

## **Peripheral Ossifying Fibroma – Diagnosis and Various Treatment Modalities, A Compilation of 4 Cases**

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### **ABSTRACT**

Peripheral ossifying fibroma is a common gingival pathology associated with different etiological factors. This case series includes 4 such cases of peripheral ossifying fibroma, where diagnosis was made based on clinical, radiological and histological findings. Each patient was treated using different treatment modality according to the features. The treatment modalities included undisplaced flap along with laser biostimulation, external bevel gingivectomy using scalpel, gingivectomy using laser.

The healing was uneventful and the patients are kept on close follow up with no recurrence reported till

date. It is hence concluded that correct diagnosis and appropriate treatment is of utmost importance for the success of treatment in such cases and to prevent any recurrence in future.

### **Keywords**

Peripheral ossifying fibroma, Fibroma, Gingival enlargement, Gingival lesions

### **INTRODUCTION**

Gingiva is the common site for presence of various reactive rather than neoplastic overgrowths of different etiology and pathogenesis. Peripheral ossifying fibroma is one such common reactive

gingival overgrowth seen on gingiva which is believed to originate from the cells of periodontal ligament. It was first reported by Shepherd in 1884 as alveolar exostosis.<sup>(1)</sup> Later in 1972 Eversol and Robin coined the term peripheral ossifying fibroma.

It has been defined in the WHO classification as a peripheral odontogenic tumor representing the extraosseous counterpart of the central odontogenic fibroma.<sup>(2)</sup> The lesion is an uncommon, benign, unencapsulated, exophytic gingival mass of fibrous connective tissue. The fibrous connective tissue generally consists of markedly cellular strands interwoven with less cellular areas.<sup>(3)</sup> The epithelium is usually deep in the lesion, away from the surface epithelium, and is occasionally found "cuffing" mineralized material.<sup>(4)</sup>

The overgrowth is seen in young adults with a female predilection. Most commonly seen in maxillary arch rather than mandibular involving interdental papilla in the incisor-cuspid region mainly. In regard to its origin there are two schools of thought first on being that it originates as a pyogenic granuloma which later calcifies. Second being that it occurs as an inflammatory hyperplasia in the cells of PDL and this is more widely accepted than the first one.

The lesion is present as solitary, sessile or pedunculated pink to red in colour according to presence of local irritating factors like plaque and calculus. It is painless but may bleed on probing, may be intact or ulcerated.<sup>(4)</sup> Elimination of all the local irritating factors followed by surgical excision is often the treatment of choice.

#### **CASE REPORT – 1**

A 31 years old female reported to the Department of Periodontics, ITS Dental College Hospital and research centre, Greater Noida with a chief complaint

of swollen gums and bleeding gums in the entire teeth region since 1 year. On clinical and radiographical examination the patient was diagnosed to be afflicted with chronic periodontitis. A solitary, sessile, pinkish-red colour gingival overgrowth involving the buccal interdental papilla in relation to 21,22,23 was also noted (Figure 1a). It was soft and oedematous and bleeding on slight provocation.

The lesion was measuring about 9mm\*10mm covering the crowns in relation to 22 and 23.

A thorough Phase I Therapy (Scaling and root planning and oral hygiene reinforcement) was performed in order to remove all the local irritating factors. After 1 week the lesion reduced in size to about 5mm\*6mm that is almost half the size at baseline. Complete surgical excision was performed with scalpel using undisplaced flap technique and adjunctive low level laser therapy in order to eradicate the pocket along with the gingival overgrowth provisionally diagnosed to be peripheral ossifying fibroma. The patient was recalled after 10 days for suture removal, the healing was uneventful (Figure 1b) and the patient is kept under close follow up without any recurrence till date.

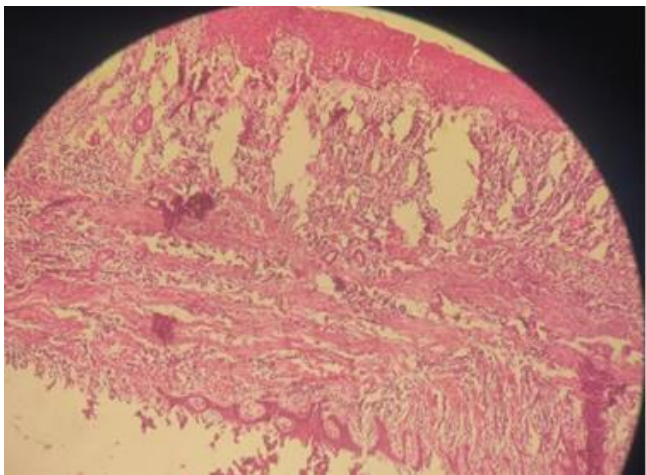
The histopathological examination revealed areas of dystrophic calcifications, a highly cellular connective tissue stroma and immature (woven) bone all confirming it to be peripheral ossifying fibroma.(Figure 1c)



**Figure 1a.** Preoperative picture depicting solitary, pinkish red gingival swelling.



**Figure 1b.** Post operative picture after 5 months depicting complete healing of the operated site.



**Figure 1c.** Histopathological slide depicting highly cellular connective tissue stroma, immature bone and areas of dystrophic calcification.

