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RESEARCH ARTICLE

PERIPHERAL OSSIFYING FIBROMA: A REPORT OF TWO CASES

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ABSTRACT

Peripheral Ossifying Fibromas (POFs) are benign reactive gingival overgrowth; comprising about 9% of all gingival growths. It occurs mainly in the anterior portion of maxilla in young adults, predominantly among females. It has been described with various synonyms and is believed to arise from the periodontal ligament. In this article, we are presenting two case of peripheral ossifying fibroma occurring in female patients as a solitary growth in the anterior maxillary gingiva.

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INTRODUCTION

Case 1: A 24 years old female patient had reported to the department with the chief complaint of swelling in left upper front gums region since 1 month. Swelling was insidious in onset, initially small in size and gradually progressed to the current size. Patient gave history of similar swelling at same site two times previously. On inspection, a solitary reddish pink, oval shaped swelling of 1.5 cm diameter was present on left maxillary anterior interdental and attached gingiva w.r.t 22, 23 with smooth surface and well defined borders. On palpation, swelling was non-tender, firm and sessile. IOPA irt 22, 23 revealed widening of PDL space at cervical third of root of 22 on distal aspect. Alveolar crest was 3 mm apical to CEJ w.r.t 22 and 23. Spacing was evident between 22 and 23.

Case2: A 24 year old female patient reported to the department with chief complaint of painless swelling in the right upper front gums region since 4 months. On inspection, a solitary swelling was seen on right maxillary anterior gingiva involving interdental papilla w.r.t 12 and 13, oval shaped with 1.5 cm diameter, well defined borders and smooth surface. On palpation, swelling was non-tender, soft in consistency with pendunculated base. No hard tissue abnormality was present.

DISCUSSION

Peripheral ossifying fibroma (POF) is a reactive soft tissue growth that is usually seen on the interdental papilla. It may be pedunculated or broad based, usually smooth surfaced and varies from pale pink to cherry red in color. It is believed to comprise about 9% of all gingival growths and to arise from the gingival corium, periosteum, and the periodontal membrane. It has also been reported that it represents a maturation of a pre-existing pyogenic granuloma or a peripheral giant cell granuloma (Bhaskar, 1966). Many synonyms have been given to this lesion such as calcifying or ossifying fibrous epulis, calcifying fibroblastic granuloma, peripheral fibroma with calcification, peripheral fibroma with osteogenesis, peripheral fibroma with cementogenesis, peripheral cementifying fibroma, and peripheral cemento-ossifying fibroma. First case of peripheral ossifying fibroma was reported by the Shepherd in 1844 as alveolar exostosis (Mohiuddin, 2013). Menzel first described the lesion ossifying fibroma in 1872, but its terminology was given by Montgomery in 1927 (Sujatha, 2012). Eversol and Robin were the first to describe the lesion as a relatively uncommon, solitary, nonneoplastic gingival growth (Mohiuddin, 2013). In 1982, Gardner coined the term, "peripheral ossifying fibroma" for a lesion that is reactive in nature, and it is not the extra osseous counterpart of a central ossifying fibroma of the

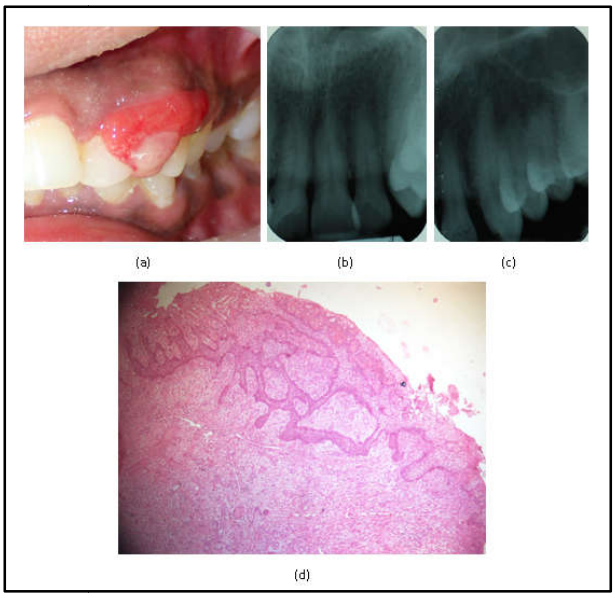

Figure 1. (a) Clinical view of the lesion. (b) IOPA in relation to 22, 23 showing bone loss. (c) Histopathology of the lesion

