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RESEARCH ARTICLE

A CASE OF PERIPHERAL CEMENTOSSIFYING FIBROMA IN ANTERIOR GINGIVA- AN UNCOMMON PRESENTATION

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ABSTRACT

Peripheral cement-ossifying fibroma comprises about 9% of all gingival overgrowth. It is considered to be more of a reactive benign lesion rather than a true tumor. It has a peak incidence in second-third decade of life and affects females commonly. About 60 % of the lesions occur in the maxilla and more than 50% of the lesions are seen in incisor-canine region. This report describes a case of peripheral cement-ossifying fibroma in a 37 year old male involving the maxillary anterior region.

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INTRODUCTION

Fibroma is a benign fibrous overgrowth arising from the mucosa and is one among the most frequent overgrowths in the oral cavity. It arises due to overproduction of fibrous tissue in the connective tissue component of the epithelium, represents a reactive focal proliferative lesion rather than a true neoplasm (Ashish Yadav and Mishra, 2011). In 1872, Menzel first described ossifying fibroma, but only in 1927, Montgomery assigned a terminology to it (Ashish Yadav and Mishra, 2011). The 1992 world health organization classification groups under a single designation (cement-ossifying fibroma) two histological types (cementifying fibroma and ossifying fibroma) that may be clinically and histologically indistinguishable (Mishra *et al*., 2013).

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Cement-ossifying fibroma is an uncommon growth of the oral cavity, accounting for 3.1% of all tumors and 9.6% of gingival lesions. About 60% of peripheral cement-ossifying tumors occur in maxilla and more than 50% of all cases are found in incisor and canine regions. It may occur at any age but exhibits a peak incidence between the second and third decades. The average age is around 28 years with females being affected more than males; female predilection has been reported to be as high as 5:112 (Mishra *et al*., 2013). Racial predominance has been observed as whites 71% and blacks 36% (Mishra, 2011; Jose *et al*., 2010). Clinically PCOFs are sessile or pedunculated, usually ulcerated and erythematous or exhibit a color similar to that of surrounding gingiva, generally measuring less than 2cm in size, reported to have the potential to cause migration of adjacent tooth. In majority of cases, there is no underlying bone involvement detected on roentgenograms and sometimes may cause superficial erosion of bone (Mishra, 2011).

The definitive diagnosis is based on histological examination, with the identification of cellular connective tissue and the focal presence of bone or other calcifications (Verdine Virginia Antony and Rahamathulla Khan, 2013).

Case report

A 37 years old male patient, reported to the department of Oral medicine and Radiology, JSS Dental College and Hospital, Mysore with the chief complaint of a painless swelling in the upper front tooth region since two years. Initially about the size of a pea and has gradually increased to the present size with no sudden change in the size or shape of the swelling. History of initial profuse bleeding upon minor touch and with passage of time the bleeding has reduced and is almost negligible now. Patient's medical and family history was non-contributory.

On intraoral examination a solitary ovoid, well defined sessile swelling measuring about 3x2cm, was noted in the region of interdental papilla, marginal and attached gingiva on the facial aspect of maxillary central incisor extending supero-inferiorly from the cervical region of the incisors to about 5mm below the depth of the labial vestibule and Medio-laterally from the distal third of right incisor to the middle third of left incisor. The surface of the swelling was lobulated and the color of the swelling was similar to the adjacent gingiva interspersed with minute areas of erythema, the swelling was non tender and firm in consistency with no secondary changes like ulceration or sinus opening were noted (Fig 1, 2), causing grade I mobility of right maxillary central incisor. Based on the history of long standing lesion and clinical findings of a firm swelling with overlying normal mucosa, causing mobility of tooth the lesion was provisionally diagnosed as Fibrosed pyogenic granuloma in the region of maxillary right central incisor and differential diagnosis of peripheral ossifying fibroma, peripheral giant cell granuloma was given.

Figure 1. Extraoral view of the patient showing no gross facial asymmetry

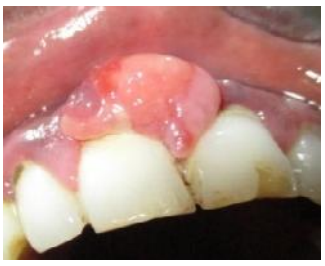

Figure 2. Intraoral view of the lesion in the anterior maxillary gingiva

Roentgenographic examination did not reveal any abnormality in the underlying bone (Fig 3.) and the lesion was subjected to excisional biopsy and histopathologic examination which showed parakeratinized stratified squamous epithelium showing pseudo-epitheliomatous hyperplasia and the underlying stroma consists of dense collagen bundles with plump fibroblasts, areas of haematoxyphillic calcifications, dense chronic Inflammatory cell infiltration, blood vessels and extravasated red blood cells (Fig 4).

Figure 3. Intraoral periapical radiograph of 11,21 showing no bony changes

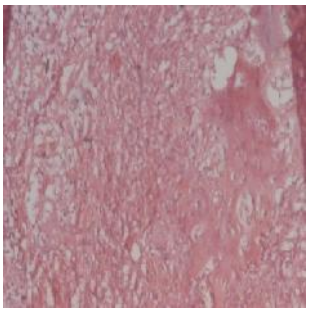

Figure 4. Low power photomicrograph showing areas of haematoxyphillic calcifications

The histopathological diagnosis was given as "PERIPHERAL CEMENTO-OSSIFYING FIBROMA". Final diagnosis of the lesion was given as peripheral cement-ossifying fibroma. Treatment protocol of the lesion is surgical excision which has an excellent prognosis and about 6-12 % chances of recurrence.

