CASE REPORT

Peripheral Odontogenic Fibroma – A Clinicopathologic Presentation and Differential Diagnosis

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Abstract

Aims & Objectives: Peripheral odontogenic fibroma is a benign, slow-growing, exophytic lesion occurring on the gingiva. It appears to be far more common than its intraosseous counterpart, central odontogenic fibroma. A case of Peripheral odontogenic fibroma with its clinicopathologic presentation and differential diagnosis is presented here.
Case Report: A 63 year old female patient presented with a large asymptomatic lesion arising on the mandibular gingiva of 6 months duration. The lesion was excised and sent for histopathologic evaluation which revealed it to be peripheral odontogenic fibroma.
Conclusion: Peripheral odontogenic fibroma is the extraosseous variant of the central odontogenic fibroma. It can mimic a variety of reactive lesions and neoplasms and thus requires an excisional biopsy for definitive diagnosis. The lesion exhibits a significant growth potential which should warrant a close follow-up. In the current case the lesion was excised down to the bone and no recurrences were found in a one year follow-up.

KEYWORDS: peripheral odontogenic tumors, gingival growths, peripheral odontogenic fibroma

Introduction

Peripheral odontogenic fibroma (POdF) is a gingival mass composed of well-vascularized, non-encapsulated fibrous connective tissue. The distinguishing feature of this lesion is the presence of strands of odontogenic epithelium, often abundant throughout the connective tissue. Amorphous hard tissue resembling tertiary dentin may also be present. It is considered to represent the soft tissue counterpart of central (intraosseous) odontogenic fibroma (1). POdF can clinically mimic many reactive lesions and neoplasms (2). The authors present a case of POdF along with its differential diagnosis.

Case Report

A 63 year old female patient reported to our outpatient clinic with the complaint of a swelling in the left back region of the lower jaw of 6 months duration. The lesion began insidiously and gradually increased to the present size. The medical, social and family histories were not significant. Extraoral examination did not reveal any abnormality. On oral examination, a partially edentulous state with a periodontally compromised status was found. A solitary, firm, non-tender, sessile swelling measuring 3cm X 4cm was found covering the crown of the left mandibular first molar as well as the root stumps of the second molar. (Figure 1) The overlying mucosa was intact and of normal color. Radiographic examination of the area showed the presence of a soft tissue shadow without radiopaque flecks and no involvement of the underlying bone could be appreciated. Advanced bone loss related to the periodontal disease was

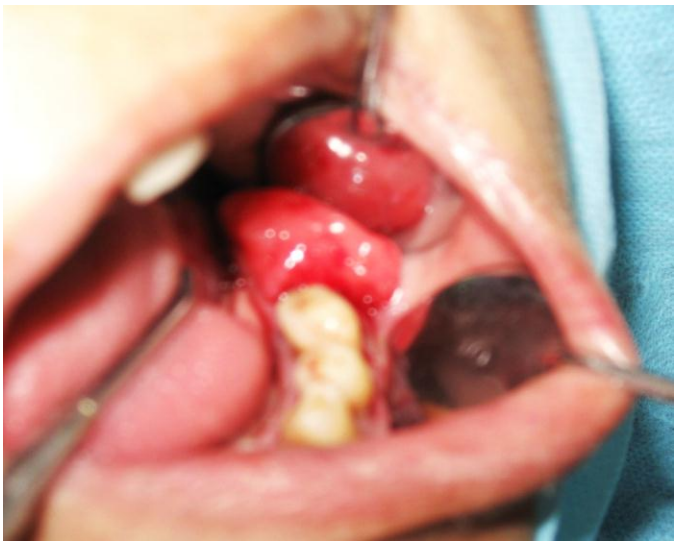

Figure 1:- Clinical picture of a solitary exuberant mass covering the crown of mandibular left first molar and root stumps of mandibular left second molar

