Case Report

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Peripheral Cemento-ossifying Fibroma: A Clinical Diagnostic Dilemma

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ABSTRACT

Peripheral cemento-ossifying fibroma (PCOF), a rare reactive gingival overgrowth occurs frequently in maxillary anterior region with a peak incidence between second and third decades of life. It is a slow growing spherical benign tumour with unknown aetiopathogenesis. Based on only clinical examination, diagnosis of PCOF is difficult to make. Hence, histopathological examination becomes imperative for definite diagnosis and proper management. Long-term follow-up is extremely important because of high recurrence rate. Herewith, a case of PCOF is presented in a 31 years old female patient complaining of slow growing and asymptomatic gingival overgrowth at uncommon location.

Keywords: Gingival overgrowth; irritational fibroma; peripheral cemento-ossifying fibroma; reactive lesion.

INTRODUCTION

Peripheral cemento-ossifying fibroma (PCOF) is a slow growing, nonaggressive, rare, reactive benign lesion of jaw. It reports for about 3.1% of all oral tumours and 9.6% of gingival lesions.[1] It is periodically encapsulated lesion containing variable amounts of mineralised material resembling bone, cementum or both. It is predominantly seen in women through third and fourth decades of life, affecting maxillary anterior jaw.[2] Clinically, PCOF manifests as pedunculated or sessile nodular mass usually originating from interdental papilla with relatively high recurrence rate.[2,3] Here, a case of PCOF is presented that was encountered in periodontology department which was managed by surgical excision.

CASE REPORT

A 31 years old female patient visited the Department of Periodontology and Oral Implantology Kathmandu University School of Medical Sciences, Dhulikhel with chief complaint of painless growth on gums in lower left front region for one year. The swelling was initially small which had progressively increased in size and was associated with occasionally bleeding on mastication and brushing.

There was no contributory medical and dental history. Extraoral examination showed no facial asymmetry and lymph nodes were non-tender and nonpalpable. Intraoral examination revealed a pedunculated fibrotic mass on the mandibular left

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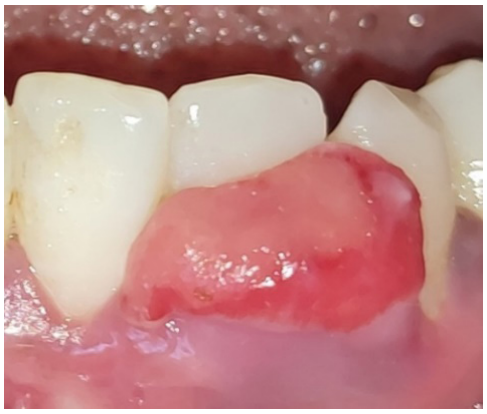

Figure 1: Clinical picture of growth.

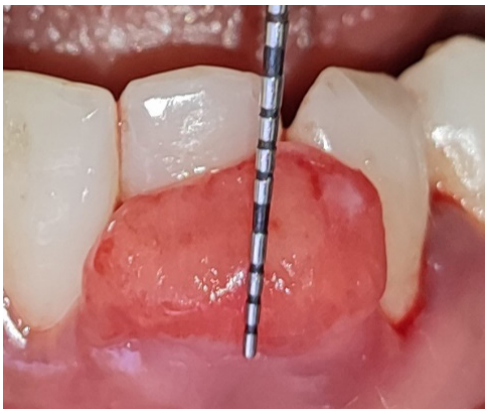

Figure 2: Preoperative size and extent of lesion.

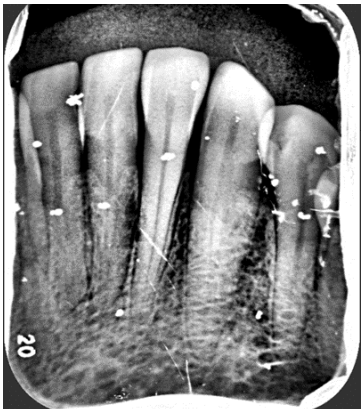

Figure 3: Intraoral periapical radiograph showing no bony changes.

anterior gingiva involving 31, 32, 33 (according to two-digit tooth numbering system) originating from interdental papilla (Figure 1). The lesion was well circumscribed, reddish in colour, firm in consistency, non-tender and exhibited, no discharge on palpation. The growth extended antero-posteriorly from distal aspect of 31 to mesial aspect of 33 and superiorly up to middle of coronal portion of 32, 33 with approximate size of 1 cm x 0.7 cm (Figure 2). Mass involved the marginal and attached gingiva in relation to 31, 32, 33 with normal overlying mucosa (Figures 1, 2). A mild gingival inflammation could be noticed in relation to the marginal gingiva of lower anterior teeth along with presence of plaque.

