CASE REPORT

Peripheral Ossifying Fibroma: A Case Report

Neha Neharika[1], Subash Singh[2], Neerja Singh[3], Abhishek Verma[4]

ABSTRACT

Introduction: Numerous types of lesions like focal fibrous hyperplasia, pyogenic granuloma, peripheral giant cell granuloma, peripheral ossifying fibroma are often found to occur on gingiva, which are localised but reactive in nature. Out of many of these, Peripheral Ossifying Fibromas, representing a total of 2% of them biopsied, are localised lesions which occur on gingiva and can be identified to be arising from the interdental papilla. This lesion is also known by other terms such as Peripheral Cementifying Fibroma, Peripheral Fibroma with Cementogenesis, Peripheral Fibroma with Osteogenesis, Peripheral Fibroma with calcification, Calcified or Ossified Fibrous Epulis and Calcified Fibroblastic Granuloma.

Case Report: The current article highlights a case of Peripheral Ossifying Fibroma occurring on the labial aspect of the gingival in the upper arch in a 15 year old male patient, after co-relating the clinical, radiographic and histopathological features presented by him.

Conclusion: The surgical excision of the lesion, including the involved periodontal ligament and the periosteum was performed and when the patient reported for follow-up examination at 15 days, where he showed healthy healed site. The patient was found healthy at 3 months follow up examination. Hence, as dentists, it is our prime duty to make the population, especially younger population aware of the oro-dental diseases and encourage them to visit the dentist as and when required.

Keywords: Gingival growth, Peripheral ossifying fibroma, fibrous epulis, peripheral cemento ossifying fibroma, calcifying fibroblastic granuloma.

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INTRODUCTION

Localised growths, which are reactive in nature, rather than neoplastic, are often found to be occurring on gingiva. Lesions like Focal Fibrous Hyperplasia, Pyogenic Granuloma, Peripheral Giant Cell Granuloma and Peripheral Ossifying Fibroma are often seen as gingival growths. Most of these lesions are difficult to be identified on the basis of clinical features alone. These can be identified only on the basis of their typical histomorphological features. One of such diverse reactive lesions is the Peripheral Ossifying Fibroma (POF) which accounts for 3.1% of all tumors and 9.6% of all the gingival lesions. The lesion displays itself as a focal, reactive, non-neoplastic tumor like growth of the soft tissue, often arising from the interdental papilla.[1] It shows a tendency to occur in the 2nd and 3rd decades of life, showing peak prevalence between the ages of 10 and 19 years with female predilection. Peripheral Ossifying Fibroma presents as a solitary, slow growing nodular mass that is either pedunculated or sessile; with smooth or ulcerated surface and the colour of the mucosa varying from pink to red. A few cases also demonstrate migration of teeth with inter-dental bone destruction. Though, Peripheral Ossifying Fibromas usually measure less than 1.5 cm in diameter, however, lesions of size 6cm and 9cm have also been reported in literature.[2] When the etiology and pathogenesis of Peripheral Ossifying Fibroma remains largely unknown, some authors consider it as a neoplastic process, while others still argue it to be a reactive one. By either of the authors however, the lesion is thought to arise from cells in the periodontal ligament. Its etiology implicates factors such as trauma, or local irritants such as dental plaque, calculus, microorganisms, ill-fitting dentures and restorations of poor-quality.

The identification of cellular connective tissue and the focal presence of bone or other calcifications in the histopathological sectioning of Peripheral Ossifying Fibromas leads to its definitive diagnosis. Though it has not yet been established whether the lesion is a tumor or it represents proliferation that is reactive in nature.[1] The preferred treatment for Peripheral Ossifying Fibromas includes its localised surgical excision, which is performed only after the elimination of the local etiological factors. The periodontal ligament and the periosteum at the base of the lesion should be excised in order to reduce the chances of recurrence. One such interesting and informative case has been put forth here, of a 15 year old male child presenting with an unusually large Peripher-

al Ossifying Fibroma in the left maxillary anterior alveolar ridge region which also showed occurrence once.

