

## Peripheral Ossifying Fibroma: A Case Report of a Rare Occurrence on the Hard Palate in an Adolescent Male

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### Abstract

Peripheral ossifying fibroma (POF) is a non-neoplastic, soft tissue mass affecting the oral cavity. The size of the lesion is usually smaller than 2.0 centimeters (cm) and it commonly occurs on the facial aspect of the gingival tissue. We report a case of a rare occurrence of peripheral ossifying fibroma on the hard palate, with metaplastic bone formation in a 13-year-old male. The unique clinical features of this condition include its location, and that POFs are not found very commonly in young male individuals.

### Keywords

Ossifying fibroma; Metaplastic bone formation; Palatal growth; Reactive lesion

### Introduction

Peripheral ossifying fibroma (POF) is a non-neoplastic, soft tissue enlargement that is found in the oral cavity on gingival tissue [1]. Chronic gingival irritation, trauma, poor oral hygiene, and iatrogenic factors have been contributing factors associated with this reactive lesion [2].

A POF often presents clinically as a pedunculated soft tissue mass arising from the interdental papilla. The lesion is slow to develop and grows up to 2 cm in size. Mature POFs are typically characterized by ulceration of the mucosal surface, with color variations of pink, red, purple or yellow. POFs are exclusive to the gingiva [1], with a slightly higher tendency of these lesions to occur on the anterior maxilla and facial gingiva. POFs are also known to occur more commonly in female, young adults as compared with male, young adults.

Distinguishing histologic characteristics of POFs include cellular fibrous proliferation with mineralization. Older, more mature lesions may exhibit ulceration of the surface epithelium covered by a fibrinopurulent membrane [1]. In the current article, we present a unique case of POF with metaplastic bone formation.

## Case Presentation

A 13-year-old African-American male presented to the Graduate Periodontal Clinic at Southern Illinois University School of Dental Medicine (Alton, IL), with the complaint of pain associated with a mass on the anterior palate. The patient was referred by his Orthodontist who reported a history of a slow growing palatal mass, located lingual to the right maxillary incisors and canine, for the past 15 months. The patient reported a gradual increase in lesion size over time, associated with pain, discomfort and occasional bleeding. The patient's medical history revealed no systemic diseases, and the patient was also not taking any medication nor reported any known allergies. The patient also denied prior history of trauma to the head and neck region.

The extra-oral findings were within normal limits. The intraoral findings exhibited a symptomatic, pedunculated, well-defined, mass 2.0 x 1.7 x 0.5 cm in size, covered by ulcerated mucosa, with central areas of blanched tissue (Figure 1). When in occlusion, the patient's right mandibular incisors and canine teeth induced trauma to the fibrous center (Figure 2). The mass was lobulated, firm to palpation, and extended palatally from teeth #'s 6 through 8. Periodontal evaluation revealed generalized gingival inflammation, several sites of 4-5 mm pseudo-pockets, gingival enlargement, bleeding on probing (BOP) and a plaque index (PI) of 85%. The patient was diagnosed with Generalized Plaque Induced Gingivitis.

A periapical radiograph revealed no osseous penetration of the lesion and no displacement of anterior teeth. A periapical radiolucency on tooth #7 was noted (Figure 3). An excisional biopsy of the lesion and localized scaling of the adjacent teeth were performed under local anesthesia and nitrous oxide sedation (Figure 4). The 2.0 x 1.7 x 0.5 cm specimen was transferred to a 10% Formalin solution and submitted for histopathologic analyses (Figure 5). Clinically, the differential diagnosis of the lesion included pyogenic granuloma, irritation fibroma, peripheral ossifying fibroma, and peripheral giant cell granuloma. The histologic analysis confirmed the diagnosis of peripheral ossifying fibroma (POF), with metaplastic bone formation.

Microscopic examination showed tissue covered by parakeratinized stratified squamous epithelium which is ulcerated at one end. Underlying connective tissue was highly cellular, comprising of proliferating plump fibroblasts intermingled with delicate fibrillar stroma, and moderate vascularity. Areas of calcification were seen mostly in the form of irregular trabeculae of bone and few cementum-like droplets (Figures 6 and 7).

## Discussion/Conclusion

POF is a reactive lesion although its nomenclature implies otherwise. A characteristic POF develops from cells of the periodontal ligament and is limited exclusively to the gingiva [1, 4,5]. Growths are well defined, having a sessile or pedunculated base, and are firm when palpated. The presentation of the mucosal surface may range from pink and non-ulcerated, to red and ulcerated, which may often lead to the misdiagnosis of irritation fibroma or pyogenic granuloma respectively [1, 5]. In addition to the patient's gender, the most significant clinical features of the lesion described in this case report are the size and location.

