

## Peripheral Ossifying Fibroma: A Case Report and Review of Literature

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### Abstract

Peripheral ossifying fibroma (POF) is an infrequently occurring, slowly progressing, innocuous, nodular overgrowth of the gingiva, which belongs to the category of the “reactive lesions of the gingiva.” There are several such overgrowths with similar clinical manifestations, but diverse etiology and histopathological features, thus presenting a challenge for the clinician. Thorough clinical examination, radiographic and histopathological features help to establish the diagnosis which is key to the successful management of such lesions. This article describes a case of POF in a 43-year-old male patient. The clinical, radiographic, histologic features, aggressive treatment strategies, relapse and close follow-up of POF are discussed in detail.

**Keywords: Epulides, Nodular Overgrowth, Reactive Lesions, Ossifying Fibroma.**

### Introduction

Increase in the size of the gingiva, termed as “gingival overgrowth” is one of the attributes of gingival disease<sup>1</sup>. Traditionally, localized gingival overgrowths have been termed “epulides,” a term used to describe sessile or pedunculated swellings of the gingiva<sup>2</sup>. Since the term “epulides” does not seem to offer any histologic description of a specific lesion, it is only appropriate that the term, “reactive lesions of the gingiva” be used instead to describe such lesions<sup>3</sup>. Gingival overgrowths can be designated and classified based on their etiology, pathogenesis, site, distribution and degree of enlargement.

Epulides can be distinguished from the plaque-induced inflammatory enlargements. Epulides are derived from the periodontal ligament and develop from under the free gingival margin. They are reactive lesions, not primarily plaque-related, have high growth and recurrence rate and require specific management.

The lesions which fall under the category of the reactive lesions of the gingiva are the fibrous epulis/peripheral fibroma, pyogenic granuloma/angiogranuloma and the peripheral giant cell granuloma<sup>3,4</sup>.

Peripheral fibroma is the most common of the epulides representing the prototype, occurring in adults with a female sex predilection. It is essentially a

“reactive fibrous hyperplasia,” and appears as a firm, pink, uninfamed mass growing from under the gingival margin or interdental papilla. The lesion is generally painless unless traumatized during tooth brushing, flossing or eating<sup>5</sup>. Histologically, these lesions may show additional foci of calcification (peripheral calcifying fibroma), foci of cementicles (peripheral cementifying fibroma) or trabeculae of bone (peripheral ossifying fibroma).

The term peripheral ossifying fibroma (POF) was coined by Gardner in 1982. He described POF as a lesion that is reactive in nature and it is not the extraosseous counterpart of the central ossifying fibroma of the maxilla and the mandible<sup>6</sup>. Gingival overgrowths, particularly those belonging to the reactive group are often encountered in clinical practice.

The purpose of this article is to present a case of peripheral ossifying fibroma, briefly review the current literature pertaining to this lesion and underscore the importance of the differential diagnosis of such lesions, which is a key factor in their management. Given the high recurrence rate of this lesion, close follow-up is imperative.

### Case Report

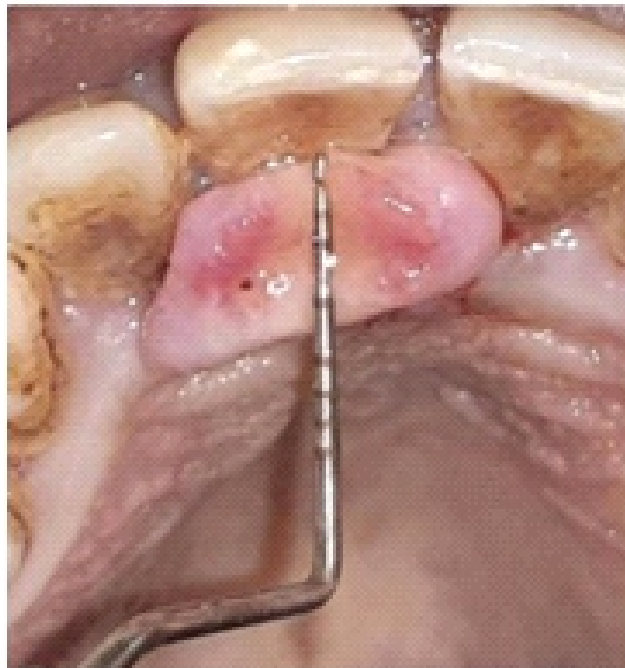
A 43-year-old male patient reported to the Department of Periodontics, NSVK, Sri Venkate-

shwara Dental College, with the chief complaint of “there is a painless growth of the gum behind my upper front teeth”. The patient stated that the growth started as a small painless nodule a year earlier. There was a gradual increase in the size of the nodule until it attained the present size. There was no history of trauma before the appearance of the nodule and no history of such swelling in any other part of the body. The patient's medical history was non-contributory.

Intra-oral examination revealed a focal smooth-surfaced, non-ulcerated, non-tender growth on the

palatal aspect of #11 and #12 (**Fig. 1**). The growth extended from the middle portion of the palatal aspect of 12 to the middle portion of 21. It was flat, oval shaped and pale pink in colour with an intact surface epithelium and well defined borders. On palpation, the growth was non-tender, firm and rubbery in consistency and sessile in nature with a broad base.