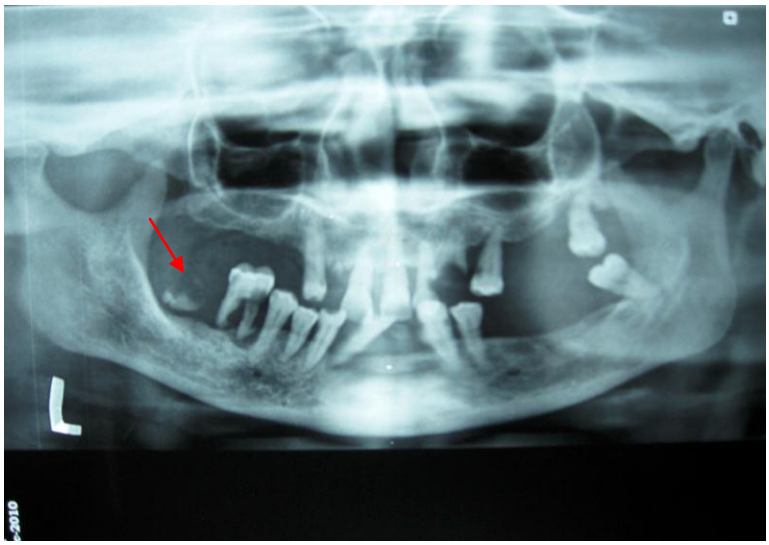

Figure 2:- Panoramic view showing a soft tissue shadow (arrow) of the lesion

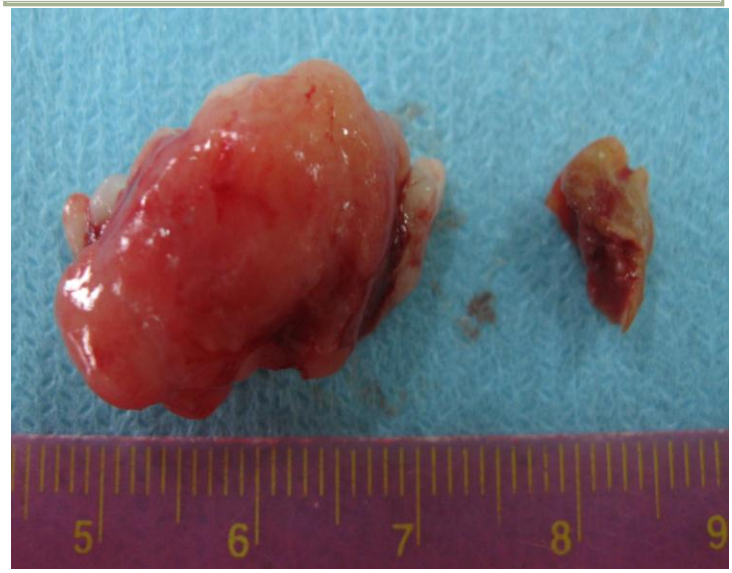

Figure 3:- Photograph of the excised mass

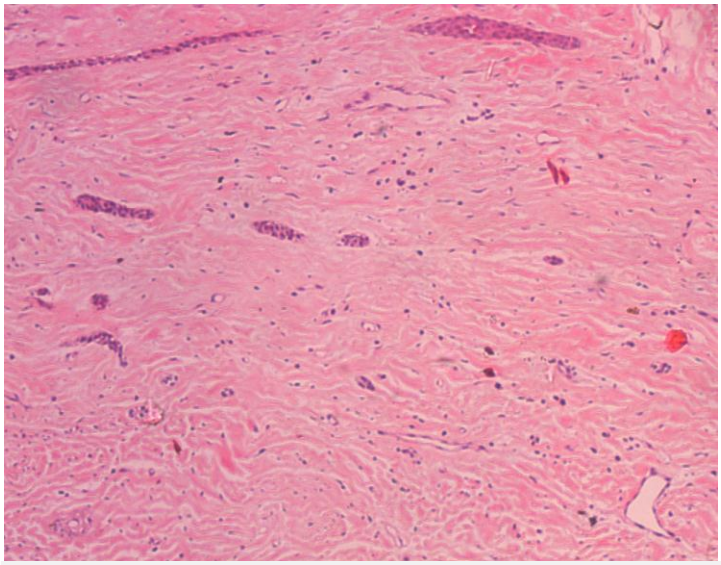

Figure 4:- Photomicrograph showing nests and strands of odontogenic epithelium in a fibrocellular and vascular connective tissue stroma (H&E, 10X)

noted around the remaining teeth. (Figure 2) The provisional clinical diagnosis of Peripheral giant cell granuloma was given to the mass.

The lesion was excised under local anesthesia (Figure 3) and sent for histopathological examination. The sections were stained with Hematoxylin and eosin stains (H&E). The sections revealed the presence of an unencapsulated mass of interwoven cellular and vascular fibrous connective tissue containing scattered nests and strands of odontogenic epithelium. The overlying epithelium was stratified squamous type. (Figure 4) A histologic diagnosis of peripheral odontogenic fibroma was given to the lesion. No recurrence has been found in a one year follow-up.

Discussion

POdF is an uncommon exophytic mass found on the gingiva and can clinically mimic a variety of reactive lesions and neoplasms (2). It is regarded by the World Health Organization (WHO) as a benign odontogenic neoplasm derived from fibroblasts and characterized by relatively mature fibrous tissue and varying amounts of odontogenic epithelium (3). In the past POdF has also been designated as 'odontogenic gingival epithelial hamartoma' by Baden & co-workers and as 'peripheral ameloblastic fibrodentinoma' by many workers. At one time, the terms 'peripheral ossifying fibroma' and 'peripheral odontogenic fibroma' were used interchangeably (4) Gardner in 1982 defined POdF and suggested that the term be restricted to the

extraosseous counterpart of central odontogenic fibroma (WHO-type) (3).

