

## PERIPHERAL CEMENTO-OSSIFYING FIBROMA – A CASE REPORT

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## ABSTRACT

Peripheral cemento-ossifying fibroma is a gingival overgrowth that occurs most commonly on the gingiva. It is a slow-growing reactive lesion. It is a benign tumor that grows to a considerable size and leads to pathologic migration of the teeth at later stages. It most commonly occurs following a gingival irritation or trauma. These lesions are said to arise from the PDL fibers excision of these lesions along with the periosteum is very important to avoid recurrence. The recurrence rate of peripheral cemento-ossifying fibroma has been reported to be 8–20%, so a close postoperative follow-up is required. Here, we are presenting two case of peripheral cemento-ossifying fibroma in the mandible.

**Keywords:** Fibroma, Gingival overgrowth, Peripheral cemento-ossifying fibroma, Fibers.

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## INTRODUCTION

“Fibromas” are benign fibrous overgrowths that develop from the mucous membrane of the oral cavity. They are most commonly seen in the oral cavity and develop due to the excessive production of fibrous tissue within the connective tissue [1]. It occurs due to a reactive focal hyperplasia of fibrous tissues due to trauma or local irritation. Ossifying fibromas are types of fibromas arising in the craniofacial bones. These fibromas consisting of fibroblasts along with osseous products that encompass bone, cementum-like materials, and ovoid calcifications that are well differentiated from the adjacent bone. These hard fibrous growths continue to enlarge, sometimes to a very significant size, unless treated. Exact etiology is not known but they can sometimes occur in connection with a fracture or any other type of injury [1]. The ossifying fibromas are of two types, the central type and the peripheral type. The central type arises from the endosteum of the bone or from the periodontal ligament present adjacent to the root apex causing expansion of the bone. The peripheral type occurs on the soft-tissue overlying the alveolar process of the jaws [2]. Montgomery in 1927 first coined the term, peripheral cemento-ossifying fibroma which appears as a nodular mass, either pedunculated or sessile originating usually from the interdental papilla [3]. The color of the lesion ranges from red to pink while the surface is frequently but not always ulcerated. Mild crestal bone loss is an early clinical feature. The present report describes a case of peripheral cemento-ossifying fibroma in a 34-year-old male patient.

## CASE REPORT

A 34-year-old male patient reported to the department with the chief complaint of swelling in the gums in the lower middle tooth region of the jaw for the past 1 year. The patient gave the history of swelling to be initially small and rapidly increased to the present size. The swelling was associated with discomfort and pain while mastication. The pain was localized, intermittent dull aching, and non-radiating. The patient also gave the history of pricking the swelling with a pin following which he experienced profuse bleeding from the same site. Patients medical and family history was not contributing. No evidence of fracture or trauma of the bone was evident.

On local examination of the lesion, the presence of a well-defined, exophytic growth on the buccal and lingual aspect of the interdental papillary region of 44 and 45 was evident (Fig. 1). On the buccal

aspect, the growth was sessile, pinkish-red in color, irregular in shape, measuring approximately 2 × 2.5 cm in its greatest dimension, the lesion extended anteroposteriorly from the mesial aspect of 44 up to distal part of 45, superior inferiorly it extended from the occlusal plan of 44 and 45 to 1 cm above the buccal vestibule on the attached gingiva (Fig. 2). The lesion also extended into the lingual gingival mucosa which was located in the interdental papillary region of 44 and 45, pinkish-red in color, irregular in shape, measuring approximately 1 × 1 cm in its greatest dimension approximately, the surface of the lesion was smooth and lobulated. On palpation, the lesion was non-tender and non-fluctuant soft in consistency and bleeding on probing was evident. Based on history and clinical presentation, a provisional diagnosis of pyogenic granuloma irt 44 and 45 was given with differential diagnosis of traumatic fibroma, peripheral ossifying fibroma, and peripheral giant cell granuloma was given.

The patient was subjected to OPG which revealed horizontal bone loss till the middle 3<sup>rd</sup> of the root concerning 44 and 45 with PDL widening. A laser surgical excision was planned before which the patient was subjected to routine blood investigation, the hemogram was found to be within normal limits (Fig. 3).

After obtaining the patient's consent, diode laser surgical excision of the gingival growth was performed in both lingual and buccal aspects concerning 44 and 45 under local anesthesia with high vacuum suction and saline irrigation (Fig. 4). Hemostasis was achieved using gel foam and pressure pack following which zinc oxide pack was given and the patient was also instructed about oral hygiene instruction. The patient was discharged with a prescription of amoxicillin 500 mg 3 times a day for 5 days, aceclofenac 100 mg, and paracetamol 325 mg 3 times for 5 days and pantoprazole 40 mg once daily for 5 days, the patient was recalled after 1 week for a follow-up (Figs. 5 and 6). The excised tissue was sent for histopathologic analysis.

