



## PERIPHERAL ODONTOGENIC FIBROMA: MIMICKING GINGIVAL SQUAMOUS CELL CARCINOMA: A RARE CASE REPORT AND REVIEW OF LITERATURE

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### ABSTRACT

In neoplasms Peripheral Odontogenic Tumors(POT) are one of the rare to occur on gingiva, among them, Peripheral Odontogenic Fibroma (POdF) is the most common. A plethora of lesions sharing similar clinical features, makes the diagnosis difficult. POdF is a benign, slow-growing, smooth, exophytic, painless lesion but it may show diverse clinical presentation as erythematous, lobulated, rapidly growing mass which might be tender on palpation overlapping the features with various inflammatory gingival conditions to even a gingival squamous cell carcinoma. This results into diagnostic enigma. Histopathological examination plays a vital role in these type of cases. Discussed here is a case of POdF mimicking gingival squamous cell carcinoma. Histopathological investigation showed presence of odontogenic epithelium and dystrophic calcification which are the pathognomonic features of POdF. After surgical removal, POdF is seen to recur but, the exact recurrence rate cannot be estimated due to scarcity of reported cases.

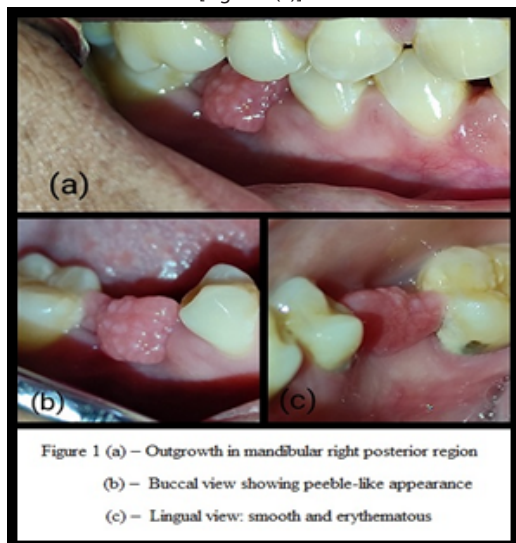
**KEY WORDS :** Peripheral Odontogenic Fibroma, peripheral Odontogenic Tumors, Neoplasm, Gingival Squamous Cell Carcinoma.

### INTRODUCTION

Peripheral Odontogenic Tumors(POTs) are benign tumors which are seen as outgrowth of oral soft tissue, commonly on gingiva. They have histologic features similar to their central/intraosseous counterparts but found in the mucosa overlying the alveolar region of jaw. Peripheral odontogenic fibroma (POdF) is the commonest POT<sup>(1)</sup>. Among POT, POdF is more frequent than its central analogue.<sup>(2)</sup> World Health Organization has defined POdF as 'a fibroblastic neoplasm containing varying amounts of apparently inactive odontogenic epithelium. It may contain dentine and/or material resembling cementum'. This peripheral variety is uncommon which represents clinically as a focal swelling.<sup>(1)</sup>

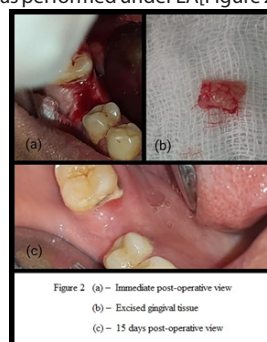
### CASE HISTORY

A 36 year old female patient visited department of Oral Medicine and Radiology complaining of outgrowth in lower right back region of jaw since 14-15 months. [Figure 1(a)].



It was mentioned that the outgrowth was gradual in onset without any other symptoms until last two months, when she started experiencing pain in the similar region while mastication. On enquiry, she had no relevant family and medical history. History of tobacco consumption in any form was negative. Patient mentioned that she applied digital pressure over the outgrowth as she thought it would regress the lesion but as she did not notice any change, she visited a dentist one year ago regarding the same where she was advised to get the tooth removed in the concerned area as it was thought that the outgrowth would regress after the extraction. But since the extraction, outgrowth was rapidly increasing in size as mentioned by the patient.