CASE REPORT

A 15-year-old male patient reported to The Department of Pedodontics and Preventive Dentistry, Babu Banarasi Das College of Dental Sciences, Lucknow, with the chief complaint of a painless growth in relation to his upper front left region of the jaw. The swelling started as a small nodule about 2 to 3 months ago that progressed gradually within a span of about 2 to 3 months. The patient did not give any history of trauma, injury, or food impaction. The patient's past dental and medical histories were non-contributory.

An intraoral examination revealed generalized pink gingiva with a single, well defined pedunculated swelling present on the labial aspect, arising from the interdental papilla of the maxillary left central and lateral incisors while covering some of the crown. The shape of the mass was oval and was approximately 8mm x 10mm in size, pinkish yellow, soft and non-tender on palpation. The swelling originated from the labial aspect and extended to the palatal gingival [Figure 1]. An intraoral periapical radiograph of the involved region showed interdental spacing between maxillary left central and lateral incisors without any significant bone loss. Clinically, differential diagnosis included localised gingiva hyperplasia, traumatic fibroma and pyogenic granuloma. A provisional diagnosis of pyogenic granuloma was made for the present gingival growth.

Oral prophylaxis of the patient with extra care in the swelling area was done, followed by complete oral hygiene instructions. Necessary blood investigations were performed. The growth was excised with some healthy tissue conservatively, to prevent the development of an unsightly gingival defect in the region. The excised tissue was sent for histopathological examination [Figure 2]. H&E stained section showed a polypoidal mass composed of proliferated fibrocytes and collagen fibres dispersed in bundles and covered partly by squamous epithelium and partly by inflammatory exudates [Figure 3]. The mass showed several small calcific spherules and few bone trabeculae. The adjoining stroma presented infiltration by chronic inflammatory cells. No evidence of malignant change noted. Histologically, the specimen was suggestive of Ossifying Fibroma(OF) with Inflammation and Ulceration. Based on clinical and histological findings, the lesion was diagnosed as Peripheral Ossifying Fibroma. The patient reported for a follow-up examination after 15 days postoperatively. The surgical site appeared to be healed well. Follow up after 3 months shows healed healthy site [Figure 4].

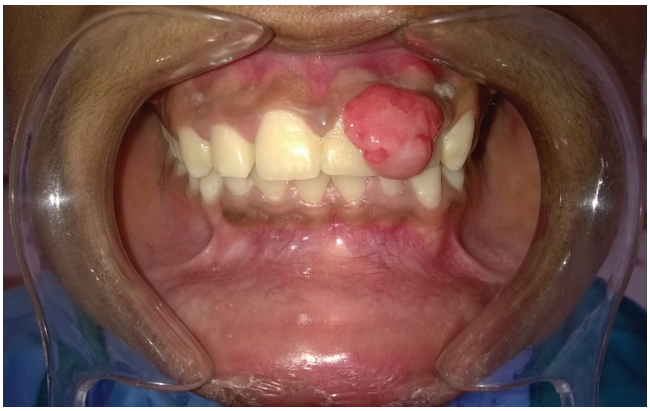

Figure-1: Depicts generalized pink gingiva with a single, well defined pedunculated swelling present on the labial aspect, arising from the interdental papilla of the maxillary left central and lateral incisors while covering some of the crown; the shape of the mass being oval, approximately 8mm x 10mm in size, pinkish yellow in colour.

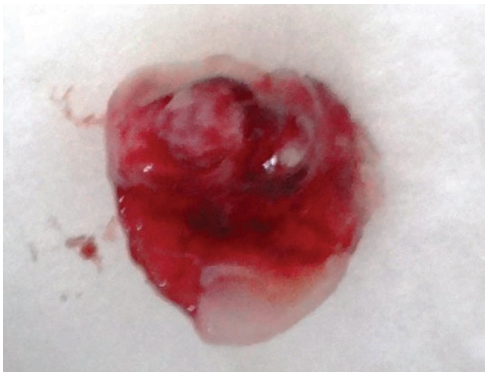

Figure-2: Depecting the excised tissue.