### CASE REPORT – 2

A 25 year old female reported to the department of Periodontics, at ITS Dental College, Hospital and Research Centre, Greater Noida with a chief

complaint of swelling on the inner aspect of upper front teeth since 2 years. The patient had been undergoing orthodontic therapy since the past 4 years.

Clinical Examination revealed gingival swelling on the palatal aspect of 12, 11, 21, 22, with the swelling covering almost two thirds of crown (Figure 2a). The swelling was pink and smooth in appearance, measuring 1cm × 1cm. No surface ulceration was noted. On palpation the swelling was firm and non-tender. Intra oral periapical radiograph revealed no osseous abnormalities. A provisional diagnosis of Peripheral Ossifying Fibroma was considered. Thorough scaling and root planning was done 1 week prior to the excision to eliminate any local irritating factors and inflammation. Complete Excision of the

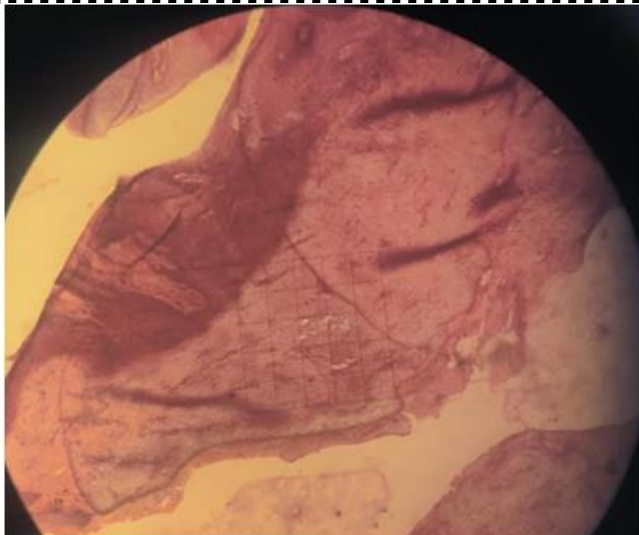
swelling was performed using a scalpel. An uneventful healing was observed at 3 months follow up with no recurrence (Figure 2b). The patient has been further kept on a 12 month follow up period. Histopathological examination of the lesion revealed parakeratinized stratified squamousepithelium resting over a highly cellular stroma with evidence of calcifications (Figure 2c). The connective tissue was highly cellular with evidence of scattered chronic inflammatory cells. This confirmed the diagnosis of Peripheral Ossifying Fibroma.



**Figure 2a.** Preoperative picture depicting gingival swelling covering almost two thirds of crown on palatal aspect



**Figure 2b.** Postoperative picture after 3 months depicting complete healing of the surgical site.



**Figure 2c.** Histopathological section depicting highly cellular stroma and evidence of calcifications.

### CASE REPORT – 3

A male patient aged 20 years reported to the Department of Periodontics, ITS Dental College Hospital and research centre, Greater Noida with a chief complaint of gingival swelling in the lower left front tooth region since 2 months. On clinical examination a sessile gingival swelling reddish pink in colour involving the interdental papilla in relation to 32,33 was present buccally (Figure 3a). It was soft and edematous in consistency, measuring about 6mm\*5mm in dimension.

One week after Phase I Therapy the swelling decreased and became fibrotic in consistency.

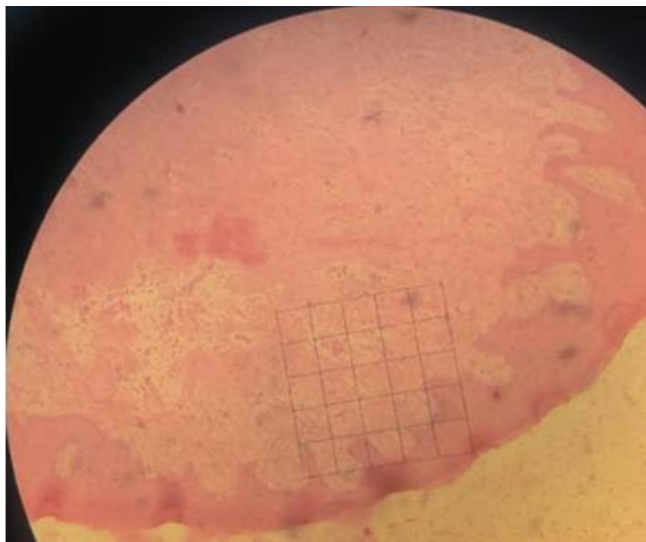
Complete surgical excision of the lesion was done using scalpel. After a period of 1 week the patient was recalled for evaluation, healing was uneventful and the patient is kept under close follow up without any recurrence reported till date.

