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Unusual case of multicentric peripheral ossifying fibroma: A rare finding

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Abstract
Intraoral ossifying fibromas have been described in the literature since the late 1920s. Peripheral ossifying fibroma (POF) is a common solitary gingival overgrowth thought to arise from the gingiva, periosteum and periodontal ligament. It is considered as a benign overgrowth of gingiva. Because it is possible to misdiagnose POF as pyogenic granuloma, peripheral giant cell granuloma, or odontogenic tumours, histopathological examination is, therefore, essential for accurate diagnosis, and differential diagnosis. POF has a tendency to recur, thus, accurate diagnosis is critical. This paper presents an unusual case of multicentric peripheral ossifying fibroma in a 12-year-old male involving left upper and lower posterior region gingiva (extending from 1st premolar to 2nd molar region including both buccal and lingual gingival) along with the clinical, histopathologic, and radiographic features and treatment details. Postoperative follow up did not show any signs of recurrence. A rare appearance of this lesion extending posteriorly to the molar and simultaneously involving both upper and lower jaw makes it unusual.

Keywords: Peripheral ossifying fibroma, gingival overgrowth, novel approach

Introduction
Peripheral ossifying fiboma (POF) is a focal, reactive, non-neoplastic benign tumor like growth of the soft tissue that often arises from the interdental papilla [1]. In 1872, Menzel first described the ossifying fibroma, but only in 1927, did Montgomery assign its terminology [2]. It accounts for 3.1% of all oral tumors and for 9.6% of gingival lesions [3, 4]. The etiopathogenesis of this tumor is uncertain; however, the pluripotent cells of the periodontal ligament have the apparent ability into osteoblasts, cementoblasts or fibroblasts, in response to irritants such as calculus, bacterial plaque, orthodontic appliances, ill-adapted crowns, and irregular restorations, and are therefore, capable of producing a unique inflammatory hyperplasia, the peripheral ossifying fibroma [5]. About 60% of such lesions occur in the maxilla and more than 50% of all cases affect the region of the incisors and canines; more precisely in the interdental papilla [6]. It occurs predominantly in the second decade of life, typically measures less than 1.5 cm in diameter, is commonly ulcerated and/or pink to red in color, and normally appears as a solitary and slow-growing nodular mass that can be either pedunculated or sessile [7].
Presentation of POF as a solitary lesion is very common, in this report we present a rare case of multicentric POF in a 12 year old child, affecting maxillary and mandibular gingiva on both buccal and lingual sides, along with the clinical, histopathologic, and radiographic features and treatment details. Also our paper suggests a novel approach to treat such cases.

Case Presentation
A healthy 12 year old male with a chief complaint of gingival overgrowth in left posterior region of upper and lower jaw, which he noticed 3 months back in lower jaw and increased progressively and also complaint of discomfort during mastication from that side. There was no associated history of bleeding or pain. His medical history was non-significant and no h/o any medication at that time. Intraoral examination revealed sessile, smooth, non-tender, firm, pinkish gingival enlargement in maxillary and mandibular arch on left side extending from 1st premolar to 2nd molar region involving both buccal and lingual gingiva. [Figure 1]

Radiographically, there was no evidence of bone loss or bone expansion. [Figure 2]

The differential diagnosis included irritation fibroma, pyogenic granuloma and POF. Based on the clinical and radiographic findings, the provisional diagnosis of irritation fibroma was made.

The periodontal treatment plan included patient education and motivation for oral hygiene instructions, scaling and root planing, reevaluation and surgical excision of the lesion consisted of two stage surgery for mandibular arch and single stage surgery for maxillary arch under local anesthesia. Scaling and root planing was performed for elimination of local etiological factors. After 1 week of scaling and root planing, a reevaluation and gingivectomy with internal bevel technique was performed in maxillary arch [Figure 3] and gingivectomy with ledge and wedge technique was performed in mandibular arch. [Figure 4] Sutures and periodontal dressing were placed. Patient was given post-operative instructions and was prescribed with analgesic (tablet ibuprofen-400 mg tds every 4-6 h as needed for pain) and antimicrobial rinse (0.2% chlorhexidine gluconate twice-a-day for 1 week). He was recalled, after 1 week for follow-up. The excised tissue was placed in 10% neutral buffered formalin and sent for the histopathologic examination. After 1 month a second stage surgery was performed for mandibular arch with internal bevel gingivectomy [Figure 5] because the growth did not resolved completely. Suture and periodontal dressing were given and removed after 1 week.