Intraoral periapical radiograph revealed no obvious bony changes (Figure 3). Correlating the history, clinical features, and radiographic interpretation differential diagnoses of pyogenic granuloma and irritational gingival fibroma were made. As gingival growth was localised, excisional biopsy by internal bevel gingivectomy was planned as per patient consent. Oral prophylaxis with oral hygiene instructions were given and patient was recalled after a week for surgical excision and biopsy. After the application of local infiltration with 2% lignocaine in vestibule of buccal and lingual aspect of teeth 31, 32, 33; internal bevel incision with 15 number surgical blade was placed at the base of growth in between 31, 32, 33 up to bone and complete excision of lesion along with aggressive curettage of the surrounding tissue was done using curettes. (Figures 4, 5). The excised tissue was fixed in 10% formalin solution and was sent for histopathological examination.

The site was then pressed with a moistened gauze piece for about minutes to control bleeding. Then, non-eugenol periodontal dressing (Coe-Pak) was placed (Figure 6) and post-operative instructions were given. Patient was recalled after a week for

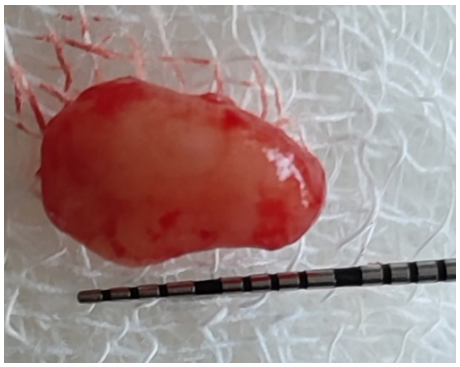

Figure 4: Excised specimen measuring 1 cm X 0.7 cm.

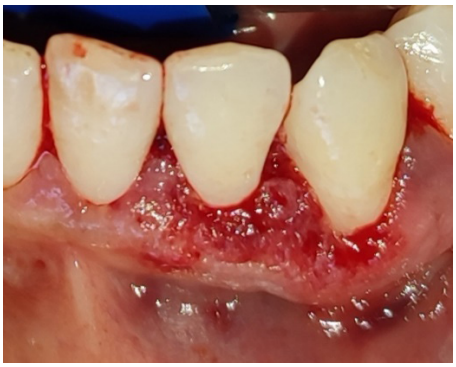

Figure 5: Clinical picture after excision of lesion along with aggressive curettage of surrounding tissues.

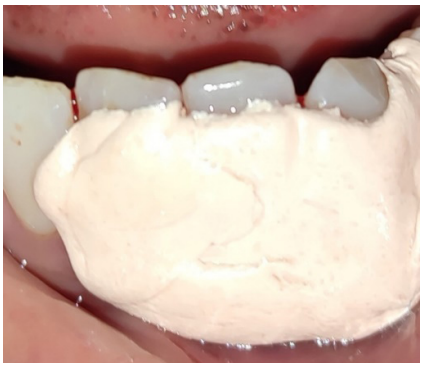

Figure 6: Placement of Coe-Pak.

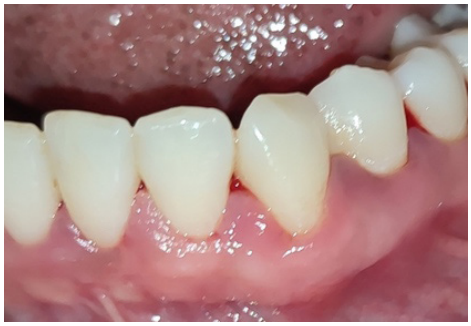

Figure 7: Clinical picture of post-operative follow-up after three months.

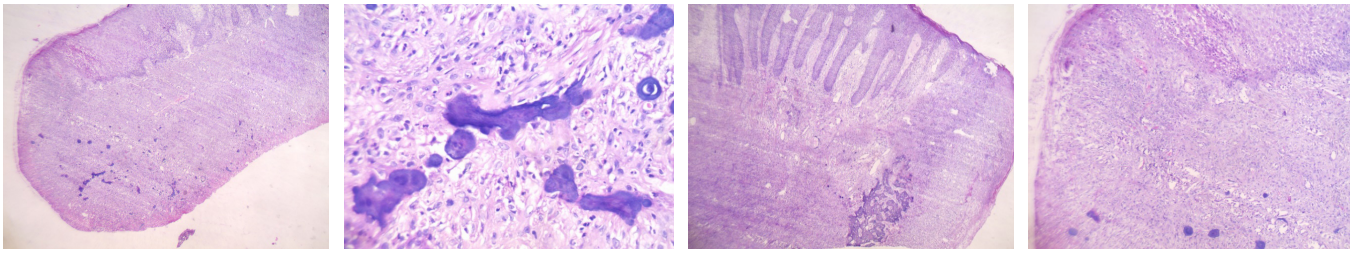

Figure 8, A: Histopathological picture showing surface epithelium along with cementum like deposits (H and E, 10X); B: High power view showing cementum like deposits (H and E, 40 X); C: Bony trabeculae within cellular fibrous connective tissue stroma (H and E, 40X); D: Lower power view showing fibroblast, blood vessels engorged with RBCs (H and E, 10X).

periodontal dressing removal when satisfactory healing with good predictive results were observed (Figure 7).