The POF reported in this case was found on the palate of a 13-year-old African-American male. There is considerable disagreement in the literature regarding age of occurrence of POF. Neville et al., cited most POFs arise in young adults ages 10-19, with two-thirds occurring in females [1]. Whereas, Pradeep et al., reported the average age at presentation of POF was 28 years, with a higher occurrence in female patients, and with the lesion localized to the anterior maxilla [5]. In a retrospective study of 233 cases, including different reactive gingival lesions in an Israeli population, POF was diagnosed in 33% of the cases; 94% of patients ages were in the range of 10-19 years with no gender bias. [4]

The average size of a peripheral ossifying fibroma is less than 2 cm; however, larger lesions have been reported and have been termed large, giant, atypical, huge, and gigantiform. In a literature review by Childers et al., the authors found large lesions ranged from 2.5 to 6 cm in greatest dimension [3]. The incidence of POF on the palate is rare and has only been described in 2 case reports by Moon et al. and Pradeep et al. [5,6]

POFs can be easily mistaken for a pyogenic granuloma. Prasad et al. presented a case report of an initial lesion diagnosed as POF with a subsequent lesion presenting as pyogenic granuloma. Our initial histology analyses resulted in diagnosing this lesion as pyogenic granuloma with metaplastic bone formation. However, after more in-depth analysis, a final diagnosis was derived as POF because of the chronic duration of the condition. The timing of biopsy is critical for establishing accurate diagnosis, since these focal reactive lesions are distinguished by histopathology [2]. Calcification, which is its most expressive histopathological feature, can help distinguish POFs from other fibrous lesions [1]. Characteristic features attributed to imprecise diagnosis include mucosal ulceration, hyperplastic epithelium, and fibroblastic proliferation. Fundamentally, observed calcifications and mature bone found in a sample can be used to histologically differentiate POF from pyogenic granuloma.

Therapeutic management of the extensive POF consisted of complete excision, including the periosteum and periodontal ligament at the base of the lesion, debridement of local irritants such as plaque and calculus with ultrasonic and hand instruments, and postoperative evaluations.

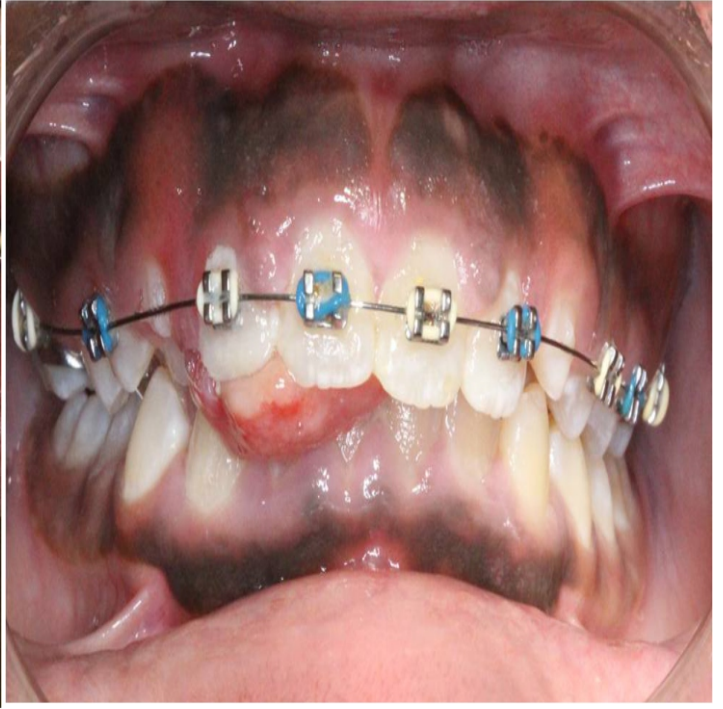
## Acknowledgements

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## Figures



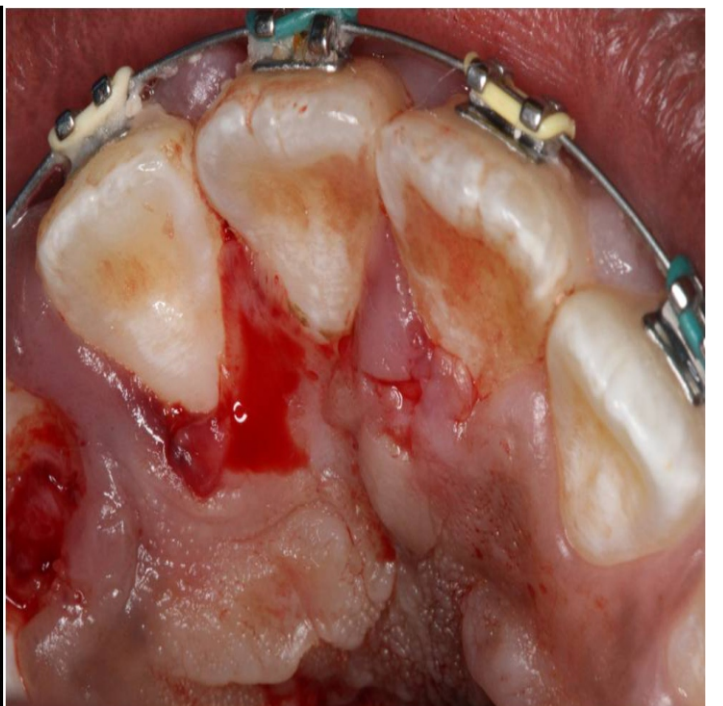
**Figure 1:** Palatal view of the lesion presented by a 13 year old African-American male.