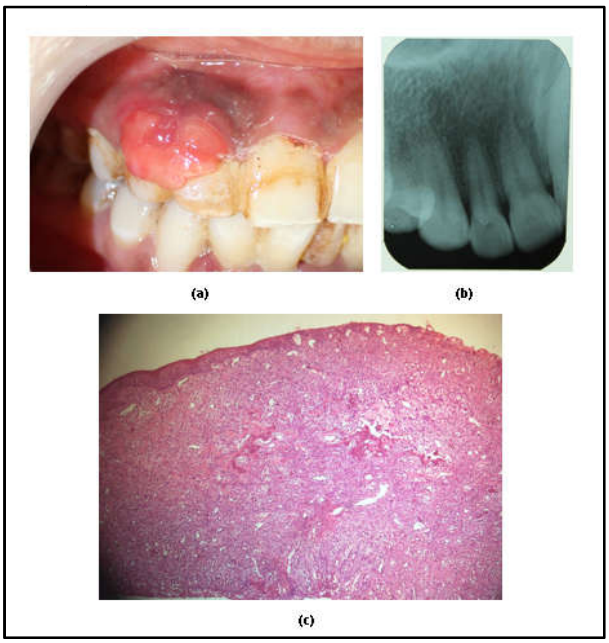

Figure 2. (a) Clinical view the lesion. (b) IOPA in

maxilla and mandible. Clinically, POF usually manifests as a well-defined and slow-growing gingival mass measuring under 2 cm in size and located in the interdental papilla region. The base may be sessile or pedunculated, the color is identical to that of the gingiva or slightly reddish and the surface may appear ulcerated (Kale *et al*., 2014). The lesion shows a sex predilection toward female and most commonly occurs in the second and third decades. Most commonly, they found in the maxilla and anterior to the molars, but numerous variations have been reported in literature (Buchner, 1987). Approximately 60% of POFs occur in the maxilla, and they occur more often in the anterior than the posterior area, with 55%–60% presenting in the incisor-cuspid region (Zhang *et al*., 2007). The etiology and pathogenesis of POF are not yet clear. POFs are believed to arise from gingival fibres of the periodontal ligament as a result of irritating agents such as dental calculus, plaque, orthodontic appliances, and ill-fitting restorations (Mergoni *et al*., 2015).

The presence of oxytalan fibers interspersed among the calcified structures, the almost exclusive occurrence on the gingiva, and the age distribution inversely correlating with the number of lost permanent teeth support the hypothesis of an origin from the periodontal ligament (Buchner *et al*., 1987). POF is due to inflammatory hyperplasia of cells of periodontal ligament/periosteum. Metaplasia of the connective tissue leads to dystrophic calcification and bone formation (Mohiuddin, 2013). Role of hormones has been suggested. Exposure of inflamed gingiva to progesterone and estrogen from saliva and blood stream is thought to be a contributory factor. Loss of periodontium occurs with tooth loss as age advances. Hence marked predilection is seen in younger age group. Multicentric lesions presenting in the oral and maxillofacial region are not typical, but have been observed in conditions associated with known genetic mutations, such as Nevoid Basal Cell Carcinoma Syndrome, Multiple Endocrine Neoplasia Type II, Neurofibromatosis and Gardner Syndrome (Kumar, 2006).