Histopathological reports revealed uniform cellular connective tissue stroma exhibiting fibroblasts with large nuclei containing basophilic small globular cementum-like mineralization, dystrophic mineralization, and woven bone formation. Areas of lymphocytic infiltrations are evident with overlying surface epithelium exhibiting areas of irregular rete pegs hyperplasia, atrophy, and ulcerations.

Thus, a final diagnosis of peripheral cemento-ossifying fibroma was established correlating the clinical, radiologic, as well as microscopic findings.



Fig. 1: Pre-operative lesion on buccal gingiva



Fig. 4: intraoperative laser excision of the lesion



Fig. 2: Pre-operative lesion on lingual gingiva



Fig. 5: One week post operative



Fig. 3: Pre-operative OPG



Fig. 6: Three months post-operative

## DISCUSSION

Ossifying fibroma is a benign neoplasm arising from the craniofacial bones, they are composed of proliferating fibroblasts with osseous products. Cemento-ossifying fibroma is a relatively rare lesion considered as an osteogenic tumor (non-odontogenic) [1]. In 1992, the WHO grouped this term under a single designation cemento-ossifying fibroma. It is as a well-demarcated and encapsulated lesion consisting of fibrous tissue, consisting of variable amounts of mineralized material resembling bone (ossifying fibroma), cementum (cementifying fibroma), or both [2]. Ossifying fibroma exists in two types, one is the peripheral variant and another one is the central variant. The peripheral variant originates from the soft-tissue component covering

tooth-bearing areas of the jaw. The central variant originates from the endosteum or periodontal ligament adjacent to the root apex which leads to medullary cavity expansion [3]. Peripheral cemento-ossifying fibroma accounts for about 3.1% of all oral tumors and 9.6% of gingival lesions [4,5]. PCOF affects both genders but has a higher predilection for females. It may occur at any range, but exhibits a peak incidence between the second and third decades of life [6]. The pathogenesis of this tumor is uncertain. PCOF most commonly occurs in the gingiva so it has been stated that these tumors arise from the periodontal ligament [7,8]. This is due to the proximity of the gingiva to the PDL space and the presence of oxytalan fibers within the mineralized matrix of the same lesion [9]. When there is a gingival injury due to irritation

by a foreign object or subgingival calculus, it leads to excessive proliferation of mature fibrous connective tissue, chronic irritation of the periosteal and PDL fibers causes metaplasia of the connective tissue, and dystrophic calcification due to irritation of periosteal bone [11]. Due to their clinical and histopathological similarities to pyogenic granuloma, some PCOFs are believed to develop from fibrous maturation and subsequent calcification of pyogenic granuloma. PCOF is frequently associated with irritant agents such as calculus, bacterial plaque, orthodontic appliances, ill-adapted crowns, and irregular restorations [11]. The mineralized product probably originates from periosteal cells or the periodontal ligament [12,13]. Radiographically, PCOF may follow different patterns depending on the amount of mineralized tissue present. Radio-opaque foci of calcification have been reported to be scattered through the central area of the lesion but not all lesions demonstrate radiographic calcifications. Bony pathology is not well visualized in radiographs, superficial erosion of bone is the most common finding [14]. A confirmatory diagnosis of peripheral cemento-ossifying fibroma is made by histopathologic evaluation of biopsy specimens. The histopathological features of PCOF consist of ulcerated stratified squamous surface epithelium, benign fibrous connective tissue with varying numbers of fibroblasts, sparse-to-profuse endothelial proliferation, mineralized material consisting of mature, lamellar or woven osteoid, cementum-like material, or dystrophic calcifications, and acute or chronic inflammatory cells [15]. Ossifying fibroma can become large, causing extensive destruction of adjacent bone and significant functional or esthetic alteration. It is vital to identify such lesions and manage them at the earliest, there are different modalities of treatment available which include surgical excision by scalpel, laser, or electrosurgery. Surgical excision includes the removal of the involved periodontal ligament and periosteum. The advantages of laser excision are, it has minimal post-surgical pain, the need for suturing can be avoided at the biopsy site, minimal intraoperative bleeding, minimum post-operative pain, and excellent healing at the end of 1 week. Laser excision is one of the best options available for the management of PCOF [11]. Close post-operative follow-up is required because incompletely removed lesions tend to reoccur. The recurrence rate is estimated to be around 8%–20%. It is vital to excise the lesions completely by including subjacent periosteum and periodontal ligament.

## CONCLUSION

PCOF is a benign lesion which is a slow progressive tumor and has limited growth potential, the growth of PCOF stops once it reaches a desirable size. Confusion pertains to diagnose PCOF only on clinical examination, histopathologic confirmation is necessary to arrive at the accurate diagnosis of PCOF. Complete surgical excision of the lesion including the periosteum is mandatory as the recurrence rate is high.

## AUTHORS' CONTRIBUTIONS

All the authors have equally contributed to the article.

## CONFLICTS OF INTEREST

No conflicts of interest.

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Nil.

## PATIENT'S CONSENT

Obtained.

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