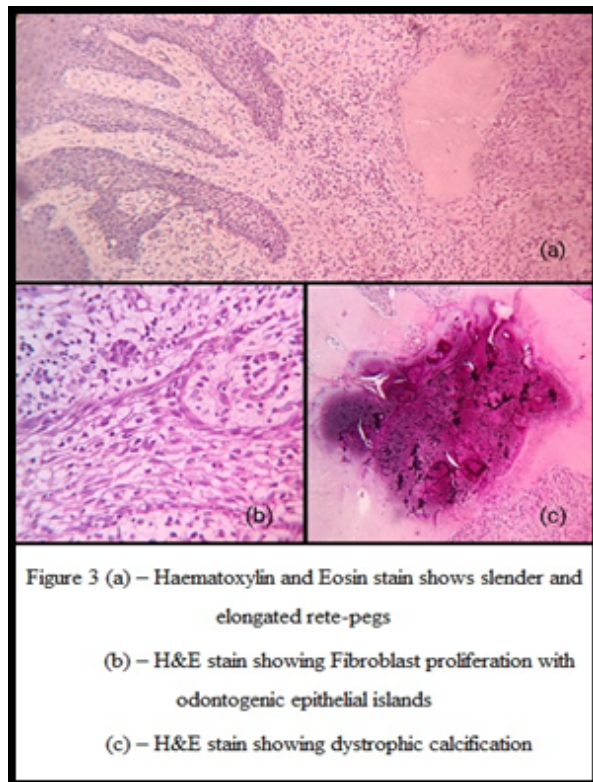
On intraoral examination, a small 1cmx0.5cm solitary, well-defined, dome shaped overgrowth was present on right alveolar ridge in edentulous region of 46. Overlying mucosa was intact with pebble-like appearance on buccal surface [Figure 1(b)] while lingual surface was smooth and slightly erythematous [Figure 1(c)]. On palpation it was firm in consistency and lobulated on buccal surface and smooth on lingual surface with slight tenderness. Base was slightly pedunculated and was mobile to a certain extent. Extraoral palpation revealed right submandibular lymphadenopathy. Depending on clinical finding gingival squamous cell carcinoma was suspected and a periapical radiograph was advised which showed healing socket with no other significant findings. Haematological investigations (CBC, BT, CT) were done and excisional biopsy was performed under LA [Figure 2(a,b,c)].



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Histopathological examination [Figure 3(a,b,c)] revealed parakeratinized stratified squamous epithelium and slender rete ridges with the plump fibroblast, collagen fiber bundles and infiltration of inflammatory cells. The islands of odontogenic epithelium along with ossification was seen at many places. Dystrophic calcification was evident at one section. Diagnosis of Peripheral Odontogenic Fibroma was confirmed.



## DISCUSSION

POdF is one of the rare benign neoplasm which is ectomesenchymal origin.<sup>[3]</sup> It classified into 2 types: WHO type contains inactive odontogenic epithelium<sup>[2]</sup> whereas non WHO type are devoid of an epithelium.<sup>[4]</sup> It is a rare neoplasm, being considered as the extraosseous analogue of the central odontogenic fibroma characterized by different degree of odontogenic epithelium embedded in a mature, fibrous matrix.<sup>[3]</sup> In the past, it was designated as odontogenic gingival epithelial hamartoma because of epithelial component rather than the fibroblastic component of POdF. But since, they are developmental in nature and develop after completion dentition, this term is no longer used.<sup>[5]</sup>

## Age and gender

Incidence rate of the lesion is seen to be highest in the second and fourth decades and it occurs twice as often in females.<sup>[4][5][6]</sup> A case series of 151 patients carried out by Ritwik *et al* found patient's age ranging from 5-83 years with a mean of 37.3 years.<sup>[6]</sup> Literature indicate that occurrence of POdF is very rare in children.<sup>[5]</sup>

## Site

The most common location was the attached gingiva, usually in the molar/premolar area with even distribution in both jaw.<sup>[7]</sup> But study done by Eversole *et al* showed that it arise frequently in the anterior gingival regions.<sup>[4]</sup>

