Peripheral cemento-ossifying fibroma: Report of a recurrence case

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Abstract
Peripheral cemento-ossifying fibroma [PCOF] is a reactive gingival overgrowth occurring frequently in the maxillary anterior region in teenagers and young adults. Here, we report a case of POCF in a 13-year-old male, which was previously surgically excised and had recurred after a period of 9 months. PCOF should be considered in differential diagnosis of such reactive hyperplastic lesions originating from the gingiva. Hence, early diagnosis with proper surgical excision and aggressive curettage of the adjacent tissues are essential for prevention of recurrence.

Keywords: Gingival overgrowth, Peripheral cemento-ossifying fibroma, reactive gingival growth, recurrence

Introduction
Many types of localized reactive lesions may occur on the gingiva, including focal fibrous hyperplasia, pyogenic granuloma, peripheral giant cell granuloma and peripheral cemento-ossifying fibroma [PCOF]. PCOF is a common gingival growth that is thought to be either reactive or neoplastic in nature. It is widely considered that this lesion originates from the cells of the periodontal ligament, and is often associated with trauma or local irritants, such as subgingival plaque, calculus, dental appliances, and poor-quality dental restorations. Clinically, PCOF’s are sessile or pedunculated, usually ulcerated, and erythematous or exhibiting a color similar to the surrounding gingiva. Most lesions are < 2 cm in size, although larger ones occasionally occur. Furthermore, the lesions have shown a female predilection.

Diagnosis of the PCOF based only on clinical aspects can be difficult and histopathological examination of the surgical specimen is mandatory for an accurate diagnosis. Recurrence rate of the PCOF has been considered high. In the series of Cundiff, 16% of the cases recurred, while in a series of 50 cases reported by Eversole and Rovin, the recurrence rate was 20%. The purpose of this article is to present a recurrent case of PCOF and to highlight the importance of early diagnosis with proper surgical excision and aggressive curettage of the adjacent tissues to prevent its recurrence.

Case Report
A 13 year old male reported with a slow growing asymptomatic growth on the anterior region of his hard palate. The growth started as a peanut size three months back. He had visited the local dentist with the same complaint around a year back. The growth was then surgically excised by the dentist, and histopathologically diagnosed as peripheral ossifying fibroma. After a period of 9 months he noticed another asymptomatic growth on the same region again started as a peanut size growth and had attained the present size. His past medical history was non-contributory. He also gave history of trauma to the same region by fish bone 1 year back. Intraoral examination revealed a well-circumscribed, erythematous sessile growth on the hard palate adjacent to 11 and 12, measuring about 2.5 x 2 cm in diameter and originating from interdental papilla. Clinically, differential diagnosis included traumatic fibroma, peripheral cemento-ossifying fibroma, peripheral giant cell granuloma and pyogenic granuloma. Under local anesthesia, the lesion was completely excised with aggressive curettage of the surrounding tissue. The excisional biopsy was sent for histopathological analysis. Histopathological examination of the lesion revealed stratified squamous epithelium overlying the cellular connective tissue stroma with calcifications. Cellular areas comprised of proliferating...
plump fibroblasts with trabecular bone lined by osteoblasts. [Figure 4] Many round to oval haematoxophilic calcified masses were seen resembling cementum like material. A final diagnosis of PCOF was made. A four-month post surgical follow-up showed no evidence of recurrence.

Discussion

Intraoral ossifying fibromas have been described in the literature since the late 1940s. Many names have been given to similar lesions, such as epulis, peripheral fibroma with calcification, peripheral ossifying fibroma, calcifying fibroblastic granuloma, peripheral cementifying fibroma, peripheral fibroma with cementogenesis and peripheral cemento-ossifying fibroma [PCOF]. [2,3,11,12] The sheer number of names used for fibroblastic gingival lesions indicates that there is much controversy surrounding the classification of these lesions. [2,11] Although the etiopathogenesis of PCOF is uncertain some investigators consider it a neoplastic process, while other argue it is a reactive process; however, in either case, the lesion is thought to arise from the cells of the periodontal ligament due to trauma or local irritantation such as by dental plaque, microorganisms, masticatory forces, ill-fitting and poor quality dentures. [2,3] The etiology behind present case can be trauma due to fish bone.