Over years, POdF has been widely accepted as an odontogenic tumor of mesenchymal origin (5). The epithelial component has been considered inactive (6) despite the fact that in some lesions the epithelium is abundant and occasionally the dominant feature. Slabbert, Altini considered the relative abundance of epithelium and its apparent inductive effect in the production of dentinoid to be evidence of more active role (7). Daley et al suggested that POdF be considered a mixed odontogenic tumor as both epithelium and mesenchymal components are required for histologic diagnosis (8). The fibroma appears to originate from the periodontal membrane. The odontogenic epithelium usually found within it are cell rests of Serres or cell rests of Malassez. Whether it represents a reactive fibrous proliferation from some minor, often clinically unrecognized stimulant or a hamartomatous proliferation of limited growth potential remains unknown (9,10). Daley & Wysocki (8) suggested that POdF be considered as a benign tumor. Trauma, local irritants (dental plaque, calculus) or poor quality dental restorations do not play an important role in the etiology (11). A few series of POdF have been reported in the past few decades, bringing the total number of cases in the literature to approximately 175 (1).

POdF usually arises as a painless, focal swelling which can arise throughout either arch but tends to occur in the mandibular canine-premolar region and the maxillary anterior region. Very few cases of multifocal appearance of POdF have been reported which include 3 cases by Weber et al,1992 (12), and 1 case by Reet Kamal et al,2008 (13). There is a wide age range that extends from the first to the ninth decades of life, with a slight increase in incidence in the 3rd decade (8). It is seen somewhat more frequently in women than in men (8-10,13) with no increase in risk based on race or ethnicity (10). However, Slabbert H et al (7) and Kenny JN et al reported a slight male predominance (14). The lesion grows slowly with majority POdFs between 0.5-3.5cm in diameter (1,10). With time the mass prolapses over the tooth, thus resembling an operculum (9). Displacement of tooth may be an associated finding (4,10). The present case was reported in a 63 year old female in the mandibular molar region with the mass measuring 3cm X 4cm.

Radiographic studies demonstrate a soft tissue mass, which in some cases have shown areas of calcification. The lesion however does not involve the underlying bone (1). In the present case a soft tissue shadow without radiopaque flecks was seen and no involvement of the underlying bone could be appreciated. Advanced bone loss related to the periodontal disease was however noted around the remaining teeth.

POdF shows similar histopathologic features to central odontogenic fibroma (WHO type). The tumor consists of interwoven fascicles of cellular fibrous connective tissue, which may be interspersed with areas of less cellular, myxoid connective tissue (1). A granular cell change has been rarely identified in the connective tissue component (2,8,15) and giant cell granuloma-like areas have also been described (16). Islands or strands of odontogenic epithelium are scattered throughout the connective tissue. These may be prominent or scarce. The epithelial cells may show vacuolization. Dysplastic dentin, amorphous ovoid cementum-like calcifications and trabeculae of osteoid may also be present (1). The findings in our case were in accordance with the histopathologic features mentioned in literature.

The clinical differential diagnosis includes inflammatory lesions such as fibrous hyperplasia, peripheral fibroma; peripheral odontogenic tumors; reactive lesions like peripheral giant cell granuloma, peripheral ossifying fibroma, pyogenic granuloma, epulis fissuratum and gingivitis (13). The most common gingival enlargement overlying a molar is focal fibrous hyperplasia of the operculum which usually develops in the residual distal or lingual portion of the operculum overlying a partially erupted mandibular molar. This thickened, triangular flap of gingiva is aggravated by constant masticatory trauma or an eruption sequestrum (10).

An excisional biopsy is required for differential diagnosis. Histologic differentiation between POdF and peripheral ossifying fibroma is based on the presence of distinct odontogenic epithelium in the former. The calcifications seen in this lesion resemble dysplastic dentin or cementum and are less prominent than the calcified areas seen in peripheral ossifying fibroma (14). Microscopic differential diagnosis of POdF includes peripheral ameloblastoma, peripheral calcifying epithelial tumor and odontogenic hamartoma. The differentiation from peripheral odontogenic hamartoma is most difficult because some of the hamartomatous lesions may have been diagnosed as POdF prior to their separation from peripheral fibroma of the gingiva in the WHO classification. The differentiation of POdF from peripheral ameloblastoma is usually not problematic even for cases of POdF with extensive epithelial proliferation because true ameloblastic differentiation is lacking (5). The differentiation of peripheral odontogenic fibroma from peripheral calcifying epithelial odontogenic tumor is based on the latter's large polygonal cells, which represent its epithelial component, as well as the hyalinized material, which reacts positively with amyloid stains (17).

