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# Peripheral Ossifying Fibroma: Report of a Case

**Abstract**

The gingiva is often the site of localized growths that are considered to be reactive rather than neoplastic in nature. Many of these lesions are difficult to be identified clinically and can be identified as specific entity only on the basis of typical and consistent histomorphology. Peripheral ossifying fibroma is one such reactive lesion. It is believed to arise from the periodontal ligament comprising about 9% of the gingival growth. The size of the lesion is usually small, located mainly in the anterior maxilla with a higher prediction for females and it is more common in second decade of life. In the present article, the clinical report of a 13 year girl with large peripheral ossifying fibroma in the anterior maxillary showing significant growth and interference with occlusion is presented.

**Key Words**

Peripheral ossifying fibroma; calcifying fibroblastic granuloma; gingival growth

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## INTRODUCTION

Peripheral ossifying fibroma (POF) is a non-neoplastic enlargement of gingiva that is classified as a reactive hyperplastic inflammatory lesion. A common gingival growth, it is typically seen on the interdental papilla and is believed to comprise about 9% of all gingival growths. It arises from the gingival corium, periosteum and periodontal membrane. Females are more commonly affected and anterior maxilla is the most prevalent location of involvement.[1] The majority of lesions occur during second decade, with a declining incidence in later years.[2] POFs are usually less than about 1.5 cm in diameter though some reach the size of about 6 cm in diameter and the diagnosis is based on clinical and histopathological examination.[3] Histologically, they appear as a mass of nonencapsulated cellular fibrous connective tissue covered by stratified squamous epithelium which may be ulcerated and with areas of mineralization varying between cementum like or bone like or dystrophic calcifications.[3,4] This reactive lesion usually occurs in response to low-grade irritations such as trauma, plaque, calculus, microorganisms, masticatory forces, ill fitting dentures and poor quality restorations.[5] Treatment and the diagnosis can be made by clinical inspection and biopsy.

## CASE REPORT

A 13-year-old female patient reported with complaint of a painless gingival growth in relation to her upper front teeth interfering with occlusion. The swelling started as a small nodule before 4 months that progressed gradually to the present size within a span of two months. The patient gave history food impaction but no history of trauma, injury and there was no significant medical history. An intraoral examination revealed generalized pink gingiva with a well-demarcated, non-tender, firm, focal, sessile nodular growth arising from the interdental papilla of the maxillary central incisors palatally. Owing to the pressure from the tongue, the lesion has progressively become flat in appearance. The oval-shaped mass was 2.5x1.5 cm in size, with a reddish pink color, irregular surface, and distinct edges (Fig. 1). The lesion appeared to be pedunculated with what appeared to be broad based attachment. On elevating the lesion it appeared to be attached to the interdental papilla (Fig. 2). The lesion was not fluctuant nor did it blanch with pressure, but had a rubbery consistency.

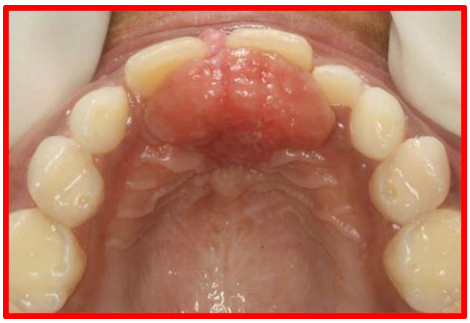

Fig. 1: Pre-operative picture showing well-demarcated, non-tender, firm, focal, sessile nodular growth

