

Case Report**Peripheral Odontogenic Fibroma- Case Series of a Rare Benign Tumor****Asmita Dawadi*, Simant Lamichhane, Manoj Humagain, Pratibha Poudel, Sita Bhusal**

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Article Received: 10th December, 2021; Accepted: 28th December, 2021; Published: 31st December, 2021DOI: <https://doi.org/10.3126/jonmc.v10i2.41794>**Abstract**

Peripheral odontogenic fibroma (POdF) is a rare benign odontogenic tumor of ectomesenchymal origin which is composed of fibrous connective tissue containing islands, strands or cords of odontogenic epithelium. The lesion is more common among females, commonly seen between the second to fourth decades of life, mostly affecting the anterior region of mandible. Clinically, it may present similar characteristics with other more common gingival lesions such as pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell granuloma. So, histopathological examination is required for accurate diagnosis. We present here three rare clinical cases of peripheral odontogenic fibroma and their management by complete excision of the lesion with good postoperative outcomes.

Key words: *Fibroma, Gingiva, Odontogenic tumor***Introduction**

There are various focal proliferative lesions occurring on the gingiva that are generally neoplastic or inflammatory. On some rare instances, we can find a lesion named as odontogenic fibroma. Odontogenic Fibroma is currently defined by WHO as "a rare neoplasm of mature fibrous connective tissue, with variable amounts of inactive-looking odontogenic epithelium, with or without evidence of calcification [1]. It can occur in either a central (intraosseous) or peripheral (extraosseous) location. Peripheral odontogenic fibroma (POdF), a rare soft tissue counterpart accounts for around <1% of all odontogenic tumors [2,3]. The POdF manifest itself as a firm, slow-growing, and usually sessile gingival mass covered by

normal-looking mucosa [4,5]. It typically manifests as a focal swelling but there are rare instances where multifocal or diffuse lesions have been described [6]. Due to the similar presentation with other lesions, they can be frequently misdiagnosed as pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell lesion [4, 6, 7]. Recurrence of POdF is not common and usually treatment is done by surgical excision [8]. POdF are uncommon with few case series and reports published currently in the literature [8]. Hence, there is a general lack of information regarding the details of POdF. We present here three cases of peripheral odontogenic fibroma encountered in our department.

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Case Series

Case 1: A 43 years old female came with the chief complaint of swelling on lower right front region of the gums since 1 year. The swelling had gradually increased in size over 1 year. Intraoral examination revealed sessile, fibrotic gingival mass measuring approximately 1x1 cm in size involving the interdental area between mandibular right lateral incisor and canine (42 and 43). Mass was involving marginal and attached gingiva. The lesion was non tender, with no discharge, and the overlying mucosa was normal (Fig: 1a, b and c). Her oral hygiene was fair with non-significant family, medical, and dental history. On periapical radiograph, no any significant change was seen (Fig: 2). The lesion was excised and sent for histopathological examination (Fig: 3 and 4).

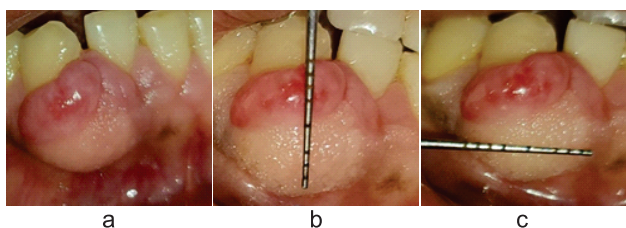


Figure 1a, b and c: Clinical picture of the lesion measuring about 1x1 cm in diameter



