

Peripheral Cemento-Ossifying Fibroma

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ABSTRACT

Peripheral cemento-ossifying fibroma (PCOF), a relatively uncommon lesion, reactive in nature is seen as an overgrowth of the gingival tissues often leading to periodontal problems. It is a benign tumor with slow-growing potential commonly affecting the anterior maxilla whose pathogenesis till date is uncertain. It is usually challenging to diagnose peripheral cemento-ossifying fibroma based on clinical observation and examination, hence histopathological examination is mandatory to arrive at an accurate diagnosis. Recurrence of the lesion is common unless and until it is completely excised. We present the report of two cases of peripheral cemento-ossifying fibroma of our department, complaining of a mass in the gingiva of posterior maxilla and mandible.

KEY WORDS

Irritational fibroma, Mineralized deposits, Peripheral cemento-ossifying fibroma

Citation

Humagain M, Dawadi A, Srii R, Poudel P. Peripheral Cemento-Ossifying Fibroma. *Kathmandu Univ Med J.* 2017;59(3):261-4.

INTRODUCTION

Peripheral cemento-ossifying fibroma (PCOF), a relatively uncommon lesion, reactive in nature is seen as an overgrowth of the gingival tissues often leading to periodontal problems. It is occasionally encapsulated mass suspended in a background of fibrocellular stroma consisting of various mineralized components like osteoid, bone, and cementum or a combination of these. Diagnosis of this lesion is made depending on the predominance of the calcified components present in the stroma.^{1,2}

PCOF commonly affects the interdental papilla and has slow growth potential. Clinically, it presents as either a sessile or pedunculated mass of color varying from pink to red with its surface usually ulcerated. The lesion is common among females, seen through the second to fourth decades of life, affecting the anterior jaw segment. The rate of recurrence of this lesion is relatively high following improper excision.³⁻⁷ We present here two cases of cemento-ossifying fibroma encountered in our department.

CASE SERIES

Case 1: A 27-year-old female visited the dental department of Dhulikhel hospital with a chief complaint of swelling on the upper left back region of the gums. The swelling was initially small which had progressively increased in size. She had visited the local dentist with the same complaint around 2 years back where the lesion was surgically excised. After a period of 10 months, she noticed an asymptomatic growth on the same region, showing growth potential similar to the previous one and has attained the present size.

On examination, a pedunculated fibrotic mass measuring about 10 mm x 7 mm was noticed on the maxillary left posterior gingiva in relation to 26, 27, originating from interdental papilla. (fig. 1) The lesion was reddish in color, firm in consistency and was non-tender on palpation. Based on the clinical features, differential diagnosis of pyogenic granuloma and irritational gingival fibroma were given.

After administering the local anesthesia, complete excision of the lesion was done along with aggressive curettage



Figure 1. Clinical picture of the lesion



Figure 2. Excised specimen measuring about 10 mm x7 mm in diameter

of the surrounding tissue, and the mass was sent for histopathological evaluation. (fig. 2)

Histopathological examination

Histopathological evaluation revealed a parakeratinized stratified squamous epithelium surfacing a fibro cellular stroma. Stroma contained spindle to plump shaped fibroblasts arranged in a whorled pattern with spherical basophilic acellular mineralized aggregates resembling cementum. (fig. 3A and 3B) Small trabeculae of woven bone were also noted in few foci. (fig. 3C) The periphery of the lesion showed presence of numerous dilated blood vessels engorging RBCs. (fig. 3D) Depending on the histopathological features the diagnosis of peripheral cemento-ossifying fibroma was framed.

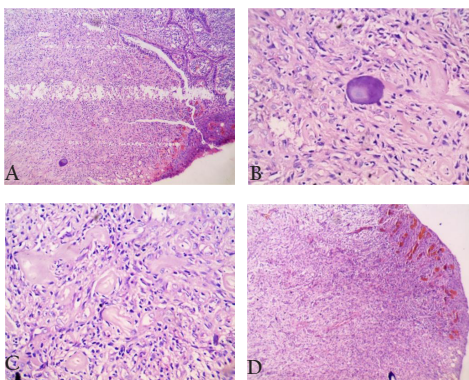


Figure 3. A. Histopathological picture showing surface epithelium along with cementum like deposits (H&E, 10x) B. High power view showing cementum like deposits (H&E, 40x) C. Hypercellular areas with woven bone (H&E, 40x) D. Low power view showing peripheral vascularity (H&E, 10x)

Case 2

A 33-year-old male came to the dental department of Dhulikhel hospital with a chief complaint of swelling on his lower right back tooth region since 3-4 months. Patient had

history of food trauma (fish bone) 2 years back, gradually the swelling developed and progressed to the present size. The patient also complained of discomfort, mild pain and occasional bleeding while brushing his teeth.