Histopathological examination- It showed overlying nonkeratinized stratified squamous epithelium with underlying connective tissue that exhibited abundant degree of cellularity, few areas showed aggregates of plump cells with attempt of matrix formation but no bone/osteiod was formed. Stroma showed extravasated blood and endothelial proliferation suggestive of POF. [Figure 6]

Follow up- At 1 month post-operative visit, patient presented for follow-up examination. Recovery was uneventful with a satisfactory healing. [Figure 7]

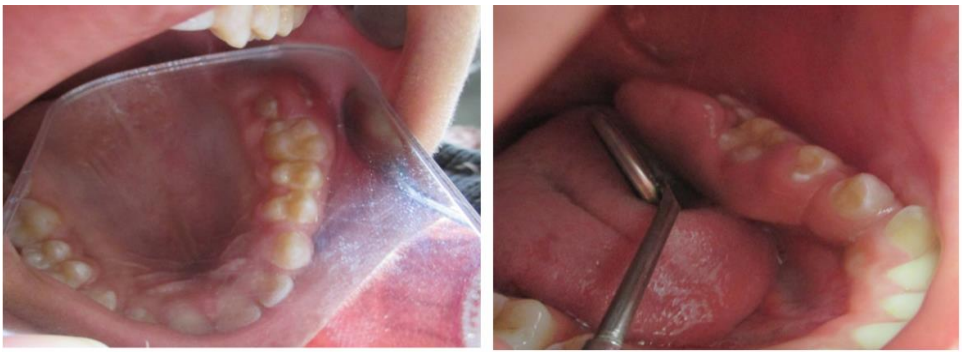

Fig 1: Photographs showing growth in maxillary (a) and mandibular (b) arch on left side extending from first premolar to second molar