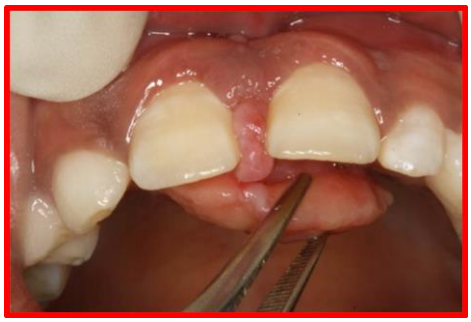

Fig. 2: lesion attached to the interdental papilla

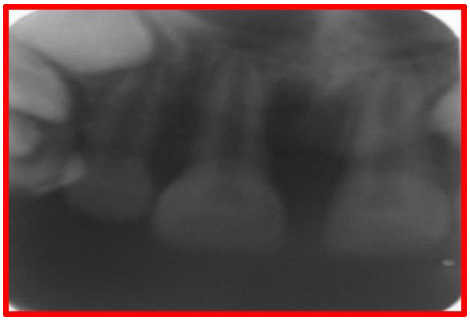

Fig. 3: IOPA bone loss in the interdental region of maxillary cental incisors

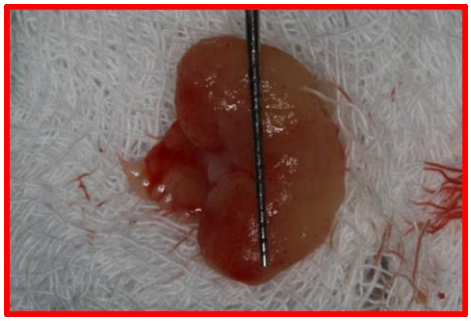

Fig. 4: The excised tissue

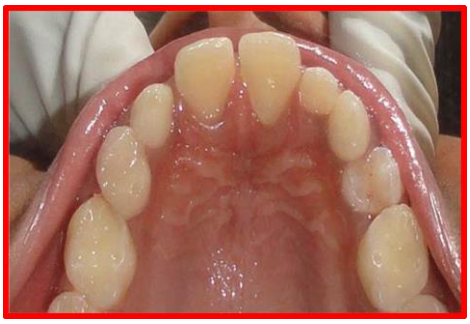

Fig. 5: IOPA bone loss in the interdental region of maxillary cental incisors

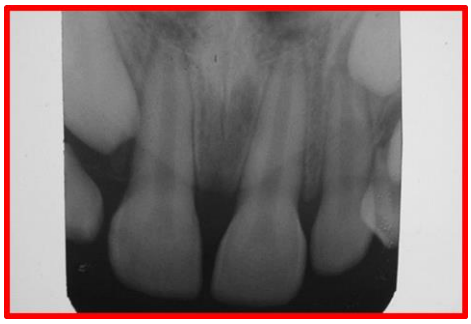

Fig. 6: The excised tissue

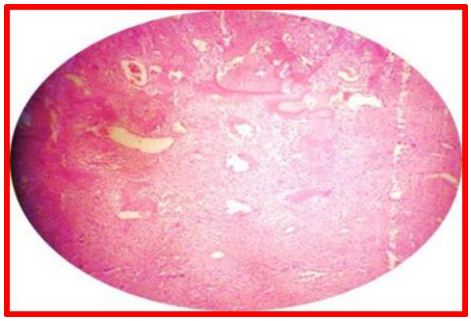

Fig. 6: Fibroblastic cells undergoing differentiation showing ossification, osteoblasts are also seen (H&E, X400)

Bleeding on probing was noted. Intra oral periapical radiograph showed bone loss in the interdental region of maxillary central incisors (Fig. 3). Clinically, differential diagnoses for the growth were pyogenic granuloma, peripheral odontogenic fibroma, fibroma and peripheral giant cell granuloma. Because of patient's sex, age, location, color and consistency of the lesion, a provisional diagnosis of pyogenic granuloma was made for the gingival growth. After routine blood investigation, the growth was excised conservatively to prevent the development of an unsightly gingival defect in the anterior maxilla, followed by root planing and curettage. The excised tissue was sent for histopathologic examination. The excised tissue was oval, 2.5x 1.5 cm in size, reddish pink and firm in consistency on inspection (Fig. 4). While grossing the tissue, slight grittiness was felt. The patient was called after one week for removal of dressing and showed uneventful healing. After six months,

recurrence of the growth was not observed (Fig. 5). Radiograph showed healing of interdental bony defect (Fig. 6). Histologically, the specimen showed parakeratinized stratified squamous epithelium and underlying connective tissue, which was composed of densely packed collagen fibers and fibroblasts. Deeper areas showed the presence of multiple irregular calcified areas and osteoblastic rimming. Patchy distribution of chronic inflammatory cells was seen (Fig. 7). Histologically, the specimen was suggestive of peripheral ossifying fibroma/peripheral calcifying fibroma. Based on clinical and histological findings, the lesion was diagnosed as peripheral ossifying fibroma.

