

Clinical characteristics of peripheral ossifying fibroma: A series of 20 cases

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Original Article

Abstract

BACKGROUND AND AIM: Peripheral ossifying fibroma (POF) is a reactive chronic localized hyperplastic gingival lesion. The present case-series was undertaken to determine the clinical variations in a series of different cases of oral POF.

METHODS: Demographic and clinical data including age, gender, location, color, clinical diagnosis, size, consistency and radiographic view of the lesions were studied among clinical records at school of dentistry in Kerman, Iran, from 1998 to 2012.

RESULTS: A total of 20 POF cases was subjected to clinical analyses, in equal numbers of men and women. The total frequency of POF was 2.5%, and 11 cases (55%) had occurred in the maxilla. POF showed a greater frequency of pink color (60%), anterior location (55%), firm consistency (85%) and a size of 1-1.5 cm (60%). Bone resorption and calcification were found in 35% and 25% of cases, respectively.

CONCLUSION: In comparison with previous studies, despite investigation of similar clinical features of POF in the present study, findings also showed that characteristics such as age, gender and location cannot help in the differential diagnosis of POF from pyogenic granuloma.

KEYWORDS: Peripheral Ossifying Fibroma, Fibroma, Gingiva, Oral Cavity

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Peripheral ossifying fibroma (POF) is a relatively uncommon fibrous lesion of the gingiva. The lesion have named differently by different authors, including fibrous epulis, calcifying fibroblastic granuloma or peripheral fibroma with calcification.¹ The etiology of the lesion, which is considered a non-neoplastic lesion of the gingival tissue, is attributed to irritation and trauma. Despite the fact that this lesion is thought to be relatively common, it accounts for less than 1% of all the oral biopsies.^{2,3}

POF is widely believed to originate from underneath the periodontium from the inflammatory hyperplasia of the periodontal ligament and due to locally irritating factors,

including subgingival accumulation of plaque and calculi, dental appliances, and tooth restorations which have low quality.¹⁻³ However, some investigators believe that hormones might have a role in the lesion because prepubertal patients are rarely affected, and the disease incidence decreases significantly after 30 years of age.²

POF appears as an exophytic lesion on the gingiva and enlarges slowly, most often measuring < 2 cm; however, some lesions might be larger. It occurs in the gingival interdental papilla, with a sessile or pedunculated base; the color might be similar to gingiva or somewhat reddish and the lesion surface might exhibit ulcerations.⁴⁻⁶ In the majority of the studies, the anterior

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maxillary involvement was more than mandible.⁶ The lesion mainly affects women and has a predilection for the second decade of life.⁷ Treatment consists of surgical excision and laboratory examination to confirm the diagnosis.⁸

Review of the literature revealed that mostly of published articles about POF were reports of one case and only five studies in which more than one case have been reported (Table 1).¹⁻²⁷

Table 1. Published articles about reporting POF1-27

Authors	Number of case(s)
Moon et al. ¹	1
Dahiya et al. ²	1
Passos et al. ³	1
Chaudhari and Umarji ⁴	1
Silva et al. ⁵	1
Prasad et al. ⁶	1
Kumar et al. ⁷	1
Walters et al. ⁸	3
Pradeep et al. ⁹	1
Nazareth et al. ¹⁰	1
Sacks et al. ¹¹	1
Mishra et al. ¹²	1
Luvizuto et al. ¹³	1
Trasad et al. ¹⁴	1
Poonacha et al. ¹⁵	1
Das and Azher ¹⁶	1
Yadav and Gulati ¹⁷	1
Farquhar et al. ¹⁸	1
Garcia de marcos et al. ¹⁹	4
Shetty et al. ²⁰	22
Chaturvedy et al. ²¹	1
Barot et al. ²²	1
Khan et al. ²³	1
Childers et al. ²⁴	1
Rallan et al. ²⁵	1
Verma et al. ²⁶	4
Cuisia and Brannon ²⁷	134

POF: Peripheral ossifying fibroma

In study of Cuisia and Brannon,²⁷ a clinical evaluation was made for pediatric cases, and Garcia De Marcos et al.¹⁹ demonstrated immunohistochemical features of four cases of POF, however, it seems that in their study POF was analyzed only from histological point of view. In Iran, four research works carried out by Zarei et al.,²⁸ Ala et al.,²⁹ Amirchaghmaghi et al.³⁰ and Naderi et al.³¹

reported the frequencies of various types of reactive hyperplastic lesions of the oral cavity and none of them focused on POF in their researches.

The clinical behavior of POF is somehow varying from the other oral reactive hyperplastic lesions, for example its high percentage of recurrence after treatment and differential diagnosis of a serious malignancy which is called osteogenic sarcoma from POF must be considered. Moreover in the cases of delayed correct diagnosis, adjacent tooth loss and alveolar bone resorption would be the consequences. Therefore, dentists should be informed about POF, which clinically poses a dilemma for the diagnosis among reactive gingival hyperplastic lesions, especially pyogenic granuloma.^{3,32} Increasing knowledge about the specialized epidemiologic data would be a practical tool for better diagnosis, and this study is the first case series for illustration of clinical features of POF in Iran.