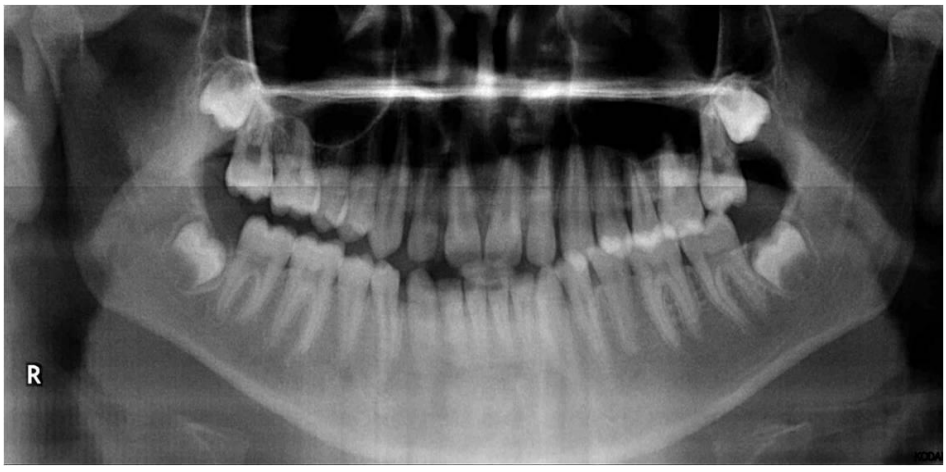

Fig 2: Radiograph with no evidence of discrepancy

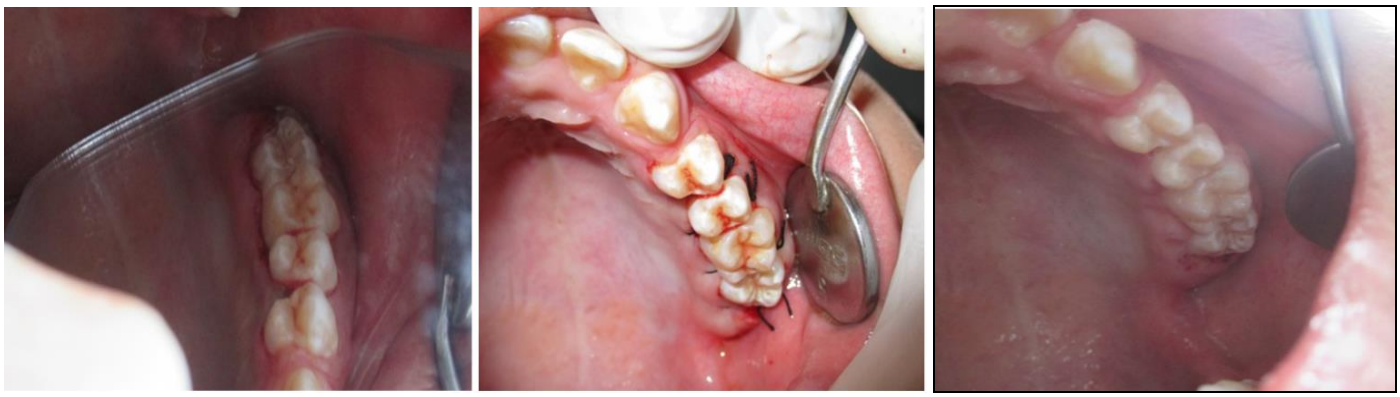

Fig 3: gingivectomy procedure of maxillary arch

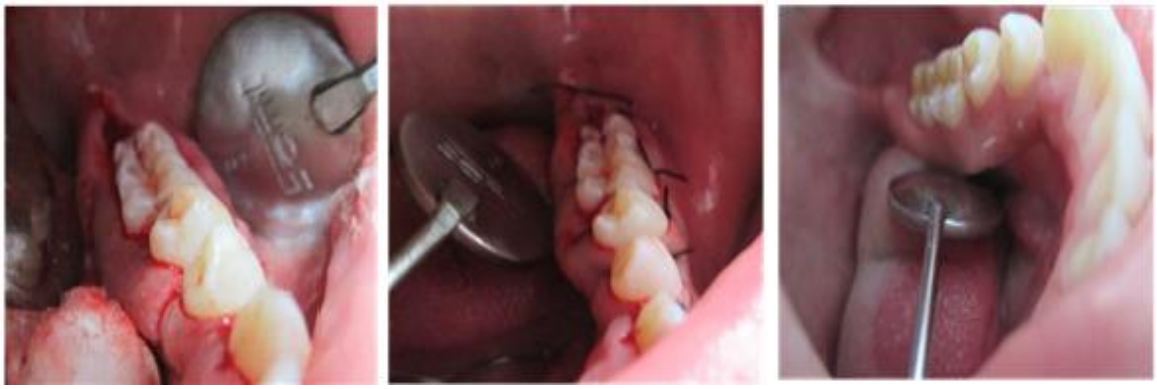

Fig 4: First stage ledge and wedge procedure of mandibular arch

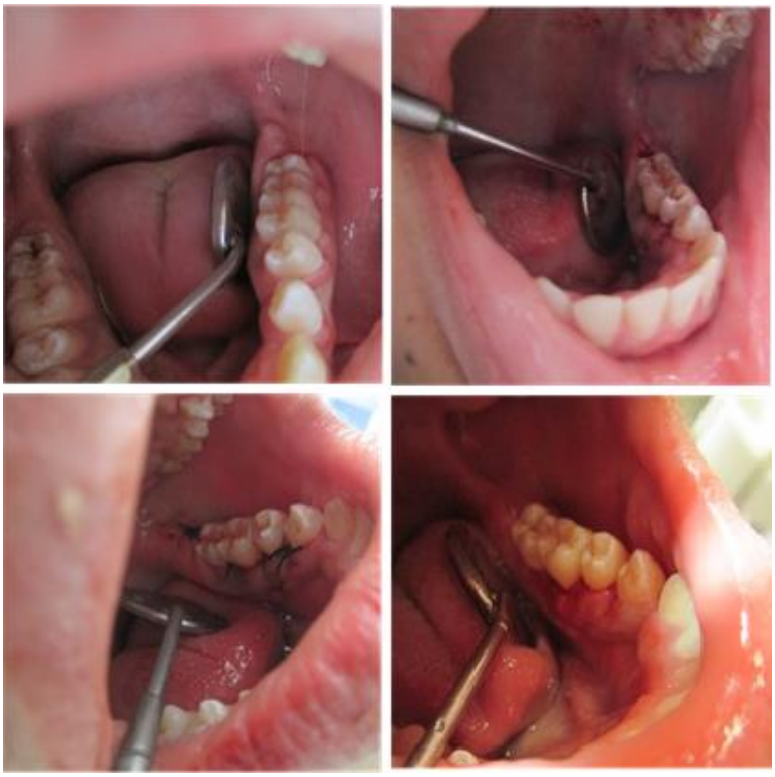

Fig 5: Second stage internal bevel gingivectomy procedure of mandibular arch

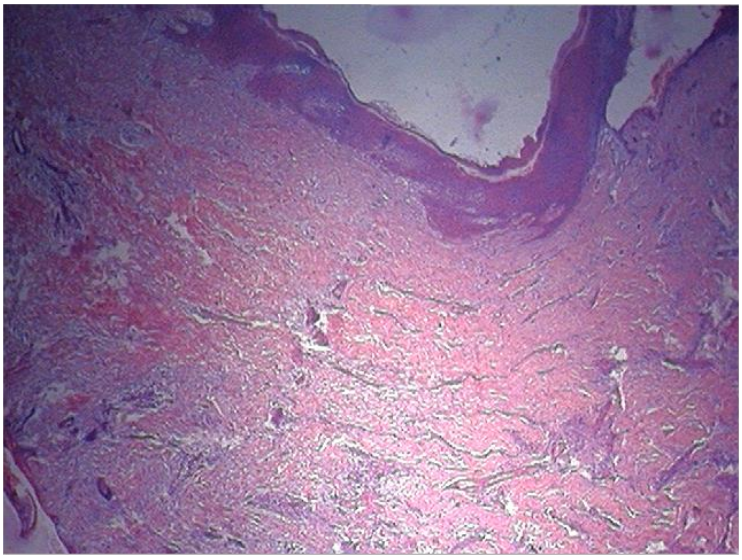

Fig 6: Histopathological picture suggesting POF

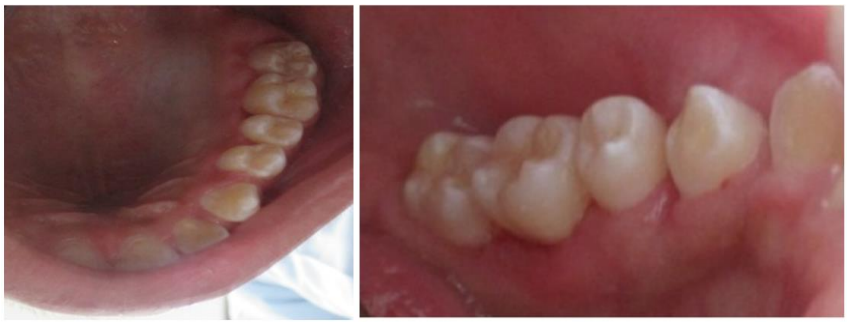

Fig 7: postoperative view at one month

Discussion

POF has been given many synonyms, such as, Calcifying fibroblastic granuloma, Peripheral cementifying fibroma, Peripheral fibroma with cementogenesis, Peripheral cemento-ossifying fibroma, Ossifying fibroepithelial polyp and Peripheral fibroma with osteogenesis [2, 5, 8].

POF, term coined by Eversole and Robin is relatively a common overgrowth which occur exclusively on gingiva, usually arising from the interdental papilla and is considered to be reactive rather than neoplastic in nature [9]. An origin from cells of periodontal ligament has been suggested because of exclusive occurrence of POF from interdental papilla [8], Considered to originate from the cells of the periodontal ligament [10], the presence of oxytalan fibres within the mineralized matrix of some lesions, and the fibro cellular response similar to other reactive gingival lesions of periodontal ligament origin [5, 11].

It has been found to occur at any age group and usually seen as a solitary, isolated, nodular mass and can be either sessile or pedunculated [12]. POF very commonly occur as a solitary lesion but rare to be found as multicentric lesion [4, 5]. POF occurs 2-4 times more frequently in females [1] than in males between the age of 25 and 35 years. Approximately 60% of POFs occur in the maxilla and they are found more often in the anterior region, with 55- 60% presenting in the incisor-cuspid region [3]. In our case, the lesion was present in the maxillary and mandibular posterior region.

