

## Peripheral Ossifying Fibroma in A Pregnant Female – A Case Report

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Received: 03-06-2023 / Revised: 24-06-2023 / Accepted: 30-07-2023

DOI: <https://doi.org/10.32553/ijmbs.v7i9.2732>

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Conflict of interest: No conflict of interest.

### Abstract

The gingiva is often the site of localized growths that are considered to be reactive rather than neoplastic in nature. Many of these lesions are difficult to be identified clinically and can be identified as specific entity only on the basis of typical and consistent histomorphology. Peripheral ossifying fibroma (POF) is one of the inflammatory reactive hyperplasia of gingiva. It is a non-neoplastic entity, which occurs on the gingiva in response to trauma or irritation. A clinical report of a 26-year-old pregnant female with a large peripheral ossifying fibroma in the anterior maxilla showing significant growth is presented.

**Keywords:** Ossifying fibroma, pyogenic granuloma, trimester, osteogenesis, exostoses.

### Introduction

Gingival enlargements which belong to the group of reactive lesions are frequently seen in the oral cavity. Various types of localized reactive lesions are seen on gingiva which include pyogenic granuloma, peripheral giant cell granuloma, traumatic fibroma, focal fibrous hyperplasia and peripheral ossifying fibroma.<sup>1</sup> The central type of ossifying fibroma arises from the endosteum or the periodontal ligament adjacent to the root apex and expands from the medullary cavity of the bone. The peripheral type occurs on the soft tissue overlying the alveolar process.<sup>2</sup> Out of these reactive lesions, Peripheral Ossifying Fibroma (POF) “is an infrequently occurring focal, reactive, non-neoplastic tumor-like growth of the soft tissue that primarily arises from the interdental papilla”. It can be sessile or pedunculated. The color varies from pale pink to cherry with smooth surface.<sup>1</sup> Synonyms of POF

are peripheral cementifying fibroma, calcifying or ossifying fibroid epulis (from the Greek *epi*, over, and *oylon*, gum), pyogenic granuloma, ossifying fibro-epithelial polyp, peripheral fibroma with calcification and peripheral fibroma with osteogenesis.<sup>3</sup> Shepherd in 1844 reported POF as “alveolar exostoses”. In 1972, Everstole et al. coined the term POF which is widely used minimizing the problem of misnomer.<sup>4</sup>

POF shows clinically a benign behavior. It comprises about 2-9% of all gingival growths. It is the third most common lesion of all localized reactive hyperplastic lesions after pyogenic granuloma and central giant cell granuloma.<sup>5</sup> 60% of POF cases can develop in the maxillary bone with 50% of them occurring in the anterior region.<sup>3</sup> POF may arise from irritants such as trauma, micro-organisms, plaque, calculus, faulty restoration and dental appliances. It most

commonly occurs in women mainly during 2nd and 3rd decades of life, with the peak prevalence between the ages of 10 and 19 year.<sup>6</sup>

Two theories have been postulated to understand the etiology of POF:<sup>6</sup>

1. The lesion initiates as a pyogenic granuloma that gets calcified.
2. It originates from an inflammatory hyperplasia in the cells of periodontal ligament.

It presents as a painless mass on gingiva or alveolar mucosa measuring not exceeding 3 cm. POFs are usually less than 1.5cm in diameter and its diagnosis can be made clinically or histologically. Treatment includes surgical excision of the lesion, including the periodontal ligament, periosteum and dental pieces if they are affected. It has a good prognosis, yet the recurrence rate is estimated to be around 8-20%, which can be due to incomplete removal of lesion, failure of eliminating local irritants and difficulty in access during surgical manipulation due to intricate location of POF being present usually at interdental areas. Deep excisions have been preferred for recurrence.<sup>3</sup>

### Case Report

A 26 year old female patient reported to the Department of Periodontology and Oral Implantology, with a chief complaint of a painless growth in upper left front region from last 1 month on 29/7/21. Intra-oral examination revealed a

solitary, pedunculated soft tissue growth extending from 11 to 21 tooth region and going upto mucogingival junction extending inferiorly till marginal gingiva. Size of the lesion in first visit was 1.0 x 1.2 x 0.6 cm.