Intraoral periapical radiograph in the region of 11 and 12 revealed no pathological findings pertaining to the growth. (**Fig. 2**)



**Fig. 1: Fibrous growth on the palatal aspect of #11 and #12.**



**Fig.2: Intraoral periapical radiograph in relation to #11, #12 and #21**

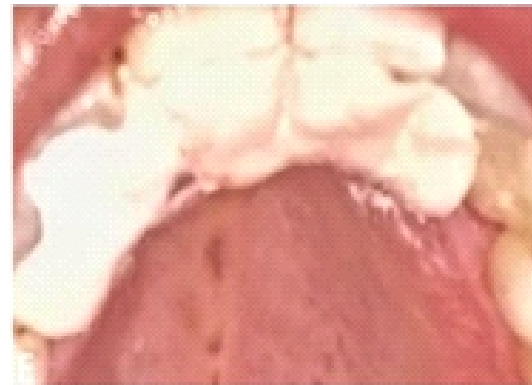
Based on the anamnesis, clinical and radiographic examination, the lesion was provisionally diagnosed as Peripheral Ossifying Fibroma with differentials of irritation fibroma, peripheral giant cell granuloma, peripheral odontogenic fibroma, pyogenic granuloma and fibrous epulis and metastatic cancer. The treatment plan was discussed with the patient and the patient consented to the excision of the mass under Local Anaesthesia.

Scaling of the teeth and root planing was done to

remove all the irritants. After administration of local anaesthesia, the growth was excised at the base down to the periosteum using a No.15 Bard Parker blade and the periodontal ligament and the periosteum were thoroughly curetted (**Fig. 3**). Periodontal dressing was placed after excision and curettage (**Fig. 4**). Postoperative instructions were given to the patient and he was told to report after 7 days. The excised specimen was placed in 10% formalin and sent for histopathological examination.



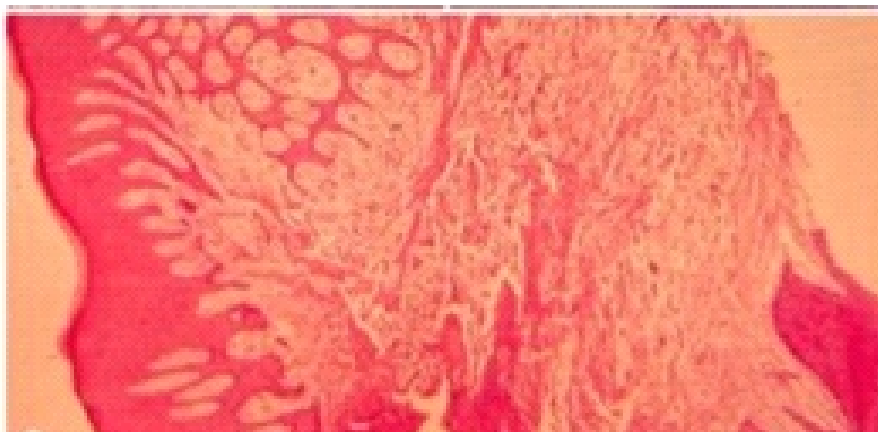
**Fig.3: After excision of growth**



**Fig. 4: Application of periodontal dressing**

Microscopic examination of H&E stained soft tissue section revealed ulcerated hyperplastic stratified squamous epithelium. The ulcerated area was covered by a fibropurulent membrane. Connective tissue showed plump fibroblasts intermingled with

the fibrillar stroma. Few blood vessels lined by endothelial cells were visible. Calcifications in the form of osteoid were detected. (**Fig. 4**). The histopathologic report was confirmatory of Peripheral ossifying fibroma.



**Fig. 4: Photomicrograph of H & E staining of lesion showing hyperplastic stratified squamous epithelium with fibrillar stroma with blood vesselsX 40.**

The patient presented for the 1-week postoperative check- up and there was satisfactory healing. Oral hygiene instructions were reiterated to the patient. One month, 3-month and 6-month follow-up visits

showed no evidence of recurrence. The patient was informed about the high recurrence rate, motivated to maintain good oral hygiene and instructed to return if he noticed any changes. (**Fig. 5**)



**Fig. 5: Follow up with no evidence of recurrence.**

### Discussion

It is not uncommon for a clinician to come across several patients with localized, discrete gingival overgrowths, specifically belonging to the category of “reactive lesions of the gingiva.” Amongst these lesions, POF is an infrequently occurring focal, reactive benign tumour-like growth of the soft tissue that principally arises from the interdental papilla<sup>7</sup>.