**Figure 2:** When in occlusion, the patient's right mandibular incisors and canine teeth impinged on the fibrous center of the lesion



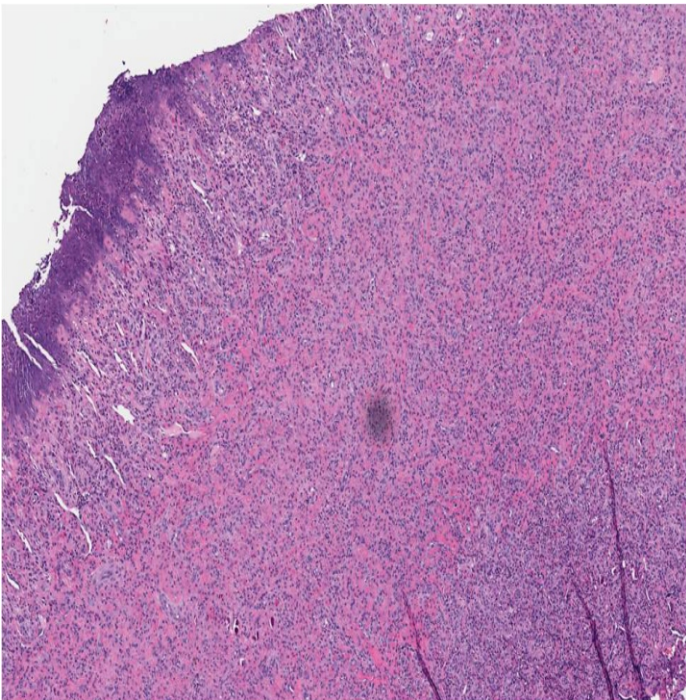
**Figure 3:** Periapical radiograph showed no displacement of involved teeth. The periapical radiolucency on tooth #7 is non-contributory



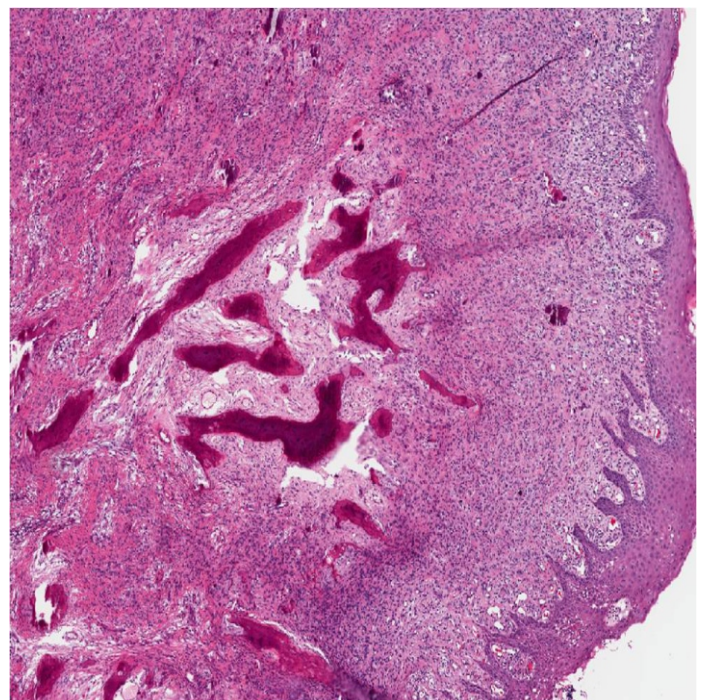
**Figure 4:** Palatal view after excisional biopsy was performed.



**Figure 5:** Following excisional biopsy, a 2.0 x 1.7 x 0.5 cm specimen was removed and submitted for histopathologic examination.



**Figure 6:** Hematoxylin and Eosin staining of a histological section from the specimen showed an area where the underlying connective tissue is highly cellular, comprising of proliferating plump fibroblasts intermingled with delicate fibrillar stroma, and moderate vascularity.



**Figure 7:** Hematoxylin and Eosin staining of a histological section from the specimen showed an area of irregular trabeculae of bone and cementum droplets, surrounded by fibrillar stroma characteristic of peripheral ossifying fibroma.

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