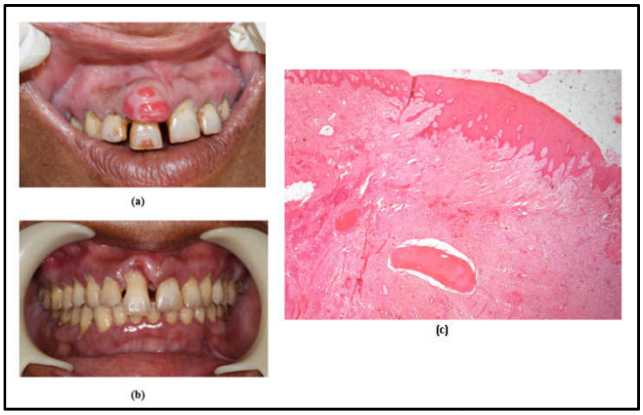

Figure 2: (a) Clinical photograph of solitary gingival swelling on right anterior maxilla in case 2. (b) IOPA in relation to 12, 13 showing mild bone loss. (c) Histopathology of the lesion showing highly cellular connective tissue and mature lamellated bone marked by black arrows (H & E, 10x).

GPOF is a rare subset of POF with distinctive clinical and radiographic features. Diagnosis is based on the conventional clinical and histologic features of POF in conjunction with size over 2.5 cm. Giant POFs (GPOF) have been referred to in the literature by several other names - large, atypical, huge, gigantiform (Childers, 2013). Provisional diagnosis is made on the basis of history, clinical features and radiographic features, confirmatory diagnosis is made by histopathological examination. The differential diagnosis of peripheral ossifying fibroma includes the other reactive lesions of gingiva. Peripheral odontogenic tumours (POT) are benign uncommon focal overgrowths of the oral soft tissue, usually occurring in the gingival and jaw overlying mucosa. Since these tumours are rare, they are usually not included in the differential diagnosis of gingival lesions. POT demonstrate the histologic characteristics of their intraosseous counterparts but occur solely in the soft tissue covering the tooth-bearing portion of the jaws. They are also known as extraosseous odontogenic or soft tissue odontogenic tumours, or odontogenic tumors of the gingiva. Bone involvement, though not significant in most of the cases, some alterations are noted like Superficial erosion of bone, Foci of calcifications, Widening of the periodontal ligament space and thickened lamina dura and Interdental bone loss. A POF is usually small and does not require any further imaging study in addition to plain radiographs. Cases where the size of the lesion reaches 3.5 cm and above CT scans and MRI shall be advised when the diagnosis is at doubt. The scattered calcifications of the POF are best depicted on CT scans (Moon *et al*., 2007). The basic microscopic pattern of the POF is fibrous proliferation associated with the formation of mineralized components. Mineralized component varies from 23 to 75%.[11] Butcher and Hansen reported three types of components in POF - Woven and lamellar bone trabeculae, Cementum-like formations and Dystrophic calcifications (Buchner, 1987). Immunohistochemistry shows positivity for HHF-35 (anti-muscle actin antibody) and there is over-expression of Osterix (OSX) protein which is essential for the differentiation of preosteoblasts into mature osteoblasts (Mariano *et al*., 2017; El Achkar *et al*., 2017). The treatment protocol includes surgical excision and removal of the etiological agent. Peripheral ossifying fibroma has a high recurrence rate which varies from 8% to 45% (Buchner, 1987). To minimize the possibility of recurrence, it is necessary to remove the lesion completely and all risk factors, including plaque, calculus and plaque-retentive restorations.

Conclusion

Peripheral ossifying fibroma (POF) is one of the inflammatory reactive hyperplasia of gingiva. Substantial overlap exists between various focal reactive overgrowths of gingiva. Therefore, a careful history and clinical and radiographic examination is absolutely necessary to arrive at the diagnosis. Though peripheral odontogenic tumors are rare to be included in the differential diagnosis commonly, these should be considered in the cases where there is no etiological factor evident or there is repeated recurrence of the lesion. As, Peripheral ossifying fibroma has a high rate of recurrence, thus postoperative follow-up is mandatory.

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