The nomenclature related to POF has been a serious controversy for a long time. A plethora of terms have been used such as ossifying fibro-epithelial polyp, peripheral fibroma with calcification, peripheral cemento-ossifying fibroma, peripheral cementifying fibroma, and peripheral fibroma with osteogenesis, all adding to the perplexity. Shepherd (1844) reported POF as “alveolar exostosis”<sup>8</sup>. Menzel first described the ossifying fibroma in 1872<sup>9</sup>. The incidence of POF is in the range of 9-10%<sup>10</sup>. Owing to the influence of the sex hormones, POF is preponderant in females and commonly occurs in first and second decades of life and the incidence declines after the third decade<sup>11</sup>. In the present case however, it was reported in a 43-year-old male patient. The most common location of this growth is in the anterior maxilla with 50-60% occurrence in the incisor-cuspid region<sup>4</sup>. The size of the POF is generally less than 2 cm in diameter<sup>12,13</sup>. However, the size may vary and can range from 0.2 to 3 cm<sup>12,14</sup>. However, Poon et al reported a case of POF measuring as large as 9 cm in diameter<sup>15</sup>. A case of large POF with extensive involvement of the anterior portion of the mandible causing displacement of the mandibular anterior teeth was described by Mariano et al<sup>16</sup>. Ossifying fibroma is a slowly growing lesion and it may be present in the oral cavity for several months to years before interfering with function.

Ulceration of the surface of the growth causes discomfort to the patient<sup>7</sup>.

The etiopathogenesis of POF is ambiguous and two theories have been proposed in an attempt to shed light on the same. The first theory states that POF is a maturation of the pyogenic granuloma and the second states that it originates from an inflammatory hyperplasia of the periodontal ligament<sup>18,19</sup>. The proximity of the gingiva to the periodontal ligament explains the reason for this lesion to be exclusively associated with the gingiva and it frequently arises from interdental papilla. The presence of oxytalan fibers within the mineralized matrix of some lesions also points to the PDL as the source of origin of POF<sup>18,19,20,21</sup>. Although it is difficult to pinpoint the exact etiology, several predisposing factors such as trauma to the gingiva, accumulation of plaque and calculus, masticatory forces, ill-fitting appliances, fractured teeth, poor quality or broken down restorations and crowns all play a role in the development of the lesion<sup>6</sup>. Kendrick and Waggoner stated that POF may arise as a result of the chronic irritation of the periosteal and periodontal membrane causing metaplasia of the connective tissue along with formation of bone or dystrophic calcified masses<sup>22</sup>. The histopathologic report of our case also demonstrated calcifications in the form of osteoid in the connective tissue.

The radiographic changes associated with POF may range from no deviations from normal to destructive alterations depending on the duration of the lesion. Kendrick and Waggoner<sup>22</sup> reported that in certain cases, radiographic changes like superficial erosion of the underlying bone, cupping defect and focal areas of radiopaque calcifications at the center of the lesion can be appreciated. Majority of the POF

lesions are generally small and they do not require imaging beyond radiographs<sup>6,23</sup>. Histologically, POF appears to be a non-encapsulated mass of cellular fibroblastic connective tissue of mesenchymal origin covered with stratified squamous epithelium, which is ulcerated in 23-66% of cases<sup>17,24</sup>. POF is composed of cellular fibrous tissue with areas of fibrovascular tissue that comprise of large number of plump, proliferating fibroblasts intermingling throughout the delicate fibrillar stroma<sup>23</sup>. Batsakis and Passos et al reported that as the lesions mature, the cellular content of the stroma decreases and the osseous tissue increases<sup>25,26</sup>. The ossification seen in the cellular stroma demonstrates considerable variation both in qualitative and quantitative aspects. Several forms of calcification ranging from single or multiple interconnecting trabeculae of bone or osteoid either mature lamellar bone or immature cellular bone, less commonly globules of calcified material resembling acellular cementum or a dense diffuse granular dystrophic calcification have been observed<sup>25</sup>. Some of these histological findings were also noted in our patient.

The treatment of POF entails complete excision of the lesion including the periodontal ligament and the involved periosteum<sup>18,25,27,28</sup>. Marcos et al and Martins-Junior et al reported that the relapse rate of POF is considerably high and is in the range of 8-20%<sup>29,30</sup>. This can be attributed to incomplete elimination of the lesion and the local irritants<sup>31</sup>. Hence it is imperative to not only excise the lesion completely, but also thoroughly eliminate the irritants followed by aggressive curettage of the periodontal ligament and the affected periosteum. We adhered to the same treatment protocol for our case. Farquhar et al stressed the importance of post-operative follow-up to detect early relapse of the lesion<sup>32</sup>, since 1 out of each 5 lesions relapse after excision as reported by Walters et al<sup>33</sup>. In our case, we recalled the patient for 1-month, 3-month, and 6-month follow-up visits. There were no signs of recurrence of the lesion.

### Conclusion

POF is a slowly-growing, benign, asymptomatic lesion that is usually present in the oral cavity for a long time before the patient seeks care. Treatment consists of complete excision of the lesion with aggressive curettage of the PDL and the surrounding periosteum of the bone and complete removal of all the irritants. Histopathological findings are confirmatory and help to establish the correct diagnosis. Close post-operative follow-up is imperative to prevent recurrence of the lesion.

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