Peripheral Ossifying Fibroma of Hard Palate – A Case Report

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Abstract:

The typical peripheral ossifying fibroma (POF) is a relatively uncommon gingival growth occurring on the free margin of the gingiva postulated to appear as a reactive process secondary to irritation or trauma. POF frequently occurs in the anterior maxilla especially in teenagers and young adults and has a female predominance. We report a case of POF occurring in the maxilla on the palatal mucosa in a 19yr old patient.

Key Words: Peripheral Ossifying Fibroma, Fibroma, Palate, Peripheral Cemento Ossifying Fibroma

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Introduction

Peripheral Ossifying fibroma (POF) is a solitary, non-neoplastic gingival growth which usually arises as a reactive response to local irritation such as trauma, microorganisms, plaque, calculus, restorations and dental appliances¹. POF commonly arises from the interdental papillae and thought to arise from the periodontal ligament²,³,⁴.

Clinically POFs are sessile or pedunculated, usually ulcerated and erythematous or exhibit a colour similar to the surrounding gingiva. Most lesions are <2cm in size, although larger lesions occasionally occur⁵. POF can occur at any age range but exhibit a peak incidence between the second and third decades, but few cases occurring in children have also been reported⁶. In vast majority of the cases, there is no apparent underlying bone involvement visible on a roentgenogram. However on rare occasions, there does appear to be superficial erosion of bone⁵.

Case Report

A 19 year old male patient reported to the Dept of Periodontia with a complaint of swelling on the anterior region of the palate since 3 months. On intraoral examination the swelling was located on the right palatal gingival free margin of the canine tooth, was sessile with no ulceration and was firm to hard in consistency and the colour of the lesion was pale pink in colour and of 1cm in diameter.

No radiological signs of involvement of alveolar ridge were observed. The oral hygiene of the patient was considerably good with no habits (Fig-1). Based on the above clinical findings a differential diagnosis of irritation fibroma, pyogenic granuloma, peripheral giant cell granuloma or a peripheral ossifying fibroma was considered.
The lesion was excised and a periodontal pack was given. The specimen was fixed in formalin and sent for routine histopathological examination (Fig-2).

Figure 1

Histopathology

The section revealed highly cellular fibrous connective tissue showing collagen fibers and proliferating fibroblasts and focal areas of calcification resembling the bone like material and dense aggregates of chronic inflammatory cell infiltrate. The overlying epithelium is of parakeratinized stratified squamous epithelium. Based on these findings a diagnosis of peripheral ossifying fibroma was given (Fig 3&4).

Figure 3

Discussion

POF is a relatively uncommon, solitary, non-neoplastic gingival growth, coined by Eversole and Rovin. Confusion has prevailed in the nomenclature of POF with various synonyms being used, such as peripheral cementifying fibroma, ossifying fibro epithelial polyp, peripheral fibroma with
calcification, peripheral fibroma with osteogenesis, peripheral fibroma with cementogenesis, calcifying or ossifying fibrous epulis and calcifying fibroblastic granuloma ³.

Ossifying fibromas usually elaborate calcified tissues such as bone, cementum and spheroidal calcifications, which has given rise to different nomenclature for these benign fibro-osseous neoplasms. If bone predominates ossifying is the appellation, if cementum predominates the term cementifying is used ⁷. If bone and cementum like tissues are observed, the lesions have been referred to as cemento-ossifying fibroma.

The term cemento-ossifying fibroma is scientifically invalid as there is no histomorphic or biochemical difference between bone and cement. As well as the clinical presentation and histopathology of cemento-ossifying fibroma are the same in areas where there is no cementum, such as skull, femur and tibia, which are all ossifying fibromas ⁸. Presence of dysmorphic round basophilic bone particles within ossifying fibromas are called as cementicles. These so called cementicles are not from cementum but instead represent a dysmorphic product of this tumor analogous to the keratin pearls, which are a dysmorphic product of squamous cell carcinoma ⁸.

The etiopathogenesis of POF is uncertain, though an origin from the cells of periodontal ligament has been suggested ³. The reasons attributed for origin from periodontal ligament include exclusive occurrence of peripheral ossifying fibroma in the gingiva, the proximity of gingiva to the periodontal ligament and the presence of oxytalan fibers within the mineralized matrix of some lesions ³.

POF resembles clinically and histopathologically to pyogenic granuloma, hence some consider POF to develop secondary to fibrosis of granulation tissue ⁹. POF in some cases may initially develop as a pyogenic granuloma that undergoes subsequent fibrosis, maturation and calcification ⁹.

POF more commonly occurs in females and in the second decade, hence the role of hormones has also been questioned ¹⁰.

The widely accepted etiopathogenesis for POF is the inflammatory hyperplasia of the cells of the peristeum or periodontal ligament ¹⁰,¹¹,¹², as there is excessive proliferation of mature fibrous connective tissue in 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 ¹⁰,¹³.

Lesions involving the gingival soft tissues are rare compared to the lesions appearing within the bone. Mesquite RA found higher numbers of argyrophilic nucleolar organizer regions (AgNORs) and proliferating cell nuclear antigen (PCNA)-positive cells in ossifying fibroma than in peripheral ossifying fibroma ¹⁴.

X-ray diffraction analysis indicated that the mineral phase of both central and peripheral tissues consists of apatite crystals and the crystallinity of these apatites is lower that of the bone apatite ¹⁵.

POF usually occurs in 2nd and 3rd decades of life with peak prevalence between the ages 10 and 19 and almost 2/3rd of them occur in females especially in the maxillary anterior region. Clinically POF arises as a solitary nodular mass, either pedunculated or
sessile and tend to arise from the interdental papillae. Multicentric POF can also occur in the oral and maxillofacial region, and have been observed in conditions associated with known genetic mutations, such as, nevoid basal cell carcinoma syndrome, multiple endocrine neoplasia type II, neurofibromatosis and Gardner syndrome. The size of the POF ranges from 0.4 – 4.0cm with an average of 1cm in diameter.

Radiographically the features of POF tend to vary. Foci of calcifications have been reported to be scattered in the central area of the lesion, but not all lesions demonstrate. Underlying bone involvement is usually not visible on a radiograph but in rare instances, superficial erosion of bone can be seen.

Microscopically the features of POF consist of 1) intact or ulcerated stratified squamous surface epithelium; 2) fibrous connective tissue with varying numbers of fibroblasts; 3) sparse to profuse endothelial proliferation; 4) mineralized material consisting of mature, lamellar or woven osteoid, cementum – like material, or dystrophic calcifications; 5) chronic inflammatory cells in the lesion. Out of these above said findings, except the cementum like material other features were found in our case.

The treatment of choice is surgical excision and as POF has a fairly high recurrence rate the mass should be excised deep into the periosteum with complete removal of all irritants.

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