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CASE REPORT

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Peripheral cemento-ossifying fibroma – a case report

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Abstract: Peripheral cemento-ossifying fibroma (PCOF) is a relatively common gingival growth of a reactive rather than neoplastic nature whose pathogenesis remains uncertain. It predominantly affects adolescent & young adults with greater prevalence around 28 years. We report in this study, the clinical case of a 47-year-old female patient who was asymptomatic, with the disease duration of 2 years and was followed up for 6 months post-surgically showing gingival health, normal radio-opacity of bone without any recurrence. Clinical, radiographical and histological characteristics are discussed and recommendations regarding differential diagnosis, treatment and follow-up are provided. The controversial varied nomenclature and possible etiopathogenesis of PCOF are emphasized.

Key words: fibroma; gingivectomy; granuloma

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 (1). These lesions may arise as a result of irritants such as trauma, microorganisms, plaque, calculus, dental restorations and dental appliances (2). Peripheral cemento-ossifying fibroma (PCOF) is a relatively rare lesion with variable expressions. It is defined as well demarcated and occasionally encapsulated lesion consisting of fibrous tissue containing variable amounts of mineralized material resembling bone (ossifying fibroma), cementum (cementifying fibroma) or both (3). Peripheral cemento-ossifying fibroma usually follows a salient clinical course. The pathogenesis of this lesion remains uncertain and it is thought to arise from the periosteal and periodontal membrane (4). As a result of its close proximity and similarity to the periodontal tissue, the term periodontoma is some times applied (5). There is, however, no proof to support this theory and their occurence in areas distant from periodontal ligament remains unexplainable (6).

Peripheral cemento-ossifying fibroma accounts for 3.1% of all oral tumours and 9.6% of gingival lesions (7). It may occur at any age but exhibits a peak incidence between the second and third decades. The average age is around 28 years and women being affected more than men 5:1 respectively (8). Clinically, PCOF is sessile or pedunculated, usually ulcerated and erythematous or exhibit a colour similar to that of surrounding gingiva (9). These lesions are <2 cm in size although lesions larger than 10 cm are occasionally observed. About 60% of the tumours occur in the maxilla and more than 50% of all cases affect the region of the incisors and canines. In vast majority of cases, there is no apparent underlying bone involvement visible on roentgenogram. However, on rare occasions, there appear to be

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superficial erosion of bone (10). There have been few reports on this rare lesion. A case of PCOF in the maxillary gingiva of a 47-year-old female patient is described in this study.

Case report

A 47-year-old female patient reported at the out-patient department of Periodontics, Modern Dental College and Research centre, Indore, India with the chief complaint of gum swelling in the upper right central incisor region (Fig. 1). The swelling was present since 2 years and had been slowly increasing in volume over-time. Occasionally, bleeding occurred when she brushed her teeth and was associated with slight pain. She denied tobacco and alcohol use. Patient's past dental and medical histories were non-contributory.

Clinical examination

Extraoral examination showed facial symmetry and overlying skin showed no signs of inflammation**.** The regional lymph nodes were palpable but not enlarged and non-tender. Intraoral examination revealed an approximately 1×1 cm solitary, diffused, non-tender pinkish-red growth only on the labial gingiva in relation to maxillary central incisor region. The lesion was neither fluctuant nor did it blanch with digital pressure, and had firm consistency. The palatal gingiva was not involved. The local irritants, plaque and calculus were abundant in 11 regions.

Radiographic examination

Intraoral periapical and occlusal roentgenograms of 11 regions were obtained. The radiographic examination showed no signs of involvement of alveolar ridge (Fig. 2).

Blood investigations

Patient underwent a routine complete blood investigation prior to the surgery as part of surgical protocol and all the readings were within normal limits.

Clinical and histopathological pictures

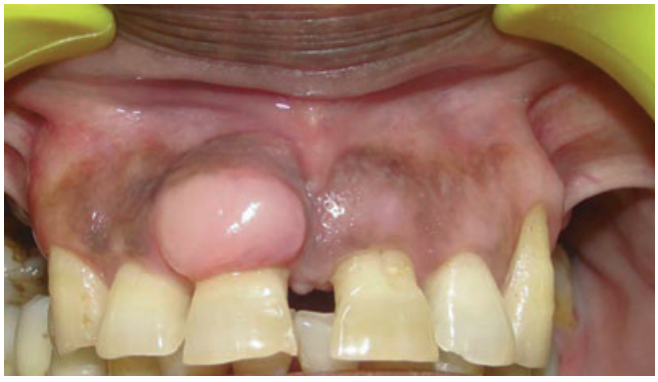

Fig. 1. Facial view of the lesion with smooth non-ulcerated surface and broad attachment base.