Histopathological evaluation revealed keratinised stratified squamous epithelium overlying the fibrous connective tissue stroma (Figure 8). The stroma was composed of dense collagen fibers, fibroblast and blood vessels engorged with red blood cells (RBCs). Small islands of inactive looking odontogenic epithelium were appreciated at small foci. Basophilic calcified materials resembling bony trabeculae were also noted at some places. Based on histopathological features, a diagnosis of PCOF was made.

DISCUSSION

Localised gingival overgrowth is commonly encountered in a periodontist's daily clinical practice. Peripheral cemento-ossifying fibroma have been described in the literature since 1940s. It is a well-demarcated, focal, reactive, non-neoplastic tumour-like growth of soft tissue, arising from the interdental papilla lesions.[1] The World Health Organization (WHO) in 1992 classified cemento-ossifying fibroma as a fibro-osseous neoplasm, while the term "cementifying" has been used when curvilinear trabeculae or spheroidal calcifications are seen. When both bone and cementum like tissues are observed, the lesion is referred to as cemento-ossifying fibroma.[4] Recently, in the 2017 WHO classification, cemento-ossifying fibroma has been placed under the benign mesenchymal odontogenic tumours.

The PCOF is attained from the mesenchymal cells of the periodontal ligament, potentially to form fibrous tissue, cementum and bone, or a combination of all. Aetiopathogenesis of PCOF is still uncertain, however suggested to be originated from cells of periodontal ligament.[5] In some lesions, the oxytalan fibres are seen within the mineralised matrix, which can also be a reason for such hypothesis.[6]

The PCOF is also thought to occur by various factors like gingival irritation caused by subgingival calculus, dental appliances, irregular restorations, bacterial plaque or a foreign body in the gingival sulcus.[5] In the present case, the lesion might have originated from cells of periodontal ligament as it was involving the interdental papilla with a possible aetiology of chronic irritation caused from the adjoining plaque.

Hormonal influence has been suggested to play a role in PCOF , as lesions have shown female predilection with peak incidence between third and fourth decades of life,[2] affecting maxillary anterior segment and more than 50% of all cases affect the region of the incisors and canine .[2,7] In this case, patient was female of age 31 years affecting incisors and canine which was accordance with data found in literature.[2,7] Approximately 60% of PCOF occur in maxilla, in contrary here is reported a lesion occurred in mandible.[7] Clinically, PCOF exhibits as pedunculated or sessile nodular mass which usually originates from interdental papilla with broad base. It is a slow growing gingival mass measuring less than 2 cm in size, similar in colour to that of adjacent gingiva or slightly reddish unless lesion is ulcerated and surface may be smooth or irregular.[8] In the present case it was noted reddish, firm, sessile, non-tender on palpation with smooth non-ulcerated surface and broad attachment base with similar dimension.

Radiographs usually do not reveal any underlying bone involvement but rarely superficial erosion of bone may be seen.[9] They clinically resemble pyogenic granuloma and other entities. Relying only on clinical and radiological features, it is difficult to diagnose. Therefore, histopathological examination becomes imperative for accurate diagnosis which is made upon submitted biopsy specimen which shows focal presence of bone or other calcifications in cellular connective tissue.[10]

Management of PCOF includes removal of aetiological factors, complete excision, and aggressive curettage of surrounding tissues along with scaling of the involved teeth, which was performed in this case.[6]

Recurrence rates according to the literature varies from 8.9-20%.[1,6] The recurrence rate of PCOF is high and more common due to incomplete removal of the base of lesion, repeated injury or persistence of local irritants. The average time interval for the first recurrence is 12 months.[1,6] Therefore, regular follow-up is required and no recurrence was noted up to three-month follow-up period.

SUMMARY

PCOF is a slowly progressing, asymptomatic, reactive, and non-neoplastic lesion which may progress and persist for long periods before patients seeks treatment because of lack of symptoms associated with lesion. Correlating clinical features of gingival overgrowth with radiological and histopathological examination it is difficult to diagnose PCOF from other reactive lesions of gingiva. Treatment of choice consists of surgical excision of lesion with scaling of adjacent teeth. A longer observation period is a must because of the growth potential of incompletely removed lesions and of high recurrence rate.

Conflict of interest: None.

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