Case Report

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TITLE OF THE ARTICLE: PERIPHERAL CEMENTO-OSSIFYING FIBROMA: A CASE REPORT

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ABSTRACT:

Gingival growths are one of the most frequently encountered lesions in the oral cavity. Most of these lesions are innocuous, but some do have malignant potential. Different lesions with similar clinical presentations make it difficult to arrive at a correct diagnosis. The gingiva is often the site of localized growths that are considered to be reactive rather than neoplastic in nature. Peripheral ossifying fibroma (POF) is one of the inflammatory reactive hyperplasia of gingiva. It represents a separate clinical entity rather than a transitional form of pyogenic granuloma and shares unique clinical characteristics and diverse histopathological features. A case report of 19 years old female patient, with subsequent gingival overgrowth seen in anterior region of maxilla which interferes with occlusion and a unaesthetic appearance. Clinical, radiographic, and histologic characteristics are being discussed in this article.

Keywords: Gingiva, Peripheral Cemento-Ossifying Fibroma, Peripheral Ossifying Fibroma, Pyogenic Granuloma.

INTRODUCTION:

Peripheral ossifying fibroma (POF) is a relatively uncommon, probably reactive gingival overgrowth. POF consist of one or more mineralized tissues, including bone, cementum-like material, or dystrophic calcification within a matrix of cellular fibroblastic tissue.[1]

POF is a nonneoplastic enlargement of gingiva that is classified as a reactive hyperplastic inflammatory lesion, a common gingival growth, which is typically seen on the interdental papilla and is believed to comprise about 9% of all gingival growths.[2]

The aetiology and pathogenesis of POF are not yet clear. Some authors have hypothesized a reactive lesion originating from the periodontal ligament as a result of irritating agents such as dental calculus, plaque, orthodontic appliances, and ill-fitting restorations. [1]

Clinically, POF usually presents as a solitary, slow-growing, pedunculated or sessile, nodular mass. To the best of our knowledge, a unique case of multicentric

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manifestation has been reported.[3] The surface mucosa can be smooth or ulcerated and pink to red in colour.[4] Adjacent teeth are usually unaffected, but in some cases, migration, mobility, and delay in the eruption of permanent teeth may occur.[5]

POF usually measure <1.5 cm in diameter even though lesions of 6 cm and 9 cm in diameter are recorded.[6,7] On the clinical level, differential diagnoses include peripheral giant cell granuloma, pyogenic granuloma, and fibrous epulis.[1] Diagnosis can be made by clinical inspection and biopsy.

Incidences of recurrence have been put at 16–20%.[8] The reasons for recurrence include incomplete removal of lesion, failure to eliminate 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 recurrences.[8]

CASE DETAIL:

A 19 years-old girl reported with a chief complains of painless growth on the gums in the upper front region of jaw in the last two years. She noticed a swelling started as a small nodule which was painless for initially, which progressed gradually to the present size. There was no relevant family and medical history. Patient did not give any history of trauma, injury, or food impaction. Due to discomfort with swelling, its unaesthetic appearance and increasing size which was interfering in occlusion the patient reported to the opd.

On clinical examination, revealed a well-defined solitary, sessile growth present on the residual ridge with upper right & left central incisors occupying the inter-dental space. The solitary growth extending superiorly from maxillary attached gingiva with 11 & 12 from the base of labial freenum and inferiorly from 1-2 cm below the incisor line. Antero-posteriorly extending from inner aspect of upper lip to 3 cm towards hard palate.

The growth was oval in shape and approximately 2.5 to 3 cm in size in greatest dimensions with anterior half being more reddish in colour. The surface of growth was nodular & irregular. No secondary changes were seen related to ulceration and fungation. No other surrounding tissue was involved. On palpation the growth was solitary, febrile, non-tender on palpation and firm in consistency. It was present in inter-dental space with 11& 21, approximately 2.5 to 3 cm in size, oval in shape and is fixed to the underlining attached gingiva. It was nonreducible and noncompressible with mild bleeding on probing figure 1 (a, b & c). On basis of examination a provisional diagnosis of irritational fibroma was put forth.

Initial investigation included radiograph and complete haemogram was done.

Intra-oral periapical radiograph was recorded, which revealed erosion of the crest of bone with 11, 21. The possible reason of crestal bone erosion in the area may be long standing plaque- induced inflammation and constant pressure of growth. No other significant bony changes

seen and no ossification seen with soft tissue growth figure 2. On blood investigation showed all the values in normal range.

Excisional biopsy of growth was planned under local anaesthesia and antibiotic coverage. Thorough curettage of the adjacent periodontal ligament was carried out to eliminate local irritating factors so as to prevent recurrence figure 3.

Growth was excised conservatively. The excised tissue was 2.5 to 3 cm in size, pale white in colour figure 4. Tissue was further sent to histological examination.

Histopathological report of the specimen showed Para keratinized stratified squamous epithelium overlying the connective tissue stroma figure 5 (a& b).

Fibrous connective tissue also consisted of large and small trabeculae of bone and some dystrophic calcifications. The calcified areas resembled cementum like and bone like ossifying areas figure 6(a& b).

Final diagnosis based on history, clinical presentation, radiological and histopathological examination final diagnosis of peripheral cemento-ossifying fibroma with respect to the 11, 21 regions was put forth. Follow up of patient after one week revelled a partially healed socket and after one month presented with complete healing in healthy gingival tissue figure 7, 8.

Treatment plan post excision:

Phase 1: Surgical periodontal treatment, thorough scaling and root planning, bone regeneration. Followed by oral hygiene maintenance instructions to the patient was given.