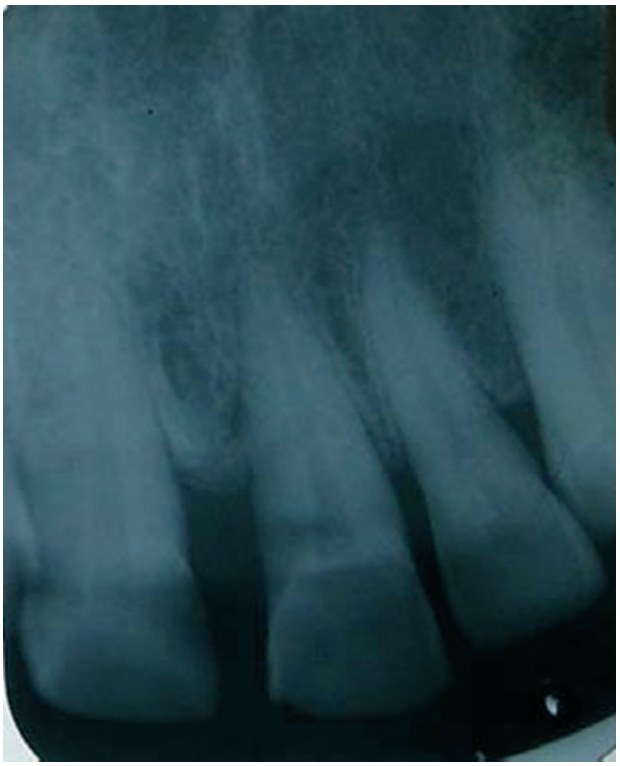

Fig. 2. Intra-oral periapical radiograph showing non-involvement of bone.

Diagnosis

Provisional diagnosis of PCOF was made. Clinically the differential diagnosis included pyogenic granuloma, fibrous hyperplasia, peripheral ossifying fibroma and peripheral giant cell granuloma.

Treatment

As the gingival growth was localized, excisional biopsy by internal bevel gingivectomy was decided. Under local anaesthesia containing xylocaine with adrenaline 1:80 000 concentration, the gingival growth was completely removed. The tissue removed was submitted for histopathological examination. Adjacent teeth were scaled to remove the local irritants. Underlying bone was curetted to remove periodontal ligaments and periosteum. The flap was inspected for any tissue tags and sutured with interdental interrupted non-resorbable 3–0 silk sutures. Non-eugenol Coe-pack was applied and the patient was discharged with post-operative instructions and informed to come back after 7 days for suture removal.

Microscopic examination

The microscopic examination of the excised tissue revealed a dense, cellular, fibrous connective tissue containing basophilic globules of calcified mass along with osteoid tissue covered by parakeratinized stratified squamous epithelium. The connec-

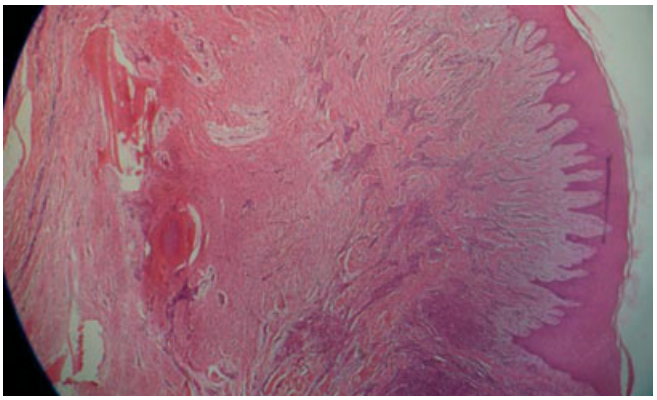

Fig. 3. Bony trabeculae within cellular fibrous connective tissue stroma covered by stratified squamous epithelium (H-E staining ×10).