On histopathological examination hyperplastic stratified squamous epithelium and highly cellular stroma is seen. The deeper stroma shows short fascicles of plump spindle shaped cells in an interlacing pattern and a few round basophilic calcifications (Figure 3b).



**Figure 3a.** Preoperative picture depicting sessile, gingival swelling pinkish red in colour.





**Figure 3b.** Histopathological section depicting highly cellular stroma with deeper stroma showing short fascicles of plump spindle shaped cells in an interlacing pattern and round basophilic calcifications.

#### CASE REPORT – 4

A 54 years old female patient reported to the Department of Periodontics, ITS Dental College Hospital and research centre, Greater Noida with a chief complaint of swelling in the upper right front tooth region since 6 months. On clinical examination a red solitary, sessile gingival overgrowth (Figure 4a) involving the buccal interdental papilla in relation to 13,14 was observed. On palpation it was fibrotic in consistency measuring about 12mm\*6mm in dimension.

After the Phase I Therapy the patient was recalled after a period of 1 week. Complete surgical excision of the lesion was done using a diode laser(Figure 4b). The healing was uneventful and the patient is kept under close follow up without any recurrence till date. The histopathological examination revealed areas of highly cellular connective tissue stroma with fascicles of plump spindle shaped cells, scattered lymphocytes and plasma cells, and few spicules of woven bone all conclusive of peripheral ossifying fibroma.



**Figure 4a.** Preoperative picture showing red sessile gingival overgrowth.



Figure 4b. Surgical excision using diode laser.

## DISCUSSION

Gingiva is a common site for the occurrence of numerous soft tissue lesions, both benign and malignant. It is often troublesome to differentiate between them due to their common clinical features. Peripheral ossifying fibroma (POF) is one such lesion which requires histopathological analysis to distinguish it from the others. It accounts for 4 to 10% of the gingival lesions and makes up 1-2% of all lesions in the oral cavity. <sup>(5)</sup> Butcher and Hansen reported three types of components in POF: Dystrophic calcification, Woven/ lamellar bone and cementum. Histologically dystrophic calcifications and presence of woven bone was seen in all the cases as mentioned in the literature.

While the etiology of POF is unclear, inflammatory hyperplasia originating in the superficial PDL is considered to be one of the factors <sup>(6)</sup> as observed in the case series. It can also be due to other factors like trauma, local irritants (plaque, calculus, poor quality restoration). <sup>(7)</sup> The cases reported in this article shows a female predilection with majority of lesions occurring in the anterior maxilla which is consistent

with the study done by Shetty et al in 2011. <sup>(8)</sup> However, Hung et al. <sup>(9)</sup> in a case series reported a higher incidence in the posterior region of the maxilla, and Ojo et al. in 2014 <sup>(10)</sup> reported an increased incidence (70.3 %) of POF in the mandible.

The primary treatment for such lesions is nonsurgical therapy as it is directed towards reducing the bacterial load and alters microbial composition resulting in lower levels of inflammation <sup>(11)</sup> hence, reducing the size of the tissue and making it fibrotic. Surgical excisional technique were different for all the cases like in the first two cases where generalized pockets were present due to both true and false components, therefore an undisplaced flap along with photobiomodulation was performed for complete elimination of pocket with the gingival overgrowth. While in the third case the lesion was localised and a scalpel gingivectomy was performed to excise the lesion. <sup>(11)</sup> this is in accordance with the treatment done by Franco et al in 2016. <sup>(7)</sup> In the last case a laser gingivectomy was performed as the patient was old and anxious and laser has better patient acceptance

with minimal complications as suggested by Anuradha et al in 2015. <sup>(12)</sup>

Neville et al (2002) reported the association of POF with certain syndromes such as nevoid basal cell carcinoma syndrome, multiple neuromas, multiple neurofibromatosis and Gardner's syndrome <sup>(13)</sup> which is in contrast to the present case series.

The patients have not reported any recurrence till date with the follow up period of 1 year of two of the cases. The highest recurrence rates were reported by Hung et al. with 18 % of the analysed patients having this complication. <sup>(9)</sup>

All the cases included in the case series were successfully treated using different approaches depending on the size, involvement, extent of the lesion and patient compliance. Therefore, timely diagnosis and appropriate treatment is of utmost importance in the management of such lesions.

#### **SUMMARY AND CONCLUSION**

A total of four cases diagnosed with peripheral ossifying fibroma were included in the case series. Various treatment modalities were chosen depending on the requirements of the individual case where the treatment was successful with no recurrence reported till date.

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