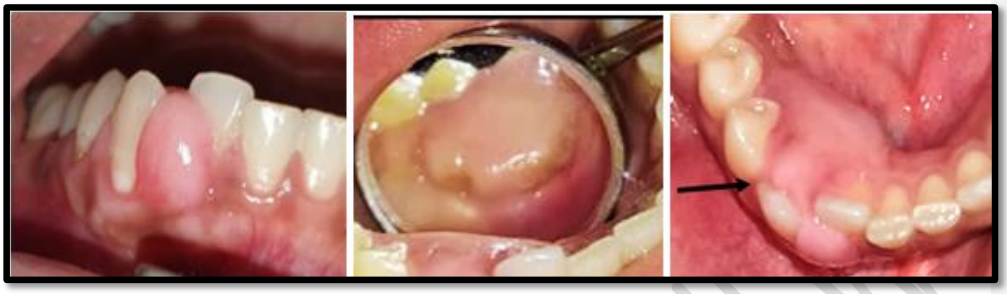

Figure 1 Labial and lingual presentation of growth

Provisionally it was diagnosed as benign fibromatous growth and the differential diagnosis of peripheral ossifying fibroma and peripheral giant cell granuloma were considered.

Further the patient was subjected to CBCT, which it revealed bone around the outer limits of the involved teeth appeared normal with no pathologic radiographic findings. (Fig 2)

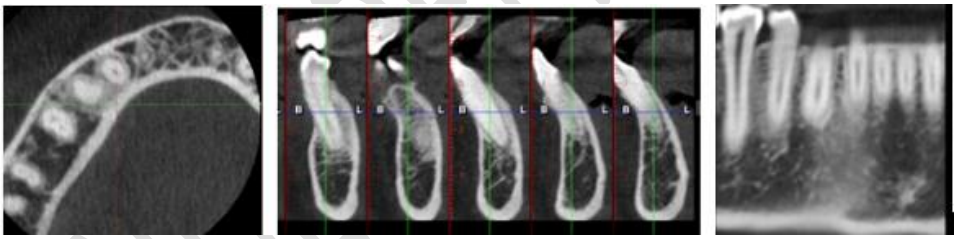

Figure 2 CBCT reveals no crestal and trabecular bone changes

Patient advised to undergo routine blood investigations, where it showed a mild decrease in hemoglobin level and all other parameters were within the normal limits. The patient then advised for laser excision of the lesion. With the patient consent, the complete excision of the growth with 1 mm of healthy margins was performed by using diode laser under local anaesthesia (inferior alveolar nerve block) with aseptic protocols. Immediate postoperative findings showed charring of the tissue and bone exposure. Further periodontal pack was given. (Fig 3).

Comment [Rev2]: You can improve the description of intraoral exam, including the characteristics found of the sessile component, as well as comment on whether bidigital palpation was performed.

In this same description, verify possible findings (according to that is observed in the first photograph) of mixed erythematous zones next to the pale pink or coral colored zones, at the mesial 43 level.. Whenever irritating factors are observed that they induce the coloration to this slightly dilated vascular area and therefore softer on palpation.

Review and adjust, clinical terms according to reported findings, example "coral pink isochromic lesion, with fibrous consistency and asymptomatic" Likewise, to expand descriptive clinic on the labial displacement of 43 and its functional implications.

Comment [Rev3]: Comment on what kind of consent was used (informed, tacit, etc.) and if this consent was obtained either verbal or signed in writing.

Comment [Rev4]: It is important to improve the description, beginning for example, "The surgical act was carried out in (the Maxillofacial Surgery service.... of the Institution, clinic, hospital...) in charge of the area specialist(s)

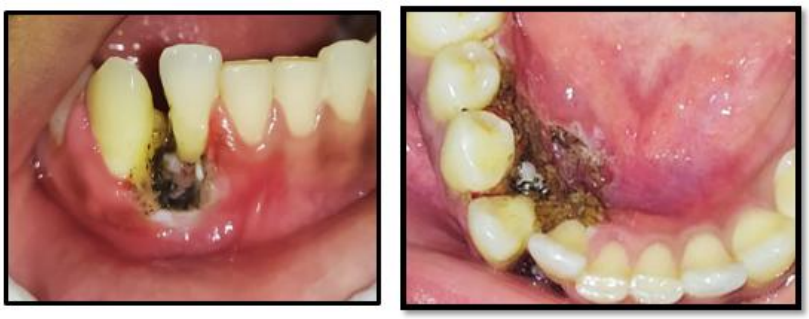

Figure 3 Immediate post-operative image showing charring of the tissue and bone exposure on the lingual aspect.