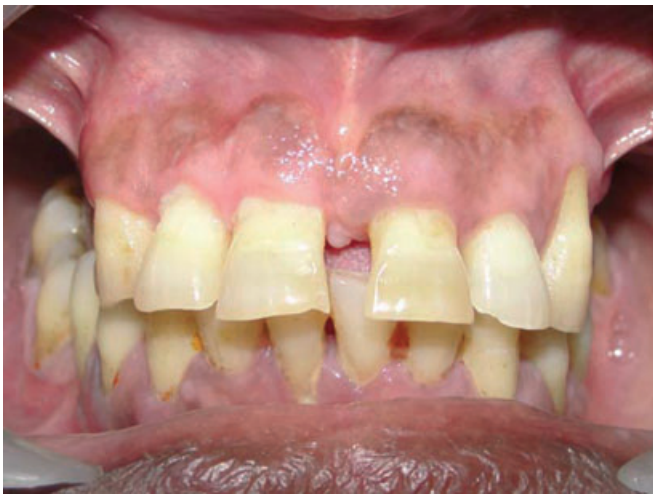

Fig. 4. Post-operative photograph of surgical site showing satisfactory healing 90 days after surgery.

tive tissue contained few round to ovoid cementum like calcifications. Dense patchy chronic inflammatory reaction mainly of lymphocytes and few dilated blood vessels engorged with RBCs were also seen. The histopathological diagnosis was 'peripheral cemento- ossifying fibroma.' (Fig. 3).

Discussion

Peripheral cemento-ossifying fibromas have been described in the literature since 1940s. Many names have been given to similar lesions such as epulis (1), peripheral fibroma with calcifications (2), peripheral ossifying fibroma (2), peripheral cementifying fibroma and peripheral cemento-ossifying fibroma (11). The sheer number of names used for fibroblastic calcifying gingival lesions indicates that there is much controversy surrounding the classification of these lesions.

The clinical evolution of the tumours usually is as follows. Initially asymptomatic, the tumour progressively grows upto a point in which its size causes pain as well as functional alteration and cosmetic deformities (1). This has been the observation of our patient who presented the enlarged mass with slight pain and cosmetic deformity. Cases of tooth migration and bone destruction have been reported, but these are not common (12). In the present case the lesion was pink, firm, slightly tender on palpation with smooth non-ulcerated surface and broad attachment base. The dimensions were 1 cm × 1 cm, well within expected range. Although the majority of lesions occur in the second decade, this female patient was 47 years old with the lesion occurring in maxillary right central incisor region.

Hormonal influences may play a role, given the higher incidence of PCOF among females. In an isolated case of multicentric PCOF, Kumar and others (13) noted the presence of a lesion at an edentulous site in a 49-year-old woman which once again contradicts the age of incidence and periodontal origin of lesion. Radiographically, PCOF may follow different pattern based on the amount of mineralized tissue (5). Radiopaque foci of calcification have been reported to be scattered in the central area of the lesion but not all lesions demonstrated radiographic calcifications. Erosion of underlying bone involvement is usually not visible on a radiograph. In rare instances superficial erosion of bone is noted (4). Absence of radiographic changes in the present case indicated that this could be an early stage lesion.

Frequently clinical features of PCOF are atkin to those extraosseous lesions thus misleading the diagnosis. Hence, the diagnosis of PCOF based only on clinical aspect can be difficult and misleading and histopathological examination of the surgical specimen is mandatory for an accurate diagnosis. All the classic histopathological features of PCOF were present in this case.

The preferred treatment is surgical consisting of resection of the lesion as well as curettage of its osseus floor (periodontal ligament and periosteum) and scaling of adjacent teeth, which was performed in this case. Patient was recalled after 12 weeks without any signs of recurrence of the lesion (Fig. 4). Recovery was uneventful and the patient has remained tumour free for 24 weeks. Since this lesion is poorly vascularized and well circumscribed, it is easily removable from the surrounding bone unlike a case of fibrous dysplasia. Prognosis is excellent and recurrence is rare if it is correctly managed (5). Recurrence rate of PCOF is high for reactive lesions (8, 10) and it probably occurs due to incomplete removal of lesion, repeated injury or persistence of local irritants (10). The rate of recurrence has been reported from 8.9 to 20% (2). Therefore, the patient is still on regular follow-up.

Conclusion

Peripheral cemento-ossifying fibroma is a slowly progressive lesion generally with limited growth. Many cases will progress for long periods before patient seeks treatment because of the lack of symptoms associated with the lesion. A slowly growing pink soft tissue nodule in the anterior maxilla of an adolescent should raise suspicion of PCOF. As the diagnosis of PCOF

only on clinical aspect is very difficult, radiographs and histopathological examination for accurate diagnosis is mandatory.

Treatment consists of surgical excision including periodontal ligament periosteum and scaling of adjacent teeth. Close postoperative follow-up is required because of the growth potential of incompletely removed lesions and the 8% to 20% recurrence rate.

Conflict of interests

The authors declare that they have no conflict of interests.

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