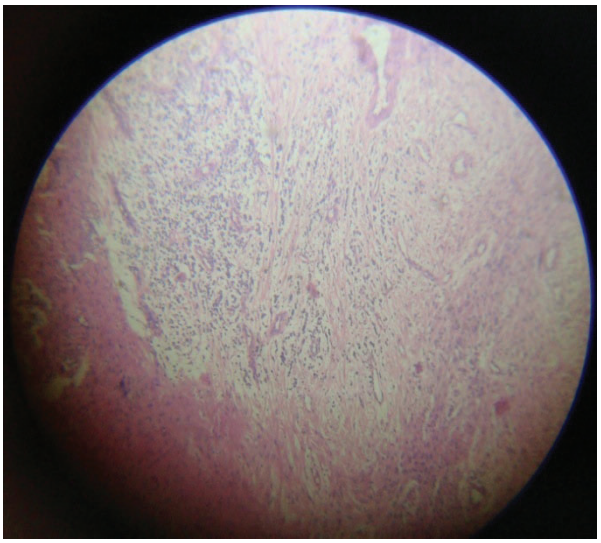

Figure-3: Depicting the H&E stained section showing a polypoidal mass composed of proliferated fibrocytes and collagen fibres disposed in bundles and covered partly by squamous epithelium and partly by inflammatory exudates.

DISCUSSION

It was since the late 1940's that the intraoral ossifying fibromas have been described in literature. Ossifying fibromas occur in craniofacial bones mostly and is generally categorised into two types: central and peripheral. The Ossifying Fibroma of the central type arises from the endosteum or the

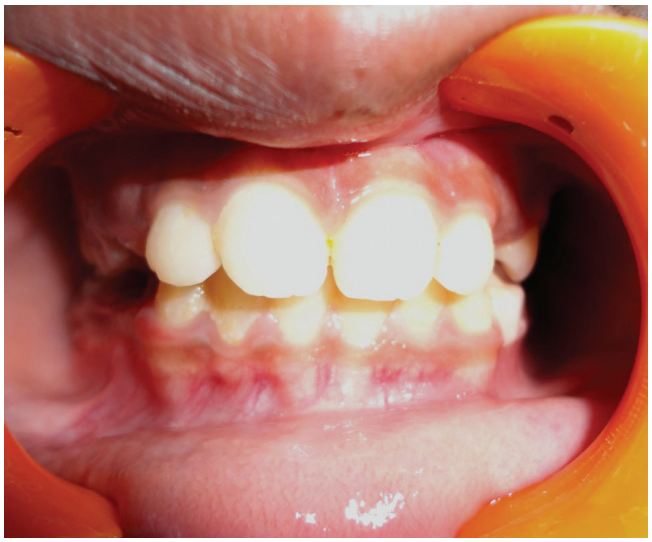

Figure-4: Depicting the surgical site at a follow up after 3 months showing the healed healthy site.

periodontal ligament (PDL) adjacent to the root apex and is found to be expanding from the medullary cavity of the bone. On the other hand, the Ossifying Fibroma of the peripheral type shows a continuous relationship with the PDL, and is found to occur solely on the soft tissues overlying the alveolar process.[3]

The Peripheral Ossifying Fibroma and Ossifying Fibroma are the lesions that exhibit similar histomorphologic features and both originate from periodontal ligament cells, but POF is a reactive lesion whereas an OF is a benign neoplastic lesion included in the group of benign fibro-osseous lesions of the jaws. Both POF and OF show different proliferative activities.[4] The ulcerated lesions are more likely to be painful but in the present case the lesion was not associated with pain.

It has been suggested that the peripheral ossifying fibroma represents a separate clinical entity rather than a transitional form of pyogenic granuloma, peripheral giant cell granuloma, or irritational fibroma, though they resemble clinically and histopathologically to pyogenic granuloma. Some consider POF to develop secondary to fibrosis of granulation tissue. Due to its female gender predilection and occurrence mostly in second decade more towards puberty, the role of hormones has also been questioned.[5,6] The most widely acceptable histiogenesis for POF is the inflammatory hyperplasia of the cells of the periosteum or periodontal ligament. The inflammatory reaction is believed to occur secondary to trauma from local irritants such as plaque, calculus, restorations or ill fitting dental appliances. This is convincing, as they occur exclusively in gingiva and with the histomorphological evidence of oxytalan fibers within the mineralized matrix.[6,7] Another interesting observation is the decline in number of cases as age advances, probably due to the fact that hormonal changes take place mostly during puberty.