The excised tissue specimen was submitted for histopathological examination. The excised specimen when subjected to radiographic examination showed calcifications (Fig.4A). The histopathological report revealed the presence of parakeratinized stratified squamous epithelium underlined by hypercellular fibroblastic stroma where it contains calcifications. Chronic inflammatory cell infiltrate was seen with proliferating plump fibroblasts intermingled with fibrillary stroma which suggestive of peripheral ossifying fibroma. (Fig 4B)

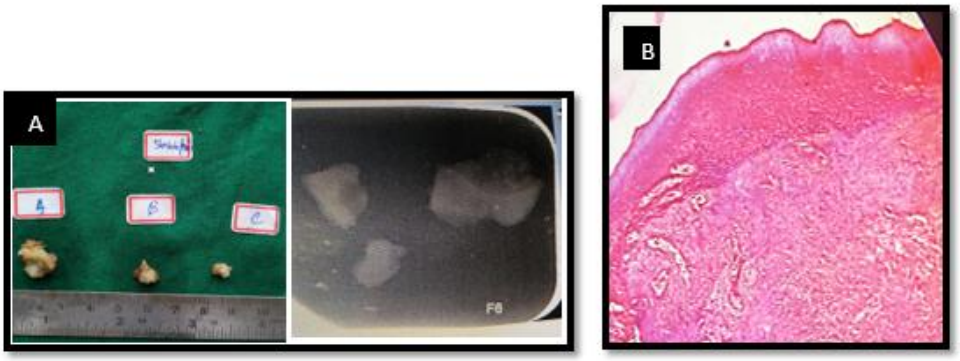

Figure 4A: Tissue specimens and calcifications seen under radiographic examination. 4 B: The H & E-stained section showed Para keratinized stratified squamous epithelium with calcifications in the fibrillar stroma

x

Comment [Rev5]: In addition to surgical treatment, it is recommended to report all those therapies used in this patient, for example, pharmacological, preventive..., and if there were or not changes in treatment, with due justification.

The patient then advised to report after three days for the removal of periodontal pack, and on examination of excised site, satisfactory active wound healing was seen. The patient gave no history of bleeding or pain; however, she gave history of sensitivity in the lingual excised site. Topical application of Rexidin M forte gel (Chlorhexidine gluconate 1% + Metronidazole 1% + Lignocaine hydrochloride 2%) was advised to the patient for the management of sensitivity. Then the patient was reviewed after 3 weeks where the operated site exhibited satisfactory healing with incomplete formation of alveolar mucosa at the lingual site.

The patient recalled after 3 months to check for healing and recurrence, where the site exhibited healed area with complete coverage of mucosa lingually. However, mild accumulation of plaque and calculus was seen and the patient advised to undergo oral prophylaxis. (Fig 5)

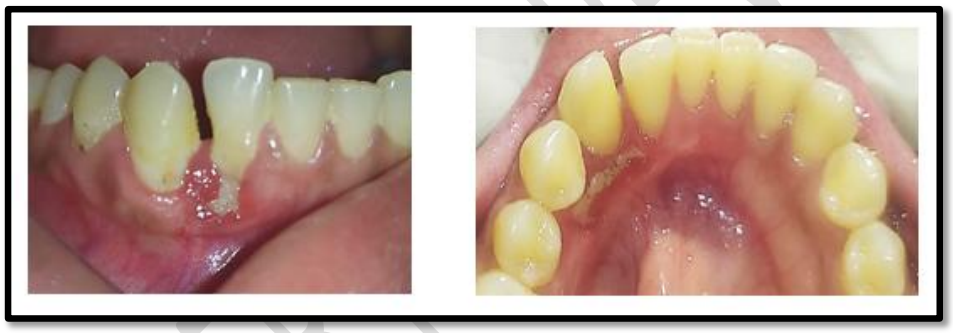

Figure 5 : 3 Months post-operative image shows completely healed area with complete coverage of mucosa lingually

DISCUSSION

Peripheral ossifying fibroma is the third most common lesion among FRGO[4]. Menzel first described the lesion of ossifying fibroma in 1872, but the term POF was coined by Eversole and Robin in 1972[2],[5]. Cawson in 2007, described this lesion as a gingival nodule which is composed of a cellular fibroblastic connective tissue stroma which is associated with the formation of randomly dispersed foci of mineralised products, which consists of bone, cementum-like tissue, or a dystrophic calcification.[6] Synonyms of POF are, calcifying or ossifying fibroid epulis, peripheral fibroma with

Comment [Rev6]: The review of the literature presented in this section is good, however, only in the second paragraph is it contrasted with the reported case, so it can be improved considering that is convenient in each paragraph.