## Clinical and Radiographic Features

It occurs in form of exophytic sessile/pedunculated mass usually from the interdental region<sup>[4][6][7]</sup>, which may present on the gingiva and alveolar ridge. Appear as red, inflamed and ulcerated or coral pink, fibrous and firm mass. A study carried out by Ritwik *et al*

reported the duration of the lesion vary from 3 weeks to 20 years.<sup>[6]</sup> Radiographic features mostly calcifications and crestal alveolar bone resorption is rare but in some instances it might be seen.<sup>[4][6]</sup>

## HISTOPATHOLOGY

Microscopically, these lesions are composed of fibrous stroma showing a varying degree of collagen arranged from loose, myxoid patterns to mature collagen fibers with low to moderate cellularity. Odontogenic epithelial elements arranged in clusters, nests, and cord like fashion and bone, cementum-like, or dystrophic calcifications may be dispersed throughout the fibrous component.<sup>[5][11]</sup>

## Differential Diagnosis

Various gingival neoplasm benign and malignant also inflammatory conditions showing overlapping clinical features are considered in differential diagnosis. Gingival squamous cell carcinoma appears as an exophytic growth with a granular to papillary or verrucous surface or an ulcerative lesion. It is rarely associated with tobacco consumption and gingival pain is the classic symptom. Similarity to common periodontal lesions might leads to misdiagnosis.<sup>[8]</sup> Inflammatory lesions like fibrous hyperplasia, fibroma, PG, POF, POTs, PGCG, and are considered in the differential diagnosis of POF.<sup>[9]</sup>

Clinically Peripheral ossifying fibroma (POF) is a well-defined, pink to red mass, present on gingiva, with either sessile or pedunculated base. The surface may be intact or ulcerated. Histologically POFs shows prominent areas of intensely cellular connective tissue with foci of bone, osteoid, or other calcifications.<sup>[9]</sup> POF is distinct from the POF in histologic appearance as it lacks epithelium. Pindborg *et al* defined it as "a fibroblastic neoplasm containing varying amounts of odontogenic epithelium."<sup>[10]</sup>

The PGCG derive from the periodontal tissues, clinically it appears as reddish-purple nodule. It has highest incidence in 5<sup>th</sup>-6<sup>th</sup> decades whereas POdF is mostly seen in 2<sup>nd</sup> to 4<sup>th</sup> decades and commonly presented in the posterior area. The PGCG shows characteristic haemorrhage which leads to hemosiderin deposits. Numerous multinucleate giant cells and spindle cells are present. Though POdF has multinucleated giant cells, they are lesser in number compare to PGCG also odontogenic epithelium with abundant fibroblast in its collagenous stroma is diagnostic feature of POdF.<sup>[5]</sup>

Oral pyogenic granuloma associated with wide age range and slight female predominance. Gingiva is the predominant site but can be seen in other parts. Clinically it occurs as a sessile to elevated mass which is deep red to reddish-purple in color soft, painless. Microscopically It is covered by non-keratinized or parakeratinized stratified squamous epithelium. Bulk of the lesion contains mass of angiomatous tissue mostly solid endothelial, capillary sized blood vessels proliferation. Collagen is usually sparse. If surface is ulcerated edema is prominent containing plasma cells, lymphocytes and neutrophils.<sup>[11]</sup>

## Treatment and Recurrence

POdFs are treated by complete surgical excision followed by biopsy. Some literature mentioned no recurrence.<sup>[4]</sup> But if present it is based on histologic variants: Higher recurrence seen when there is the presence surface epithelium with basal cell layer budding. Whereas rate of recurrence is low when calcifications in juxtaposition to odontogenic epithelial rests are present.<sup>[6]</sup>

## CONCLUSION

Odontogenic fibroma is one of the benign odontogenic tumor occurring centrally and peripherally in the bones and on the gingiva respectively, the latter being relatively more common. As POdF is rare entity with diverse clinical presentation resembling to other gingival lesions, it can be misdiagnosed clinically as inflammatory or

even a malignant lesions. An accurate diagnosis with the help of pathognomonic features is of utmost importance and histopathological investigation plays vital role to rule out nature of lesion as it has significant growth potential also chances of recurrence has been seen associated with it. Therefore postoperative follow-up is necessary.

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