**DISCUSSION**

Ossifying fibroma occurs mostly in craniofacial bones and is generally categorized into two types: central and peripheral.[5] The central type of ossifying fibroma arises from the endosteum or the periodontal ligament (PDL) adjacent to the root apex and expands from the medullary cavity of the bone. On the other hand, the peripheral type shows a contiguous relationship with the PDL, occurring solely on the soft tissues overlying the alveolar process. The reasons for considering a PDL origin for POF include: exclusive occurrence of POF in the gingiva (interdental papilla); the proximity of the gingival lesion to the periodontal ligament; the presence of oxytalan fibers within the mineralized matrix of some lesions; age distribution, which is inversely related to the number of lost permanent teeth and the fibro cellular response in POF, which is similar to the other reactive gingival lesions of PDL origin.[6] POF is a fairly common lesion, comprising nearly 1% to 3% of oral lesions biopsied in various reports.[1,3] Clinically, the POF presents as an exophytic, smooth surfaced, pink or red nodular mass that is sessile; it is also less frequently seen on a pedicle.[7] Approximately 60% of POFs occur in females with predilection for maxilla and more than 50% of all cases occur in the incisor-cuspid region. Migration of teeth with interdental bone destruction has been reported in some cases.[8] Roentgenographically, in a vast majority of cases there is no apparent visible underlying bone involvement. On rare occasions, there appears to be superficial erosion of bone. In the present case, underlying bone involvement was observed. While the etiology of POF is unclear, inflammatory hyperplasia originating in the superficial PDL is considered to be a factor in POF's causation.[3] Orkin and Amaidas[9] suggested that excessive proliferation of mature fibrous connective tissue is a response to gingival injury or gingival irritations, subgingival calculus or a foreign body in the gingival sulcus and dental appliances and restorations. In addition, factors such as a high female predilection and a peak occurrence in the second decade of life suggest hormonal influences. The pathogenesis of POF remains controversial. Chronic irritation of the periosteal and periodontal membrane causes metaplasia of the connective tissue, which initiates formation of bone or dystrophic calcification.[9] In the present case, history of food impaction along with hormonal influences due to the patient's age and sex might have been the cause for the gingival growth. Clinical differential diagnosis for gingival growths includes fibroma, peripheral giant cell granuloma, pyogenic granuloma, peripheral odontogenic fibroma and peripheral ossifying fibroma. The definitive diagnosis of POF is made by histologic evaluation of biopsy specimen. Histologically, the key feature of this lesion is exceedingly cellular mass of connective tissue comprising large number of plump, proliferating fibroblasts intermingled throughout with delicate fibrillar stroma. Buchner et al.[2] observed that the mineralized tissues observed in POF can be of three basic types: 1) bone that may be woven, lamellar or trabecular, sometimes surrounded by osteoid, 2) cementum-like material that appears as spherical bodies resembling cementum or large acellular round-to-oval eosinophilic bodies, which seemed to have coalesced to form islands in various sizes and shapes, 3) dystrophic calcification, which can range from small clusters of minute basophilic granules or tiny globules to large, solid irregular masses. The surface of POF exhibits either an intact or more frequently, an ulcerated layer of stratified squamous epithelium. On occasion, areas will be found containing multinucleated giant cells that, with the surrounding tissue, bear considerable resemblance to some areas of peripheral giant cell granuloma. Surgical excision is the preferred choice of treatment for POF. The recurrence rate of POF is high, varying from 7-45%,[3] which may reflect the technique and philosophy of surgical management. In addition, any identifiable irritant such as an ill-fitting dental appliance and rough restoration should be removed. However, Walters *et al*.,[10] also stated that total excision of the lesion in the maxillary anterior region can result in an unsightly gingival defect unless appropriate efforts are taken to repair

the periosteal defects. Various surgical techniques like lateral sliding full thickness or partial thickness flap, subepithelial connective tissue graft or coronally positioned flap may be used to manage this defect and minimize patient esthetic concerns.

## CONCLUSION

In conclusion, the etiology of POF is unclear, inflammatory hyperplasia originating in the superficial PDL is considered to be a factor. The POF presents as an exophytic, smooth surfaced, pink or red nodular mass that is sessile. Histopathologic examination is essential for accurate diagnosis. Once diagnosed, POF should be treated by total excision to prevent recurrence.

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