Firstly, complete scaling of the involved area was done and any foreign body in that area was removed. The patient was asked regarding any recent pregnancy, but at that time patient was unaware of her pregnancy status. On finding out the patient was pregnant, the biopsy was postponed. Then the patient was recalled in her second trimester. The lesion had progressed gradually to increase in size and attained the present size covering the middle third of the crowns of 11 and 21 on the day of excision (29/1/22). The color of the lesion was reddish pink. The growth was oval in shape and approximately 1.2 x 1.4 x 0.6 cm in size in greatest dimensions with well-defined borders. The growth was firm and non-tender on palpation. It was non fluctuant, non-reducible and non-compressible with no bleeding on probing. The growth was adhered somewhere in the attached gingiva/interdental papilla.

The clinical differential diagnosis for the growth were pyogenic granuloma, traumatic fibroma, peripheral giant cell granuloma, epulis and peripheral giant cell granuloma and provisional diagnosis of pyogenic granuloma with respect to 11 and 21 was made for the gingival growth.



**Fig 1. Lesion on initial visit**



**Fig 2. Lesion after 6 months**



Fig 3. After excision of the pedunculated mass

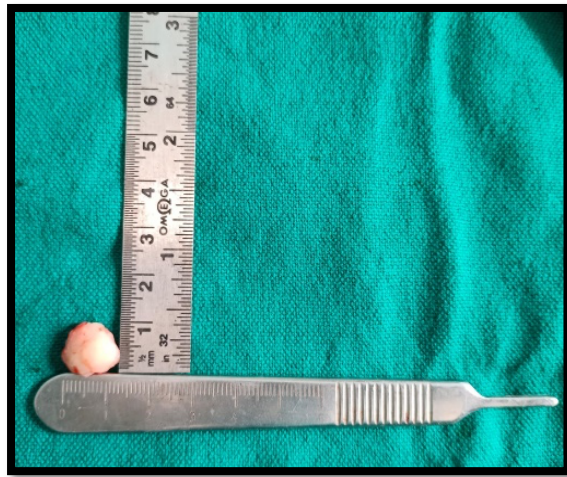


Fig 4. Dimensions of the growth were 1.2 x 1.4 x 0.6cm.



Fig 5. Follow up picture after 1 week of performing biopsy



Fig 6. Follow up picture after 15 days of performing biopsy

### Treatment

Before planning for the biopsy, the area was thoroughly cleaned and local irritants were removed. After 3 days, the growth was excised conservatively going from coronal to apical direction. After excising the growth, the area of excision with slight remnants of tissue growth were removed with laser to avoid any chance of recurrence. The excised tissue was 1.2 x 1.4 x 0.6 cm in size, brownish pink in color and firm in consistency. The tissue was sent for histopathological examination. Adjacent teeth were scaled to remove the local irritants. The patient was prescribed tablet paracetamol as an

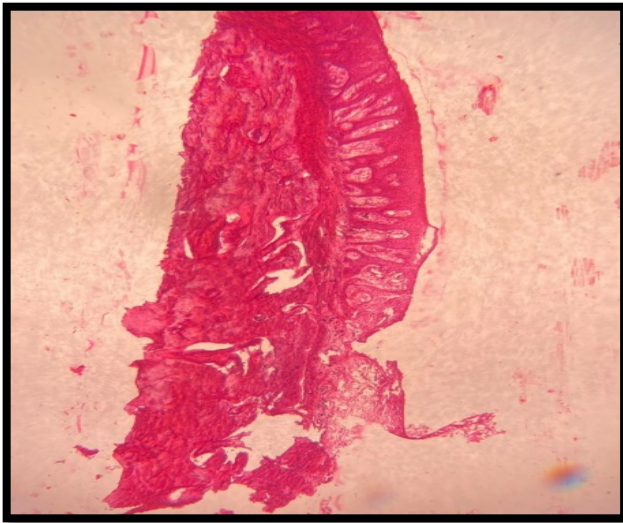
analgesic for 2 days and after that to be taken in case of pain occurrence.