osteogenesis, calcifying fibroblastic granuloma and peripheral fibroma with calcification.[7] Generally, ossifying fibromas of the oral cavity can be divided into central type which arises from the endosteum or periodontal ligament and peripheral type which arises from the soft tissue.[8] According to the literature, two hypotheses have been illustrated in the etiopathogenesis of the peripheral ossifying fibroma. The first one is that it may develop as pyogenic granuloma that undergoes subsequent fibrous maturation and calcification. It represents the progressive stage of the same spectrum of pathosis. The other hypothesis is that is due to inflammatory hyperplasia of cells of periodontal ligament/periosteum followed by the metaplasia of the connective tissue leading to dystrophic calcification and bone formation. This can be due to the periodontal ligament is more adherent to the gingiva and contains the oxytalan fibers which may undergo calcification spontaneously to inflammation.[9] The main triggering factors that initiate the inflammatory response are the presence of local irritants such as such as subgingival plaque and calculus, dental appliances, poor quality of dental restorations, micro-organisms and food lodgment.[10]x

Comment [Rev7]: As reported in the case described....

The lesion has slight preponderance to occur more in females in a ratio of 1.22:1 due to hormonal influences[1]. The age variance showed that this type of lesion have tendency to occur in the younger age (second or third decade of life) group due the presence of active periodontium than in the older age group where the periodontium is lost as the tooth gets lost as age advances.[11] The rate of occurrence has been reported 0.5% in older age group. These predilections were in accordance with this reported case. However, the common site of occurrence was found to be in the anterior maxilla.[12]

The lesions of POF are usually less than 1.5-2 cm in diameter but have been known to grow to larger sizes. [13] The clinical features mostly present as a single pedunculated growth, or it can be sessile. They vary in color from red to pink with scattered areas of ulceration, having surface that can be either smooth or irregular. Radiographically the features of POF tend to vary and are not very characteristic. POF can cause resorption of the alveolar crest and separation of adjacent teeth with pathologic migration. Usually it does not possess bone involvement, but rarely superficial erosion may be seen[14]. The most pathognomic radiographic findings are the crestal bone loss and peripheral

cuffing of bone. Few reported cases showing radiographic foci of calcifications as radio-opaque flecks or patches to be scattered in the centre of the lesion site[15]. Histologically these lesions, appears characteristically fibrous proliferation associated increased cellularity and chronic inflammatory infiltrate. Plump shaped fibroblasts with calcifications in the connective tissue stroma. According to Butcher and Hansen, three components may predominate in the fibrillary stroma as the dystrophic calcifications, osteoid bone (woven/ lamellar) and cementum. Based on this, a histologic variant of peripheral cemento ossifying fibroma can also be postulated if it contains more cementoid materials. Lesions like pyogenic granuloma, peripheral giant cell granuloma, peripheral odontogenic fibroma are regarded as the differential diagnosis. [9]x

Comment [Rev8]: Briefly contrast this information with the findings of the reported case...

The main treatment modality is the complete excision of the growth either with scalpel, laser or electrosurgery. Furthermore, any local irritants like plaque, calculus or illfitting denture should be managed and oral prophylaxis is inevitably recommended. It has been postulated that, laser excision is the most effective since it has minimal patient compliance and also provides minimal distortion to the biopsy sample. Diode lasers has high affinity for oxygenated hemoglobin facilitating hemostasis, coagulation, and carbonization of targeted soft tissue, resulting in high precision and clean incision.[4] The partial or incomplete removal of the base of the pathologic lesion can leads to recurrence of the lesion and in the literature it has been stated that recurrence rate of POF is high and varies from 7% to 45%. [2]. x

Comment [Rev9]: Review this statement, since higher percentages have been reported (58%)

CONCLUSION

Though peripheral ossifying fibromas occur as non-neoplastic growth it should be properly diagnosed with appropriate investigations. The presence of these lesions possess constraints on mastication and esthetics. Hence, it is necessary for all dental practitioners to have the knowledge of clinico-pathological presentation of this type of lesion and any type of these reactive lesions should be identified by considering the possible differential diagnosis in order to plan an appropriate treatment plan.x Managing these lesions with diode lasers provide several clinical benefits like good hemostasis

Comment [Rev10]: It is convenient to comment briefly the benefits of histopathological confirmation for differential diagnosis, which will guarantee its inclusion as an important protocol for future research.

and maximum comfort to the patient. This can be achieved by the Skilled execution of the procedure and accurate precision. Consequently, it adds in avoiding recurrence of gingival reactive lesions. However, Patient motivation and long-term follow-up are highly recommended.

Comment [Rev11]: According to your experience or presumptive estimate for this long term. How often you recommend make periodic controls, and if possible, briefly justify your statement. (Since the literature has described quarterly controls each year...)

Patient consent: obtained

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