Clinically peripheral ossifying fibroma presents as exophytic, smooth surfaced pink or red nodular mass which is sessile or less frequently seen on a pedicle. The interdental papilla is frequently involved. The lesion in present case was of soft tissue origin arising from the interdental papilla which was a focal reactive tumor-like growth with a broad attachment at base.

Ossifying fibromas may occur at any age, but are more common in young adults. A variant of ossifying fibroma, juvenile (aggressive) ossifying fibroma, has been described in children and young adults who are younger than 15 years of age.[8] Females are more commonly affected than males and anterior maxilla is the most common location of involvement where the lesion predominates in the second decade of life. Hormonal influences may play a role, given the higher incidence of peripheral ossifying fibroma among females, increasing occurrence in the second decade. In the present case anterior maxilla was involved in a male child who was almost at the end of his first decade.

Histologically, the key feature of this lesion is exceedingly cellular mass of connective tissue, mesenchymal in origin comprising large numbers of plump, proliferating fibroblasts intermingled throughout with delicate fibrillar stroma[9], as found in the present case.Buchner et al[10] observed that the mineralized tissues observed in POF can be of three basic types: 1) bone that may be woven or lamellar bone sometimes surrounded by osteoid, or that may be in trabecular form; 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 calcifications, 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, bearing considerable resemblance to some areas of peripheral giant cell granuloma.[9]

In the present case an intraoral periapical radiograph of the involved region showed interdental spacing between maxillary left central and lateral incisors without any significant bone loss, though radiographic features of POF shows radiopaque foci of calcifications scattered in the central area of the lesion. Underlying bone involvement is usually not visible on a radiograph. Rarely, superficial erosion of bone is noted.[1]

To confirm the diagnosis of a Peripheral Ossifying Fibroma, a histopathologic evaluation of the biopsy specimen needs to be made. The presence of following features should lead to the final diagnosis of the lesion- (1) presence of intact or ulcerated stratified squamous epithelium; (2) the connective tissue should appear as benign and fibrous with varying number of fibroblasts; (3) the proliferation of endothelial cells can be either sparse or profuse; (4) presence of mineralised material, be it cementum-like; or presence of dystrophic calcifications; or mature, lamellar or woven osteoid material; and (5) presence of acute or chronic inflammatory cells.[1]

Moreover, when seen histopathologically, it is found that the lamellar or woven osteoid pattern is predominant; hence the term "Peripheral Ossifying Fibroma" is considered to be more appropriate.

Different treatment modalities include surgical excision by scalpel, laser or radial/electrosurgery[1] Surgical excision is the preferred choice of treatment for POF. The recurrence rate of POF is high, varying from 7% to 45%.[4,7] The carbon dioxide laser can effectively excise the lesion and has been shown to allow diagnostic microscopic evaluation with a minimal distortion of the biopsy sample.[1] The advantages of laser excision are minimal post-surgical pain while eliminating the need for suturing of the biopsy site. This tissue destruction can also result in partial or incomplete removal of the base of the pathologic lesion, which can lead to recurrence.[1] Thus, surgical excision including the involved periodontal ligament and periosteum is the preferred treatment, which was performed in this case and the patient is healthy till date.

CONCLUSION

Being a benign fibro-osseous lesion, Peripheral Ossifying Fibroma shows a generally limited growth potential. A slowly growing pink soft-tissue nodule in the anterior maxillary region, of an adolescent, should create suspicion amongst them so that they seek a pediatric dentist's advice in order to make them healthy and comfortable at the earliest. Many patients do not approach a dentist as it is mainly asymptomatic during initial stages utill the size increases considerably. In rural India, due to lack of proper guidance, early diagnosis and prompt treatment of such lesions is lacking; as awareness of oral health is still inadequate that leads to an increase in number of cases which remains undetected. Hence, as pedodonists, it is our prime concern to make parents and their children aware of such soft tissue growths. In schools, children can be educated regarding their oral health. Even after surgical excisions, these lesions have considerable reoccurrence rates hence requiring close postoperative follow-up visits.

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