

Peripheral Ossifying Fibroma- A Case Report and Histopathological Review

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ABSTRACT:

Peripheral ossifying fibroma refers to the non neoplastic enlargement of gingiva that is classified as a reactive hyperplastic inflammatory lesion. 3.1% of all oral tumors and 9.6% of gingival lesions are POF. Here we report a case of peripheral ossifying fibroma in a 19 year old male patient with detailed clinical and histopathological discussion. To understand the difference in similar appearing lesions histopathologically, i.e. Peripheral Ossifying Fibroma, Peripheral Odontogenic Fibroma, central ossifying fibroma (COF) and central odontogenic fibroma (COdF). POF being a completely distinct entity from POdF and COF is very necessary.

Keywords: Peripheral ossifying fibroma, Hyperplastic Inflammatory lesion.

INTRODUCTION

Peripheral ossifying fibroma refers to the non neoplastic enlargement of gingiva that is classified as a reactive hyperplastic inflammatory lesion. POF is one of a triad of lesions that present as a gingival mass, usually emerging from interdental gingiva and seemingly from the periodontal ligament. The other two lesions are the pyogenic granuloma, which may represent an early immature form of the peripheral ossifying fibroma, and the peripheral giant cell proliferation. Despite the nomenclature that suggests a neoplasm, peripheral ossifying fibroma should not be considered as the extraosseous counterpart of a central ossifying fibroma (COF) of the maxilla and mandible. The present is a case report of peripheral ossifying fibroma in a 19 year old male patient with detailed clinical and histopathological discussion.

CASE REPORT

A 19 year old male patient reported to dental hospital with chief complaint of a painless growth in lower right back tooth region since 6 months. He was apparently alright 6 months back after which he noticed a small painless growth in the interdental papilla of 46 and 47.

He did not give any h/o trauma, injury or food impaction. On intra oral examination a single oval shaped over growth is present in the interdental papilla of 46 and 47 measuring of size 0.5 x 0.4 x 0.2 cm. the surface is smooth and pale pink in colour. The overgrowth is extending superiorly upto middle 1/3 rd of 46 and 47, inferiorly upto the free gingival margin involving the whole of the interdental papilla. On palpation the over growth is soft to firm in consistency and is sessile.(Figure 1)



Figure 1: Photograph showing nodular growth in interdental gingival of 46 and 47.

Based on the clinical appearance, location and the poor oral hygiene status; a provisional diagnosis of irritational fibroma was made. The whole growth was excised under local

anesthesia and was sent for histopathologic evaluation.

On grossing, a soft tissue specimen of size 0.5 x 0.3 x 0.2 cm is received which is grayish white in colour with regular margins and soft to firm in consistency. Microscopically the lesion revealed a highly proliferated parakeratinised stratified squamous epithelium showing entrapment of connective tissue in the form of papillary cores. The connective tissue of the lesion comprised of cellular fibrous tissue with areas of delicate fibrovascular tissue that contained inflammatory components rich in plasma cells. within the cellular area, was a broad osseous trabeculae like area.(Figure 2 & 3) The fibroblasts are spindle and plump shaped arranged in whorl pattern around the irregular bone like ossifying area. The osseous trabeculae areas are lined by active osteoblasts with many osteocytes embedded in lacunae embedded in it.(Figure 4)

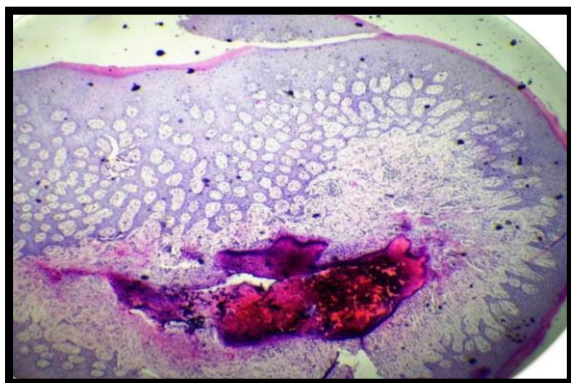


Figure 2: 4 X Microphotograph - proliferated stratified squamous epithelium and underlying connective tissue stroma with trabeculae like structure

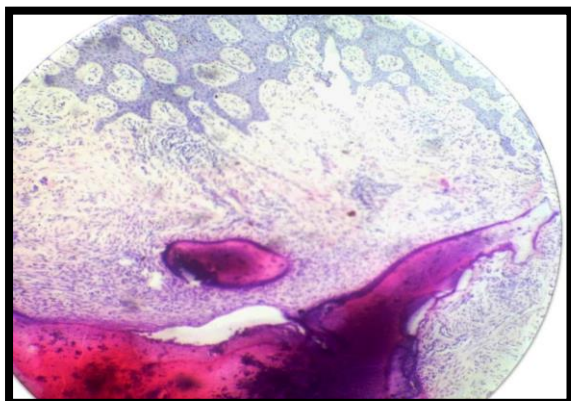


Figure 3: 10 X Microphotograph - connective tissue stroma with bony trabeculae like structure with increased cellularity just around it

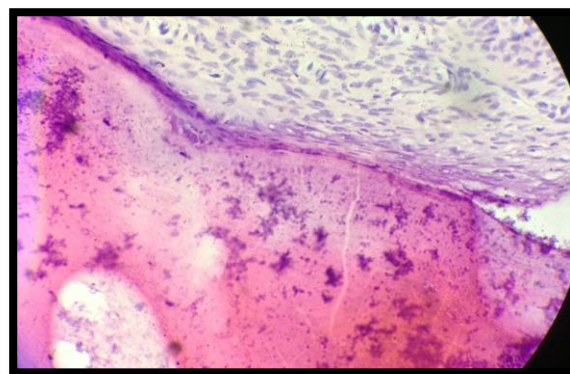


Figure 4: 40X Microphotograph - plump osteoblast like cells proliferating around the osteoid like trabeculae in the connective tissue stroma

The clinical assessment and histopathologic examination established the diagnosis as peripheral ossifying fibroma.