The treatment of POdF is to ensure complete surgical excision of the lesion. This frequently results in a mucogingival defect so the excisional biopsy can be followed by a periodontal plastic surgery (10). A variable recurrence rate has been reported ranging from very low to as high as 38.9% (3,8,18). Due to the growth potential

of these lesions a close follow-up should be adopted. In the case presented, the proliferative mass was excised down to the bone. The one year follow-up did not show any recurrence of the lesion.

Conclusion

This article presents a case of POdF in the mandibular gingiva of a 63 year old female patient which was treated by excising the lesion down to the bone. The surgical wound site healed uneventfully and no recurrence has occurred in a one year follow-up. Clinical and microscopic differential diagnoses of POdF are discussed. As the recurrence rate of this lesion is found to be much higher than what has been reported in the past, clinicians and pathologists should be aware of the potential for recurrence to allow for appropriate patient treatment.

The authors declare that they do not have any commercial or associative interest that represents a conflict of interest in connection with the work submitted.

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References

1. Neville B W, Damm DD, Allen CM, Bouquot JE. Odontogenic cysts and tumors. In Neville B W, Damm DD, Allen CM, Bouquot JE. Oral and Maxillofacial Pathology. 3rd ed. Noida: Elsevier; 2009. p. 678-740.
2. Rinaggio J, Cleveland D, Koshy R, Gallante A, Mirani N. Peripheral granular odontogenic fibroma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007; 104: 676-679.
3. Gardner DG. The peripheral odontogenic fibroma: an attempt at clarification. Oral Surg Oral Med Oral Pathol 1982; 54: 40-48.
4. Rajendran R. Cysts and Tumours of Odontogenic Origin. In Rajendran R. & Sivapathasundharam(Eds.), Shafer's Textbook of Oral Pathology. 5th ed. Noida: Elsevier; 2006. p. 357-432.
5. Pindborg JJ, Kramer IRH, Torlini H. Histologic typing of odontogenic tumours, jaw cysts, and allied lesions. International histologic classification of tumours, No. 5. 1st ed. Geneva: World Health Organization; 1971. p. 30-31.
6. Buchner A. Peripheral odontogenic fibroma: Report of 5 cases. J Craniomaxillofac Surg 1989; 17: 134-138.
7. Slabbert H, Altini M. Peripheral odontogenic fibroma: a clinicopathologic study. Oral Surg Oral Med Oral Pathol 1991; 72: 86-90.
8. Daley TD, Wysoki G. P. Peripheral odontogenic fibroma. Oral Surg Oral Med Oral Pathol 1994; 8: 329-336.
9. Marx RE, Stern D. Odontogenic tumors: Hamartomas and Neoplasms. In Marx RE, & Stern D. Oral & Maxillofacial Pathology: A Rationale for Diagnosis and Treatment. Illinois: Quintessence Publishing Co, Inc; 2003. p. 635-703.
10. Flaitz CM. Gingival enlargement associated with a partially erupted mandibular molar. Pediatr Dent 2001; 23: 435-437.
11. Bonetti GA, Marini I, Zuccchelli G, Checchi L. Obstruction of the eruption pathway by peripheral odontogenic fibroma: Report of a patient. Am J Orthod Dentofacial Orthop 2008: 133: 303-307.
12. Weber A, van Heerden WFP, Ligthelm AJ, Raubenheimer EJ. Diffuse Peripheral Odontogenic Fibroma: report of 3 cases. J Oral Pathol Med 1992; 21: 82-84.
13. Kamal R, Palaskar S, Shetty VP, Bhushan A. Multifocal peripheral odontogenic fibroma. J Oral Maxillofac Pathol 2008; 12: 72-74.
14. Kenny JN, Kaugars GE, Abbey L. M. Comparison between the peripheral ossifying fibroma and peripheral odontogenic fibroma. J Oral Maxillofac Surg 1989; 47: 378-382.
15. Lownie JF, Altini M, Shear M. Granular cell peripheral odontogenic fibroma. J Oral Pathol 1976; 5: 295-304.
16. Ficarra G, Sapp JP, Eversole LR. Multiple peripheral odontogenic fibroma, World Health Organization type, and Central giant cell granuloma: A case report of an unusual association. J Oral Maxillofac Surg 1993; 51: 325-328.
17. Buchner A, Ficarra G, Hansen L. S. Peripheral odontogenic fibroma. Oral Surg Oral Med Oral Pathol 1987; 64: 432-438.
18. Michaelides PL. Recurrent odontogenic fibroma of attached gingiva: a case report. J Periodontol 1992; 63: 645-647.