

Peripheral Cemento-Ossifying Fibroma - A Case Report

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Abstract: *The concept of fibroosseous lesions of bone has evolved over the last several decades and now includes two major entities: fibrous dysplasia and ossifying fibroma. Peripheral cemento-ossifying fibroma is a relatively rare tumour classified between fibroosseous lesions. It predominantly affects adolescents and young adults, with peak prevalence between 10 and 19 yrs. The cemento-ossifying fibroma is a central neoplasm of bone as well as periodontium which has caused considerable controversy because of confusion regarding terminology and the criteria for its diagnosis. The cemento-ossifying fibroma is odontogenic in origin, whereas ossifying fibroma is of bony origin. Lesions histologically similar to peripheral ossifying fibroma have been given various names in existing literature.*

Keywords: Benign fibroosseous lesions, fibrous dysplasia, cementifying fibroma, ossifying fibroma, peripheral giant cell granuloma

1. Introduction

Benign fibroosseous lesions of the jaws present problems in diagnosis and classification. The 1992 WHO classification groups under a single designation (cemento-ossifying fibroma) two histologic types (cementifying fibroma and ossifying fibroma) that may be clinically and radiographically undistinguishable [1]. Cemento-ossifying fibroma is a relative rare lesion considered as an osteogenic tumor (nonodontogenic) with variable expressiveness. It is defined as a 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 [2,3].

Peripheral cemento-ossifying fibroma (PCOF) accounts for 3.1% of all oral tumors [4] and for 9.6% of gingival lesions [5]. The pathogenesis of this tumor is uncertain. Due to their clinical and histopathological similarities, some PCOFs are believed to develop fibrous maturation and subsequent calcification. PCOF is frequently associated with irritant agents such as calculus, bacterial plaque, orthodontic appliances, ill adapted crowns, and irregular restorations. The mineralized product probably originates from periosteal cells or from the periodontal ligament [6]. PCOF affects both genders, but a higher predilection for females has been reported in the literature [4]. However, Neville et al. [7] say that it predominantly affects adolescents and young adults, with a peak prevalence between 10 and 19 years.

Clinically, PCOF manifests as a pediculate or sessile nodular mass, which usually originates in the interdental papilla. Its color is similar to that of the mucosa unless the lesion is ulcerated. 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.

2. Case Report

A 30-year-old male presented in OPD with the chief complain of swelling in the gum of upper back region of the

jaw from last 4 months, which is slow growing, painless. The lesion was present in upper left side of the jaw extending from 24 to 25 region. According to the patient, there was no bleeding and pain except difficulty in mastication. Examination revealed a sessile nontender, firm, pinkish red growth present on the buccal gingival in relation to maxillary left 1st premolar to 2nd premolar area. The lesion extended up to the level of occlusal plane. [Fig 1]

3. Diagnosis.

Differential diagnosis consisted of irritational fibroma, pyogenic granuloma, peripheral giant cell granuloma, peripheral cemento-ossifying fibroma.

Microscopic examination reveals presences of fibrillar connective tissue stroma interspersed with globular cementum like calcifying areas (Fig.2). The overlying epithelium is keratinized, stratified squamous and discontinuous. The underlying stroma also contains inflammatory cells and blood capillaries (Fig.3). So a confirmatory diagnosis of peripheral cemento-ossifying fibroma is made by histopathologic evaluation of biopsy specimens.

4. Discussion

Peripheral ossifying fibroma is thought to be either reactive or neoplastic in nature. Considerable confusion has prevailed in the nomenclature of peripheral ossifying fibroma with various synonyms being used, such as peripheral cementifying fibroma, peripheral fibroma with osteogenesis, peripheral fibroma with cementogenesis, peripheral fibroma with calcification, calcifying or ossifying fibroma epulis, and calcifying fibroblastic granuloma [8]. Ossifying fibromas elaborate bone, cementum and spheroidal calcifications, which has given rise to various terms for these benign fibroosseous neoplasms. When bone predominates, "ossifying" is the appellation, while the term "cementifying" has been assigned when curvilinear trabeculae or spheroidal calcifications are encountered [9]. When bone and cementum-like tissues are observed, the lesions have been referred to as cemento-ossifying fibroma [9]. Cementifying

fibromas may be clinically and radiographically impossible to separate from ossifying fibromas [10]. An attempt has been made by Endo et al. to distinguish cementifying fibroma from ossifying fibromas and fibrous dysplasias by using immunohistochemical analysis for keratin sulfate and chondroitin-4 sulfate in which the cementifying fibromas showed significant immunoreactivity for keratan sulfate and ossifying fibromas, and fibrous dysplasias showed intensive immunostaining for chondroitin-4-sulfate [10].