Figure 2: IOPA showing slight tooth displacement in relation to 42 and 43

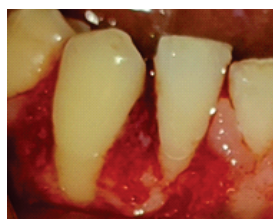


Figure 3: View after excision of lesion

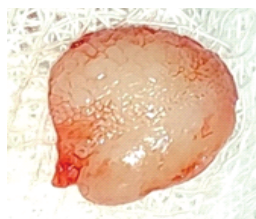


Figure 4: Excised specimen measuring about 1x1 cm in diameter

Histopathological examination

Histopathological evaluation revealed a parakeratinized stratified squamous epithelium overlying a fibrocellular connective tissue stroma. The stroma revealed interwoven fascicles of cellular fibrous connective tissue admixed with loosely arranged collagen fibers and blood vessels. Basophilic calcified structure resembling bone and cementum can be noted. Numerous inactive looking odontogenic epithelial cell rests were also appreciated (Fig: 5 a, b and c). Depending on the histopathological features, a final diagnosis of Peripheral Odontogenic Fibroma was made.

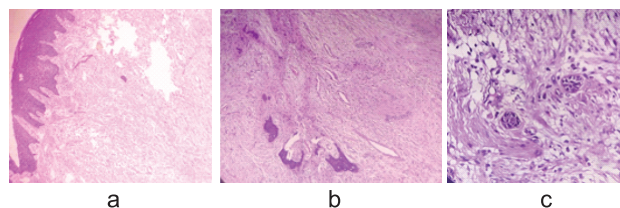


Figure 5a: Histopathological picture showing keratinized stratified squamous epithelium overlying fibrocellular connective tissue (H&E, 10 x) b: Low power view showing basophilic calcified material showing bone (H&E, 10 x) c: High power view showing fibrocellular stroma with odontogenic cell rests (H&E, 40x)

Follow up

Patient was recalled after 1 week of surgery. The surgical site was seen to be healing satisfactorily (Fig: 6)



Figure 6: Postoperative photograph after 1 week of surgery

Case 2: A 16 years old female patient was referred to our department of periodontology for evaluation of localized painless swelling on the lower right front region of the gums which had gradually increased upto the present size over 1 and a half years causing displacement of teeth. Intraoral examination revealed a sessile, firm and fibrous gingival mass measuring approximately 5x5 mm in size involving interdental area in between mandibular right lateral incisor and canine (42 and 43) with normal overlying mucosa. The growth was involving marginal and attached gingiva, was non tender

on palpation and no discharge was present(Fig: 7).Her oral hygiene was fair with non-significant family, medical, and dental history. Periapical radiological examination showed no any significant radiographic findings and osseous involvement in relation to 42 and 43(Fig: 8).The lesion was excised and sent for histopathological examination(Fig:9,10). Patient lost follow up, so that we couldn't evaluate the healing and recurrence in this case.



Figure 7: Clinical picture of the lesion measuring about 5x5 mm in diameter

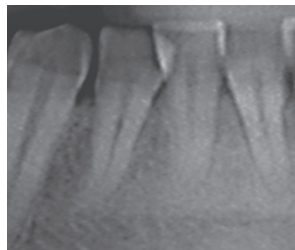


Figure 8: IOPA showing mild displacement of teeth in relation to 42 and 43

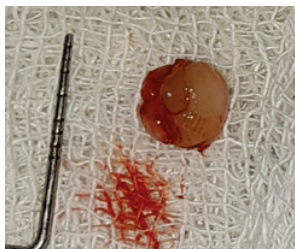


Figure 9: Excised specimen measuring about 5x5 mm in diameter



Figure 10: View after excision

Histopathological examination

Histopathological evaluation revealed a parakeratinized stratified squamous epithelium surfacing a fibrocollagenous stroma along with islands

of odontogenic cell rests(Fig: 11 a, b and c). Depending on the histopathological features a final diagnosis of Peripheral Odontogenic Fibroma was made.