### Histopathology

The H & E stained section shows epithelium and connective tissue stroma. The epithelium is parakeratinized stratified squamous which shows thin and long rete pegs. Underlying connective tissue stroma shows dense collagen fibers along with plump fibroblasts in the peripheral areas while the central areas show osteoid formation (immature bone).

Based on this, final diagnosis of peripheral ossifying fibroma with respect to 11 and 12 was made.



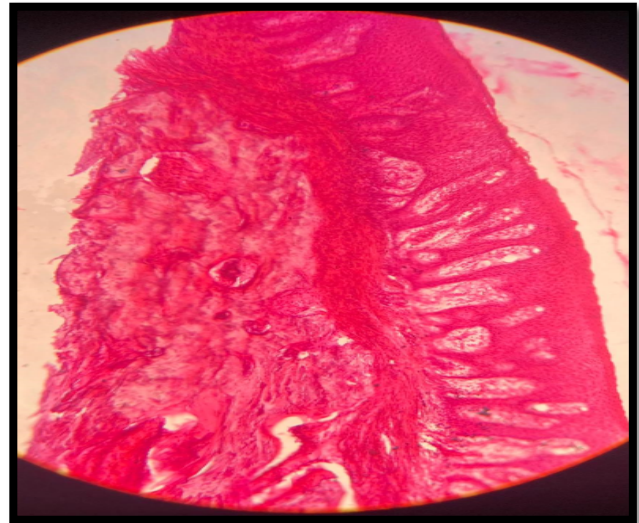


**Fig 7. H & E stained section under 4x**

### Discussion

Gingiva is one of those anatomical regions in the oral cavity with the broadest array of lesions occurring ranging from inflammatory to neoplastic. POF is one such reactive lesion, which occurs exclusively on gingiva. It accounts for 9.6% of gingival lesions.<sup>7</sup> Almost two-third of all cases occur in females, with a predilection for the anterior maxilla.<sup>8</sup> Triggering factors such as subgingival plaque and calculus, dental appliances, poor quality of dental restorations, micro-organisms and food lodgement initiate the inflammatory response. POF has been reported in the literature since the mid-20th century with two school of thoughts for its occurrence: 1) POF may initially develop as pyogenic granuloma that undergoes subsequent fibrous maturation and calcification and 2) POF is due to inflammatory hyperplasia of cells of periodontal ligament/periosteum. Metaplasia of the connective tissue leads to dystrophic calcification and bone formation. POF tends to occur in the first and second decades of life, with peak prevalence between the ages of 10 and 19.<sup>6</sup> The female to male ratio reported in the literature varies from 1.22:1 and 1.7:1 to 4.3:1.

Hormonal influences may play a role, given the higher incidence of POF among females, increasing occurrence in the 2nd decade and declining incidence after the 3rd decade.<sup>8</sup> The



**Fig 8. H & E stained section under 10x**

prime felons of the effect of pregnancy in the oral cavity are the hiked female sex corticoids (estrogen and progesterone).<sup>9</sup> PG and POF share common clinical presentation and etiologic factors which make their clinical differentiation challenging. Histopathologically the POF can be identified by its characteristic feature of high cellularity, bone deposition and cementum-like formation.<sup>10</sup> In our case also, earlier the provisional diagnosis of pyogenic granuloma was made, but definitive diagnosis of peripheral ossifying fibroma is made by histopathological evaluation of biopsy specimens.

### Conclusion

POF is a benign, slowly progressive lesion, with limited growth. Clinically difficult to diagnose, so histopathologic confirmation is mandatory. Complete surgical excision down to the periosteum is the preferred treatment and as the recurrence rate is high (8-20%), close post-operative follow-up is required. Patient should be advised for maintaining the oral hygiene properly, especially in the pregnant female.

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