Though the etiopathogenesis of peripheral ossifying fibroma is uncertain, an origin from cells of periodontal ligament has been suggested [8]. The reasons for considering periodontal ligament origin for peripheral ossifying fibroma include exclusive occurrence of peripheral ossifying fibroma in the gingiva (interdental papilla), the proximity of gingiva to the periodontal ligament, and the presence of oxytalan fibres within the mineralized matrix of some lesions. Excessive proliferation of mature fibrous connective tissue is a response to gingival injury, gingival irritation, subgingival calculus, or a foreign body in the gingival sulcus. Chronic irritation of the periosteal and periodontal membrane causes metaplasia of the connective tissue and resultant initiation of formation of bone or dystrophic calcification. It has been suggested that the lesion may be caused by fibrosis of the granulation tissue [11].

Gardner [12] stated that in peripheral ossifying fibroma, the cellular connective tissue is so characteristic that a histologic diagnosis can be made with confidence, regardless of the presence or absence of calcification. Buchner and Hansen [13] hypothesized that early POF presents as ulcerated nodules with little calcification, allowing easy misdiagnosis as a pyogenic granuloma. The POF must be differentiated from the peripheral odontogenic fibroma (PODF) described by the World Health Organization [12,13]. Histologically, the PODF has been defined as a fibroblastic neoplasm containing odontogenic epithelium [14].

The POF, as discovered in this case, is a focal, reactive, nonneoplastic tumour-like growth of soft tissue often arising from the interdental papilla [13]. It is a fairly common lesion, comprising nearly 3% of oral lesions biopsied [15].

The POF lesion is generally small and does not require imaging beyond radiographs [12]. Treatment consists of conservative surgical excision and scaling of adjacent teeth [12]. Therefore, regular follow up is required. Although peripheral ossifying fibroma is benign, reactive lesion, the recurrence rate is fairly high. Therefore, the patient is still under follow-up period.

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Figure 1

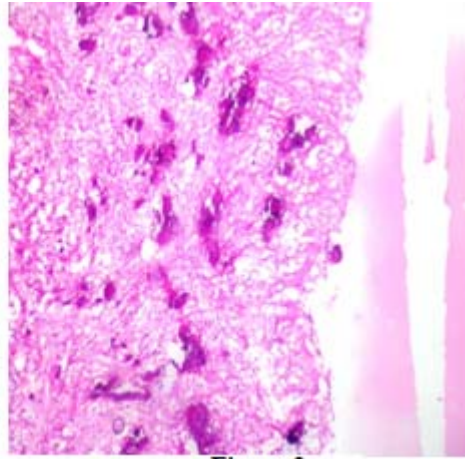


Figure 2

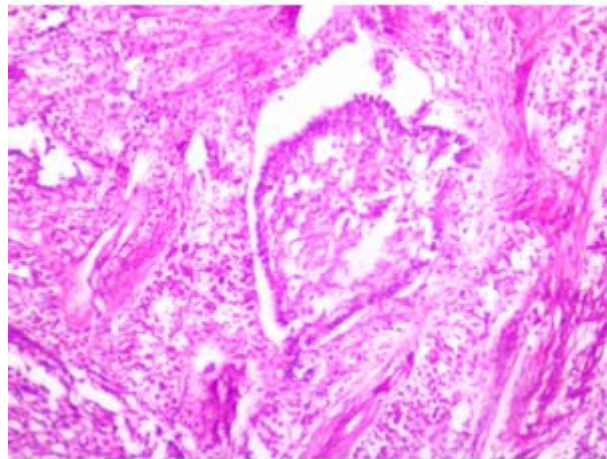


Figure 3

Figure 1: Pinkish red growth present on the buccal gingiva in relation to maxillary left 1st premolar to 2nd premolar area.

Figure 2: Shows fibrillar connective tissue stroma interspersed with globular cementum like calcifying areas.

Figure 3: Shows underlying stroma contains inflammatory cells and blood capillaries