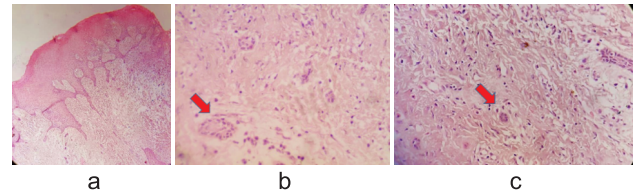


Figure 11 a: Histopathological picture showing keratinized stratified squamous epithelium along with odontogenic rests in connective tissue (H&E, 4 x) b and c: High power view showing fibrocellular stroma with odontogenic rests (marked by red arrow) (H&E, 40x)

Case 3: A 32 years old male patient visited to our department with a chief complaint of swelling on lower right back region of gums. He noticed the growth 2 years back when it was small and growth had been gradually increasing in size. Intraoral examination revealed firm, fibrotic, sessile gingival mass measuring approximately 1x1.5 cm with respect to mandibular right second premolar and first molar (45 and 46).The lesion was non tender, with no discharge, and the overlying mucosa was normal.The growth was involving marginal and attached gingiva (Fig: 12 a, b and c). He had a good oral hygiene. Periapical radiological examination showed slight haziness in crest of interdental bone with respect of 45 and 46 (Fig: 13).The lesion was suspected to have bony involvement as well. So flap was reflected which showed no bony involvement (Fig: 14).The lesion was excised and sent for histopathological examination (Fig:15 and 16). Tin foil and periodontal dressing was placed on the site (Fig: 17 and 18).

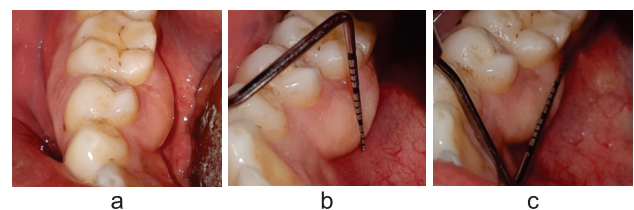


Figure 12 a, b and c: Clinical picture of the lesion measuring about 1x1.5 cm in diameter

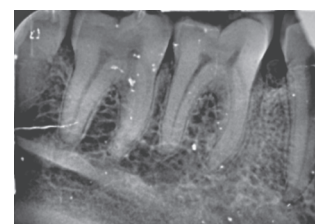


Figure 13: IOPA showing radiolucency in between 45 and 46 and tooth displacement

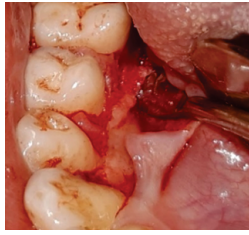


Figure 14: Flap reflection showing no bony involvement



Figure 15: Excised specimen measuring about 1x1.5 cm in diameter



Figure 16: View after excision of the lesion



Figure 17: Tin foil placed



Figure 18: Coe pack placed

Histopathological examination

Histopathological features were similar to the first and second case which showed keratinized stratified squamous epithelium overlying the fibrous connective tissue stroma. The stroma also revealed small islands of inactive looking odontogenic epithelium (Fig: 19a and b). Depending on the histopathological features a final diagnosis of Peripheral Odontogenic Fibroma

was made.

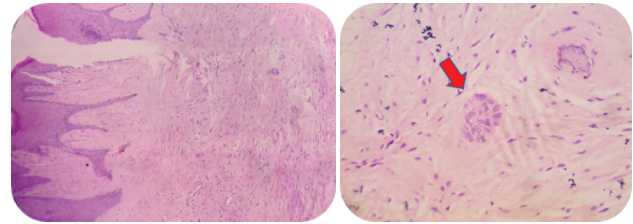


Figure 19 a: Histopathological picture showing keratinized stratified squamous epithelium along with odontogenic rests in connective tissue (H&E, 4 x) b: High power view showing fibrocellular stroma with odontogenic rests (marked by red arrow) (H&E, 40x).