Methods

The present study is a case series. The materials included all the biopsy specimen records of the department of oral medicine, school of dentistry, Kerman University of medical sciences, Kerman, Iran, between 1998 and 2012. The records were reviewed for demographic data and clinical data including sex, age, patient chief complaints, the type, size, location, duration, diagnosis, and histological characteristics of the lesions. To minimize recurrence, excisional biopsy down to the bone had been carried out for all the lesions; hence, the medical charts of patients with confirmed histopathological diagnosis of POF were selected. The paraffin blocks of all the 20 cases were separately analyzed by two oral pathologists again for re-confirmation of the initial diagnoses. The clinical and histopathological diagnoses of POF were made based on the Modified World Health Organization classification.²⁶

At the end, the session was held between

the two pathologists and those cases, which they had a disagreement on diagnosis were determined. Then an agreement was reached regarding these cases after discussion and consultation with another expert pathologist. We also selected the blocks of cases with the final diagnosis of pyogenic granuloma and giant cell granuloma from the mentioned academic archive and these blocks also were reviewed by the two pathologists because of differential diagnosis with POF. Radiologic evaluation for the presence of calcification within the lesions was also confirmed by one oral and maxillofacial radiologist. Data were evaluated by means of descriptive statistics. Patient's data were all kept confidential.

Results

A total of 20 conclusive cases of POF was diagnosed in patients during the research period out of 800 total lesions, clinical and histopathologically diagnosed. The total frequency of POF in this study was 2.5%. Of all the 20 cases of POF studied, half of the cases had occurred in females and half in males. The age range of the patients diagnosed with POF was 11-49 years (Table 2); the mean age was 28.85 years with a standard deviation of ± 12.874 . Of all the patients with POF, the prevalence of POF was similar between the patients under 30 and over 30 years of age; 11 cases had occurred in the maxilla and 11 cases had appeared in the region anterior to canines. The surface of 12 lesions (60%) was smooth, and the remainders had ulcerated surfaces. According to the documented histories, in 13 cases (65%) bleeding occurred during meal or when they brushed their teeth. Majority of lesions (80%) had a sessile bases, 10% were polypoid and justly 2 lesions presented as nodules. Radiographic assessment revealed 7 views of subjacent alveolar bone resorption and also 5 views of calcification. On the whole, 11 cases had had the lesions for more than 1 year. A tendency to bleed during clinical examination was seen only in 4 cases,

Table 2. The patient demographics and statistical data obtained in this study

Variable	Category	n (%)
Age (year)	< 30	10 (50)
	≥ 30	10 (50)
Gender	Male	10 (50)
	Female	10 (50)
Jaw	Maxilla	11 (55)
	Mandible	9 (45)
Location	Anterior	11 (55)
	Posterior	9 (45)
Color	Pink	12 (60)
	Red	8 (40)
	POF	10 (50)
Clinical diagnosis	PG	8 (40)
	Irritation fibroma	1 (5)
	GCG	1 (5)
	Mobility	9 (45)
Adjacent teeth	Diastema	7 (35)
	Both	2 (10)
	< 1	4 (20)
Size (cm)	1-1.5	12 (60)
	> 1.5	4 (20)
Consistency	Firm	17 (85)
	Bony hard	2 (10)
	Rubbery	1 (5)
Radiographic view	Bone resorption	7 (35)
	Calcification	5(25)
	Both	3 (15)

POF: Peripheral ossifying fibroma; PG: Pyogenic granuloma; GCG: Giant cell granuloma

and a history of rapid growth was reported from only 1 patient.

All the cases were followed up for 2 years after the surgical treatment; hence three cases reported that their lesion had recurred in this period. Almost all the patients were systemically healthy and only three patients were medically compromised (one ischemic heart disease case, one diabetes mellitus case and one asthma case).

In one of our cases, 29-year-old male, intraoral examination showed a sessile, bony hard, non-tender, pinkish lump in gingiva, extended from the second permanent premolar to the second permanent mandibular left molar, occupied entire left buccal vestibule. The lesion was 4 cm \times 3 cm (Figure 1). Occlusal radiographic view of the involved region showed calcification within the soft tissue mass (Figure 2). Histological

picture of the lesions revealed the islands of odontogenic epithelium and focal areas of calcified tissue within the area of highly cellular fibrous connective tissue showing collagen fibers and proliferating plump fibroblasts. Subepithelial connective tissue was infiltrated with chronic inflammatory cells (Figure 3).