The lesion represents varying stages of a fibroma with ossification, however, ossification or calcification may not be evident in all cases, particularly in the earlier stages of growth as in our case [6]. The present case didn't report marked dystrophic calcification within the lesion.

Treatment of POF consists of elimination of etiological factors, scaling of adjacent teeth and total aggressive surgical excision along with involved periodontal ligament and periosteum to minimize the possibility of recurrence [13].

Long term postoperative follow-up is extremely important as there is a high growth potential of the inadequately excised lesion with recurrence rate of 8-20% [1]. However, in our case there was no signs of recurrence during 6 months follow up.

POF clinically resembles as pyogenic granuloma, peripheral giant cell granuloma or odontogenic tumours. So, radiographic and histopathological examinations are essential for an accurate diagnosis.

Multicentric lesions of such type have been observed in conditions such as nevoid basal cell carcinoma syndrome, multiple neuromas, multiple neurofibromatosis and Gardner's syndrome [12]. However, in our case no syndrome was found to be associated.

Conclusion

POF is a non-neoplastic response of the connective tissue or the superficial periodontal ligament to minimal amount of local irritation.Critical clinical and radiographic examination followed by histopathogical examination is crucial for its final diagnosis. The treatment of choice involves total surgical excision of the mass with meticulous root planing and curettage of the area to prevent recurrence. Regular follow up is required.

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