Origin from the periodontal ligament has been suggested by Kumar et al. in 2006. Their reasons for such hypothesis include occurrence of the peripheral ossifying fibroma in the gingiva [interdental papilla], the proximity of the gingiva to the periodontal ligament and the presence of oxytalan fibers within the mineralized matrix of some lesions. [8] Excessive proliferation of mature fibrous connective tissue is a response to gingival injury, gingival irritation, subgingival calculus or foreign body in the gingival sulcus. Chronic irritation of the periosteal and periodontal membrane causes metaplasia of the connective tissue which initiates formation of bone or dystrophic calcification. It has therefore been suggested that the lesion may be caused by fibrosis of granulation tissue. [13]

Hormonal influences may play a role too, as the lesions have shown a female predilection, with increasing occurrence in
According to Cuisia and Brannon, the prevalence of this tumor in children aged 5 to 9 years is 10%.[7] In contrast, Kenney et al. reported a 1.9% prevalence in children aged 0 to 9 years.[8] With respect to race, there is a predominance in whites.[9] It may occur at any age range, but exhibits a peak incidence between the second and third decade. However Neville et al.[10] stated that PCOF predominantly affects adolescents and young adults, with peak prevalence between 10 to 19 years of age, as seen in the present case.

Clinically, PCOF manifests as a pedunculated or a sessile nodular mass, which usually originates in the interdental papilla. Most tumors measure less than 2 cm in diameter, although lesions larger than 10 cm are occasionally observed. About 60% of the tumors occur in the maxilla and more than 50% of all cases affect the region of the incisors and canines. A potential of tooth migration due to the presence of PCOF has been reported.[11] PCOF can show diffuse radiopaque calcifications, but not all lesions exhibit these radiographic characteristics. Most lesions are not associated with bone destruction. A case of severe destruction of adjacent bone structures has been reported in the literature.[12,13] Radiological findings were non-contributory in the present case.

A definitive diagnosis of PCOF is made by histopathological evaluation of biopsy specimen. The following features are usually observed during microscopic evaluation.[3]

1. Benign fibrous connective tissue with varying content of fibroblasts, myofibroblasts and collagen
2. Sparse to profuse endothelial proliferation
3. Mineralized material which may represent mature, lamellar or woven osteoid, cementum like material or dystrophic calcifications. Acute or chronic inflammation related findings can also be identified in lesions.

Most of these features were present in our case. Orkin and Aimadas emphasized the importance of histopathological examination to confirm the diagnosis of PCOF; which clinically resembles a pregnancy tumor, epulis fibrosa, inflammatory hyperplasia, or peripheral and central giant cell granuloma.[14] Treatment consists of conservative surgical excision and scaling of adjacent teeth.[15] Moreover, the recurrence rate of the PCOF has been considered high. The recurrence has been attributed to incomplete initial removal, repeated injury, and/or the persistence of the local irritants.[15] The recurrence rate of peripheral ossifying fibroma has been considered high for reactive lesions. The rate of recurrence has been reported to vary from 8.9% to 20%.[16] Bangladesh and Jaconway, 1966; Kenney et al., 1989; Eversole and Rovin, 1972. The average time interval for the first recurrence is 12 months.[17] Therefore, regular follow-up is required.[11] Recurrence in the present case can be due to previous incomplete surgical removal of the lesion.

To conclude, Peripheral cemento-ossifying fibroma is a non-neoplastic enlargement of the gingiva that is classified as a reactive hyperplastic inflammatory lesion. It is possible to misdiagnose PCOF from the other reactive lesions arising from the gingiva. Therefore, histopathological examination is essential for an accurate diagnosis and for proper management. We describe a case of PCOF in a 13-year-old male, recurred probably due to an inappropriate surgical excision. Complete excision with aggressive curettage of the adjacent tissues are essential for prevention of its recurrence.

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