On clinical examination, a sessile fibrotic mass of 1x1 cm was noticed on the mandibular lingual gingiva in relation to 44 and 45 region. (fig. 4) The lesion was ovoid in shape, pinkish to reddish in color, firm and tender on palpation and was associated with bleeding on manipulation. Plaque and calculus were also evident.



Figure 4. Clinical picture of the lesion

Based on clinical examination, the differential diagnosis of pyogenic granuloma and irritational fibroma were formulated. Complete excision of the lesion with aggressive curettage of the surrounding tissues was done under local anesthesia (fig. 5) and the lesion was sent for histopathological examination. (fig. 6)



Figure 5. View after excision of the lesion



Figure 6. Excised specimen measuring About 10 mm x 7 mm in diameter

Histopathological examination

The histopathological features were similar to the first case except, the mineralized deposits were seen more at the periphery of the lesion associated with chronic

inflammatory cells infiltration. (fig. 7A and 7B.) Based on the histopathological features, a final diagnosis of peripheral cemento-ossifying fibroma was made.

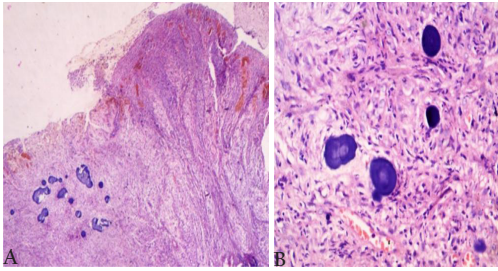


Figure 7. A. Histopathological picture showing surface epithelium along with cementum like deposits (H&E, 10x) B. High power view showing cellular stroma with cementum like deposits (H&E, 40x).

Follow up

Patient was recalled after 1 week of surgery. The surgical site was seen to be healing satisfactorily. (fig. 8)



Figure 8. Postoperative photograph after 1 week of surgery

DISCUSSION

PCOF is reactive rather than neoplastic lesion thought to originate from the cells of the periodontal ligament however its pathogenesis till date is uncertain. The possible reason for its selective occurrence in the gingiva could be due to adjacency of gingiva to the periodontal ligament.⁸ In some lesions, the oxytalan fibres are seen within the mineralized matrix, which can also be a reason for such hypothesis.⁹

PCOF is also thought to occur as a response to factors like gingival irritation, gingival injury, subgingival calculus or a foreign body in the gingival sulcus. These factors result in an excess proliferation of fibrous connective tissue inducing metaplastic changes in the connective tissue initiating formation of mineralized deposit like bone or dystrophic calcification. It is therefore proposed that the lesion may be caused by fibrosis of the granulation tissue.¹⁰ It is frequently associated with irritants such as calculus, dental appliances, irregular restorations, bacterial plaque.⁶ In the present case, the lesion might have originated from cells of periodontal ligament as it was involving the interdental papilla with a possible etiology of chronic irritation caused from the adjoining plaque and calculus.

The peak incidence of the lesion is seen in the second and third decades, although the lesion can occur in any age range. In accordance with the data found in the literature, our patients were 27 and 33 years old in first and second case respectively. Approximately, 60% of the PCOFs occur in the maxilla as seen in our first case, but in our second case, the lesion was seen in the mandible. In both the cases, the lesion occurred in the posterior area that is not in accordance with the literature, as approximately 60% of lesion occurs in the anterior area.¹⁰

The lesion initially starts as a small mass which progressively grows in size as observed in our patients who presented with an enlarged mass.⁹ In the first patient the lesion was reddish, firm, non-tender on palpation with a smooth non-ulcerated surface whereas in the second case, it was reddish, firm, tender on palpation and bleeding upon probing was present, which could be due to the secondary infection of gingival mass.

A diagnosis of PCOF is usually made upon histopathological evaluation of the submitted biopsy specimen. The histopathological features commonly observed are benign fibrous connective tissue stroma with a varying content of fibroblasts, myofibroblasts and collagen. There is scanty to abundant endothelial cell proliferation. Mineralized material varies in the form of lamellar or woven, osteoid to cementum-like material or dystrophic calcification.⁸ Most of these histopathological features were appreciated in both the present cases.

The treatment of this lesion is complete excision and aggressive curettage of surrounding tissues along with scaling of the involved teeth, which was performed in both the cases.⁹

Recurrence rates according to the literature varies from 8.9-20%. The recurrence rate of PCOF is high and is probably due to incomplete removal of the lesion, repeated injury or persistence of local irritants.⁹ The recurrence in the 1st case is most probably due to incomplete excision of the lesion and persistence of calculus.

Peripheral cemento-ossifying fibroma is relatively uncommon lesion of gingival tissues seen as overgrowth of the inter-dental papilla often leading to periodontal problems. Histopathological examination of the lesion is mandatory for an accurate diagnosis because clinically it is difficult to differentiate PCOF with other reactive and neoplastic lesions of the gingiva. Complete excision of the lesion with aggressive curettage of the adjacent tissues is considered as the treatment of choice to prevent any recurrence.

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