Figure 1. Clinical Presentation of one of the cases

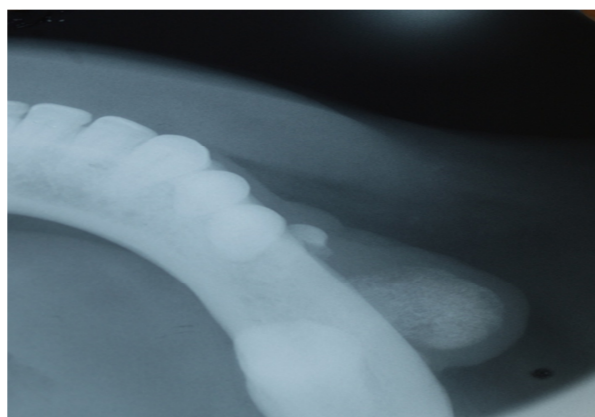


Figure 2. Radiographic view of the same case

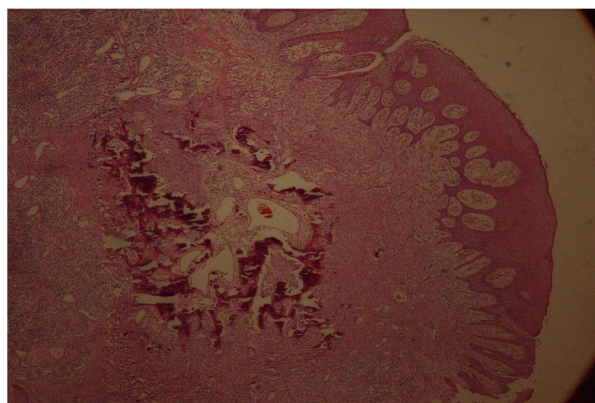


Figure 3. Histopathologic view of the same case

Discussion

The most frequent lesions in the oral cavity are exophytic lesions of the gingiva; however, almost all the documented POF cases in the literature are case reports.^{1-18,32} Shetty et al., in a review of 22 cases reported a number of clinical and pathological manifestations of POF.²⁰ Therefore, it seems that the present study is the second review in the literature with considerable sample size for clinical analysis of POF.

The reported rate of POF among total lesions of the oral mucosa (2.5%) is higher in the present study than that reported before (< 1%).^{2,3} This difference may be due to the some etiologic factors especially poor oral hygiene. In the present investigation, significant number of POF lesions exhibited long evolution periods and lasted much longer than similar lesions, such as pyogenic granuloma and peripheral giant cell granuloma, which is consistent with the report made by Salum et al.³³

A tendency to bleed and bony hard consistency, which are all important clinical keys to make a distinction between pyogenic granuloma and POF, were seen in a small number of cases in the present study. Due to lack of distinguishing clinical manifestations in the group of cases, it is not possible to distinguish between pyogenic granuloma and POF peculiarly based on clinical symptoms. Similarly, Pradeep et al. believe that POF might be easily confused with a pyogenic granuloma and calcification, which is considered its most important histopathologic feature, might finally help make a distinction between it and other fibrous lesions.⁹

We described diagnostic radiographic views of POF in almost 12 of our cases, which is consistent with the report made by Shetty et al. In other words, those researchers reported that almost 90% of the lesions did not exhibit any radiographic manifestations.²⁰ The technique used was periapical for all the cases; however, several researchers have

reported CT and MRI findings of very large POF lesions.¹⁴

The size of the majority of cases in the present study was 1-1.5 cm, which was remarkable, consistent with the results of a study carried out by Shetty et al.,²⁰ however, in the reported case of Nazareth et al. the size was significantly larger than the average lesion.¹⁰ Sacks et al. described a "gigantiform" POF measuring 10.5 cm in an edentulous patient, resulting in gross facial asymmetry and occupying most of the oral cavity.¹¹

In the present study, 7 cases out of 20 showed the dislocation of one or two adjacent teeth. Mishra et al. reported a POF in a 45-year-old female patient, with displacement of almost all the mandibular anterior teeth (centrals, lateral incisors, and canines). This pattern of adjacent teeth displacement reported by Mishra et al. is very rare in POF.¹² All the patients in the present study had been treated by traditional excisional biopsy; however, Luvizuto et al. reported a clinical case in which a POF lesion underwent excisional biopsy, with a subepithelial connective tissue graft placed to satisfactorily repair the defect after biopsy.¹³

The post-operative recurrence rate for POF was 15% in this study. All these recurrences had happened in a mean period of 1 year after first surgery while Trasad et al. reported one POF that exhibited recurrence 2 months after

the surgical treatment.¹⁴ A similar recurrence rate of 16–20% has been reported in the other studies, which is believed to be high for a benign reactive lesion. Different reasons have been reported for recurrence, including: (a) partial surgical removal of the nodule; (b) persistence of local irritating factors; and (c) lack of adequate access to POF lesions in interdental areas. Deep excision is advocated because of the high recurrence rate.^{9,10}

In the present study, POF showed no gender and age predilection and POF was distributed with minor differences between the two jaws. These results differ from those of other studies; for example Shetty et al. reported a higher incidence in females (73%), and the majority of lesions had occurred in the second and third decades of life and in the maxillary anterior region.²⁰

Conclusion

Further studies are necessary to determine whether the discrepancies above can be explained by geographic factors and/or different sample sizes in different studies.

Conflict of Interests

Authors have no conflict of interest.

Acknowledgments

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