DISCUSSION

Gingival growths are one of the most frequently encountered lesions in the oral cavity. Majorly, the growths are a result of trauma or chronic irritation. The reason for occurrence of these lesions is due to the proliferation and overgrowth of several components of the connective tissue in the periodontium, including. the bone, cementum, fibers, vessels or it may be any particular cell. Commonly occurring focal proliferative lesions on the gingival tissue includes Fibroma, giant cell fibroma, pyogenic granuloma, peripheral giant cell granuloma, POF and POdF.¹

Earlier the ossifying fibroma were classified as: central the peripheral type. Central fibroma arising from the endosteum or from the periodontal ligament adjacent to the root apex which caused medullary cavity expansion. While the peripheral type occurs solely on the soft tissues covering the tooth-bearing areas of the jaws.²

In 1982, Gardner gave the term peripheral ossifying fibroma (POF) that presents a lesion which is reactive in nature and does not form the extraosseous counterpart of a central ossifying fibroma (COF) of the maxilla and mandible. About 3.1% of all tumors in the oral cavity and 9.6% of the gingival lesions are POF.²

Peripheral Ossifying Fibroma occurs exclusively on gingiva.³ and is relatively a usual growth of gingival, somewhat reactive in nature rather than neoplastic.⁴ Characterized by a high degree of cellularity usually exhibiting bone formation, POF, also exhibits a cementum-like material or dystrophic calcification.¹

The peak incidence of POF has been observed in young and teenaged females. Reports by Cundiff presents that the lesion is highly prevalent between ages of 5 and 25 years, with peak incidence occurring at the age of 13 years. A definite female predilection was also reported by Cundiff with female to male ratio varying from 2:1 to 3:2. However in our case the lesion is prevalent in a 19 yr old male.⁶ Usually found anterior to molars in both maxilla and mandible equally, POF in more than 50% of cases occur in the incisor, and cuspid regions.⁵ unlike in our case it is the interdental papilla of posterior molars.

The Clinical appearance of POF is like a solitary nodular mass which is either pedunculated or sessile with color of the surface mucosa ranging from red to pink, also the surface is frequently seen to be ulcerated. The interdental papilla is usually the site of occurrence of the mass.⁸ Some authorities believed that the lesion is odontogenic in origin.⁵

The etiology of POF includes local irritants such as dental plaque, microorganisms, calculus, heavy mastication forces, poor fit dentures and iatrogenic and overhanging restorations. Following a gingival injury, gingival irritation, subgingival calculus or a foreign body in the gingival sulcus leads to the excessive proliferation of the mature fibrous connective tissue. Metaplasia of the connective tissue is caused by the chronic irritation of the periosteal and periodontal membranes which leads to initiation of bone formation or dystrophic calcification.²

The fact that POF arises from the periodontal ligament and is not usually seen in areas devoid of teeth, suggests that connective tissue elements of the periodontal ligament give rise

to it. And that ossifications are found in these lesions is, therefore, not surprising since cementum and lamina dura are part of the periodontal ligament complex. The variant that shows odontogenic epithelium within it, ie, the peripheral odontogenic fibroma, is also not surprising, since rests of Malassez are rather abundant in the periodontal ligament and can easily become incorporated into lesions arising from the periodontal ligament. The cells of periosteum or periodontal ligament are considered as the originators of the mineralized product in POF.⁷

Definitively diagnosed through a histopathological examination, POF is having the following features-

1. Benign fibrous connective tissue with varying fibroblast, myofibroblast and collagen.
2. Sparse to profuse endothelial proliferation
3. Mineralized material that may appear as mature, lamellar or woven osteoid, cementum like material. or dystrophic calcifications
4. Acute or chronic inflammatory cell infiltration

Careful postoperative monitoring is required in all cases of POF due to the high rate of recurrence (8% to 20%). POF may recur due to

- 1) The incomplete removal of the lesion,
 - 2) The failure to eliminate local irritants
 - 3) The lesion is difficult to access during the surgical manipulation as a consequence of its intricate location (usually an interdental area).
- Peripheral ossifying fibroma must be distinguished histologically from a pyogenic granuloma or a peripheral giant cell proliferation.⁸ In addition, gingival masses, particularly those arising from deeper tissues, should suggest a possible primary malignant lesion or even a metastatic malignancy. It is very crucial to understand the difference between the similar sounding lesions histopathologically,, i.e. Peripheral Ossifying Fibroma, Peripheral Odontogenic Fibroma,

central ossifying fibroma (COF) and central odontogenic fibroma (COdF). POF being a completely distinct entity from POdF and COF.

CONCLUSION

The Peripheral Ossifying Fibroma, representing a reactive benign lesion of connective tissue, is not the soft tissue counterpart to central ossifying fibroma which represents an osteogenic neoplasm. Peripheral Ossifying Fibroma presenting as an exophytic smooth surfaces pink or red nodular sessile mass. Etiology of which is unclear, inflammatory hyperplasia originating in the superficial PDL is considered. Histopathological examination is essential for the accurate diagnosis.

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