DISCUSSION

PERIPHERAL CEMENTO OSSIFYING FIBROMA or PCOF is a non neoplastic enlargement of gingiva with randomly distributed calcifications, immature bone and osteoid, found exclusively in gingiva and does not arise in any other mucosal location PCOFs have been described in the literature since 1940's.Bhasker in 1983 described this lesion as peripheral fibroma with calcification. The term PCOF was coined by Eversol and Robin in 1972 (http://dx.doi.org/ 10.1155/2013/930870). The synonyms for PCOF are Epulis, peripheral fibroma with calcifications, peripheral ossifying fibroma, Calcifying fibroblastic granuloma, peripheral cementifying fibroma, Peripheral fibroma with cementogenesis, Peripheral cemento-ossifying fibroma.

The sheer number of names used for fibroblastic calcifying gingival lesions indicate that there is much controversy surrounding their classification (Mishra, 2011). Ossifying fibromas elaborate bone, cementum and spheroidal calcifications, which has given rise to various terms for these benign fibro-osseous neoplasm's. When bone predominates, "ossifying" is the appellation, while the term "cementifying" has been assigned when curvilinear trabeculae or spheroidal calcifications are encountered. When bone and cementum like tissues are observed, the lesions have been referred to as cement-ossifying fibroma (Neville *et al*., 2006). The etio-pathogenesis of PCOF is unclear, trauma or local irritants such as subgingival plaque and calculus, dental appliances, poor quality dental restorations, micro-organisms, masticatory forces, food lodgement and iatrogenic factors are known to influence the development of the lesion (Verdine Virginia Antony and Rahamathulla Khan, 2013). an origin from the cells of periodontal ligament has been suggested in the etiology as PCOF exclusively occurs in the gingival, proximity of gingival to periodontal ligament and presence of oxytalan fibers within the matrix of some lesions. Chronic irritation of the periosteal and periodontal membrane causes metaplasia of the connective tissue and resultant initiation of bone formation or dystrophic calcification (Mishra, 2011). Because of their clinical and histopathologic similarities, researchers believe that some peripheral ossifying fibroma develop initially as pyogenic granuloma that then undergo fibrous maturation and subsequent calcification. However not all peripheral ossifying fibromas develop in this manner (Jaya Mukerjee *et al*., 2013).

Peripheral cement-ossifying fibroma appears as a nodular mass, either pedunculated or sessile, most commonly originates from interdental papilla. The colour ranges from red to pink and the surface is frequently but not always ulcerated and has predilection for maxillary arch mostly the incisor - cuspid region and can occur in the mandible as well (Ashish Yadav and Mishra, 2011). The clinical evolution of the tumor is as follows: initially a symptomatic, the tumor progressively grows to the point where its size causes pain as well as functional alteration and cosmetic deformity (Mishra, 2011) tooth migration potential has been reported due to presence of mineralized foci in the PCOF (Jose *et al*., 2010). Radiographic features of radioopaque foci have been reported to be scattered in the central areas of the lesion but not all lesions demonstrate radiographic calcifications. Underlying bone involvement is usually not visible on a radiograph. In rare instances, superficial erosion of bone is noted. It may be misdiagnosed as pyogenic granuloma, fibrous dysplasia, peripheral giant cell granuloma, osteoid osteoma, osteoblastoma, low-grade osteosarcoma, cementoblastoma, chronic osteomyelitis and sclerosing osteomyelitis of garre (Mishra, 2011). An attempt has been made by Endo *et al*, to distinguish cementifying fibromas from ossifying fibromas and fibrous dysplasia by using imunohistochemical analysis for keratin sulfate and chondroitin 4 sulfate, in which cementifying fibroma showed significant immune reactivity for keratin sulfate and ossifying fibroma and fibrous dysplasia showed intense immunostaining for chondroitin 4 sulfate.In general, pyogenic granuloma presents as a red soft friable nodule that bleeds with minimal manipulation but tooth displacement and resorption of alveolar bone is not observed.

Peripheral giant cell granuloma has features similar to Peripheral Cementossifying Fibroma but the latter lack the blue discoloration associated with Peripheral Giant Cell Granuloma, and show flakes of calcification radiographically and histologically (Mishra, 2011). The definitive diagnosis of PCOF is made by histopathological evaluation of biopsy specimens. The features are usually observed are benign fibrous connective tissue with varying content of fibroblasts, myofibroblasts and collagen, sparse to profuse epithelial proliferation, mineralized material which may represent mature, lamellar or woven osteoid, cementum-like material or dystrophic calcifications. Acute or chronic inflammatory cells can also be identified in some lesions.

The preferred treatment is surgical excision with resection of the lesion and curettage of the osseous floor, scaling of adjacent teeth. As the lesion is poorly vascularized and well circumscribed, it is easily removed from the surrounding bone. This is one of the main difference with fibrous dysplasia. [2]close post operative follow-up is required as the recurrence rate is considered to be about 8-20%. It probably occurs due to incomplete initial removal, repeated injury or persistence of local irritants and hence it is important to remove lesions completely by including the subjacent periosteum and periodontal ligament, besides the possible causes to reduce recurrence rates (Ashish Yadav and Mishra, 2011).

Conclusion

Peripheral cement-ossifying fibroma is a benign proliferative reaction of gingival tissues to local irritant with an unclear pathogenesis. If peripheral cemento-ossifying fibroma is a separate entity from pyogenic granuloma or is considered the maturation of pyogenic granuloma is still not clear.

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