Figure 20: Postoperative photograph after 2 weeks of surgery

Follow up

Patient was recalled after 2 weeks for follow up. Healing process was uneventful and the patient reported no subsequent problems (Fig: 20)



Figure 20: Postoperative photograph after 2 weeks of surgery

Discussion

Peripheral odontogenic fibroma (POdF) is a rare benign odontogenic tumor of ectomesenchymal origin composed of fibrous connective tissue containing islands, strands or cords of inactive looking odontogenic epithelium [8]. Its connective tissue may also contain varying amounts of calcification in the form of dentinoid, osteoid, or cementumlike material [4, 8]. In 2005, the odontogenic fibroma was classified into epithelium poor (simple) type, and epithelial rich (WHO) type [1]. This subcategory was eliminated in 2017 as they were inadequately defined and documented [1]. POdF is a soft tissue counterpart of central odontogenic fibroma and is 1.4 times more common than its central counterpart [2].

Although it is widely assumed that this lesion develops from mesenchyme, the exact histogenesis is yet to be determined. It is thought to develop from dental lamina rests, ectomesenchyme, surface epithelium, or periodontal ligament [9].

This tumor has been reported to have a slight mandibular preference, particularly in the facial gingiva which is in accordance with our cases where lesions were present on the mandible [4,

9]. In two of the three cases, lesions were involving facial aspect of mandible. Site predilection of POdF is found to be in the incisorcuspid region which is also observed in presented cases as two of the three cases were seen between incisor and cuspid [9]. However, in this study one case showed lesion in posterior region between molar and premolar on lingual side which is "rarest among the rare". Most lesions are between 0.5 and 1.5 cm in diameter which is similar to the findings in our case series. In all of our cases, size of lesion varied between 0.5 to 1.5 cm in diameter. POdF has been observed in patients of various ages, with the majority being identified between the second and fourth decades of life with a slight female predominance [4, 10]. In accordance with the data found in the literature, two of our patients were 32 years old and 43 years old. Only one patient was 16 years old. Two of our patients were female and one was male. So female predominance can be seen among presented cases as well. The involvement of the underlying bone is uncommon, so radiographic changes are not a regular finding [9]. In agreement with this, no significant radiographic change was seen in all three cases. Tooth displacement, an unusual finding however was present in our cases [4, 8].

POdF is usually diagnosed based on histopathological examination of the biopsy specimen. POdF histological features include a markedly cellular fibrous connective tissue parenchyma with scanty or numerous non-neoplastic islands, strands and cords of odontogenic epithelium [8]. These histopathological features were recognized in all of the cases presented.

POdF is clinically similar to other reactive and neoplastic gingival lesions, such as peripheral ameloblastoma, peripheral ossifying fibroma (POF), peripheral giant cell granuloma (PGCG) and pyogenic granuloma (PG) [4-7]. We need to differentiate these lesions histologically. Odontogenic epithelial islands of the POdF are smaller than those of peripheral ameloblastoma [5]. Odontogenic epithelial rests are frequently found in POdF, but are not seen in POF [2, 3, 5]. PGCG shows more quantity of multinucleated giant cells when compared with POdF [7]. PG shows a vascular proliferation similar to granulation tissue which is not seen in POdF [7].

POdF is treated by complete surgical excision along with scaling of the affected teeth, which was done in all our cases [4]. The frequency of recurrence varies greatly. Some studies have suggested a low recurrence rate of POdF while others have found recurrence of 38.9% [3] and 50% [5, 8, 9, 10]. Complete surgical removal may be the most

important factor in preventing recurrence [9].

Conclusion

Peripheral odontogenic fibroma is rare lesion of gingival tissues. Histopathological examination is the best diagnostic approach for the lesion because it is difficult to differentiate POdF clinically with other inflammatory and neoplastic lesions of the gingiva. Complete excision of the lesion and follow up is required to prevent any recurrence. POdF are uncommon with only a few case series and reports currently available in the literature. Thus, more literature and longer follow up period are required to gain better understanding of the details of POdF.

Conflict of interest : None

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