Phase 2: Orthodontic treatment, it was evaluated for class 1 mal-occlusion and to implement a good aesthetics, endodontic treatment was excluded.

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.[9] POF has also been described by various synonyms such as peripheral cemento-ossifying fibroma, peripheral odontogenic fibroma (PODF) with cementogenesis, peripheral fibroma with osteogenesis, peripheral fibroma with calcification, fibrous epulis, calcifying fibroblastic granuloma, etc.[10,11] Almost 60% of the lesions occur in the maxilla and mostly occur anterior to molars. The lesion is most common in the second decade of life affecting mainly females.[4]

Peripheral ossifying fibroma occurs mostly in craniofacial bones and categorized into two types central and peripheral. The central type of ossifying fibroma arises from the endosteum or the periodontal ligament (PDL) adjacent to the root apex and expands from the medullary cavity of the bone, and the peripheral type occurs on the soft tissues overlying the alveolar process.[12]

Peripheral ossifying fibroma has to be differentiated from traumatic fibroma, peripheral giant cell granuloma, pyogenic granuloma, and peripheral odontogenic fibroma.

Peripheral odontogenic fibroma is an uncommon neoplasm that is believed to arise from odontogenic epithelial rests in periodontal ligament or attached gingiva itself. Traumatic fibroma occurs on buccal mucosa along the bite line. Pyogenic granuloma presents as soft, friable nodule, small in size that bleeds with tendency to hemorrhage and may or may not occasionally or do not show calcifications but tooth displacement and resorption of alveolar bone are not observed. Peripheral giant cell granuloma has clinical features similar to POF however POF lacks the purple or blue discoloration commonly associated with peripheral giant cell granuloma and radiographically shows flecks of calcification.[13]

POF is characterized by a high degree of cellularity usually exhibiting bone formation, although occasionally, cementum-like material or dystrophic calcification may also be found.[14]

Radiographically radiopaque foci within the soft tissue tumour mass are observed if the calcified element is significant, but in this case no radiopaque foci were seen but only shadow of the lesion was seen probably because the lesion was of short duration of time.[15]

Histologically, POF can exhibit either ulcerated or intact stratified squamous epithelium. In a typical ulcerated lesion, three zones could be identified:

Zone I: The superficial ulcerated zone covered with the fibrinous exudate and enmeshed with polymorphonuclear neutrophils and debris.

Zone II: The zone beneath the surface epithelium composed almost exclusively of proliferating fibroblasts with diffuse infiltration of chronic inflammatory cells mostly lymphocytes and plasma cells.

Zone III: More collagenase connective tissue with less vascularity and high cellularity; osteogenesis consisting of osteoid and bone formation is a prominent feature, which can even reach the ulcerated surface in some cases.[15]

The calcified material can generally take one or more of the following four forms: (a) mature lamellate trabecular bone; (b) immature, highly cellular bone; (c) circumscribed amorphous, almost acellular, eosinophilic, or basophilic bodies, and (4) minute microscopic granular foci of calcification.[10]

Multicentric POF can also occur in oral and maxillofacial region and is observed in genetic associated conditions like:

- Nevoid basal cell carcinoma syndrome
- Multiple endocrine neoplasia-type II
- Neurofibromatosis
- Gardner syndrome.[16]

The basic microscopic pattern of the POF is fibrous proliferation associated with the formation of mineralized components. Mineralized component varies from 23 to 75%.[16] Butcher and Hansen reported three types of components in POF.[8]

(1) Bone that may be woven, lamellar or trabecular, sometimes surrounded by osteoid,

(2) Cementum– like material that appears as spherical bodies resembling cementum or large acellular round to oval eosinophilic bodies, which seemed to have coalesced to form islands in various sizes and shapes,

(3) Dystrophic calcification, which can range from small clusters of minute basophilic granules or tiny globules to large, solid irregular masses.

POF versus peripheral cemento-ossifying fibroma: Hard tissues can be elaborated in the form of bone, cementum and spheroidal calcifications, which allows for various nomenclatures. If bone predominates, the word “ossifying” is used and if cementum predominates, “cementifying” term can be used. If both, bone and cementum are observed, it can be called “cemento-ossifying fibroma”.[17]

POF tends to occur in the first and second decades of life, with peak prevalence between the ages of 10 and 19. The female to male ratio reported in the literature varies from 1.22:1 and 1.7:1 to 4.3:1.[18] Hormonal influences may play a role, given the higher incidence of POF among females, increasing occurrence in the second decade, and declining incidence after the third decade. [19]

Treatment requires proper surgical intervention that ensures deep excision of the lesion including periosteum and affected periodontal ligament. In children, reactive gingival lesions can exhibit an exuberant growth rate and reach significant size in a relatively short period of time.

In addition, the POF can cause erosion of bone, can displace teeth, and can interfere or delay eruption of teeth. Early recognition and definitive surgical intervention result in less risk of tooth and bone loss.[19] The recurrence rate varies from 7 to 20% according to different authors.[20]

CONCLUSION:

In conclusion, clinically it is difficult to differentiate between most of the reactive gingival lesions particularly in the initial stages. The POF represents a reactive benign lesion of connective tissue, It occurs frequently in anterior part of jaws of young females, exclusively on gingiva. Radiological and histopathological examination is required for confirmation of diagnosis. The accepted treatment protocol includes surgical excision followed by histopathologic evaluation and follow-up.

REFERENCES:

1. Neville BW, Damm DD, Allen CM, Bouquot JE. Soft tissue tumors. In: Oral and Maxillofacial Pathology.2nd Ed. Philadelphia: Saunders; 2002. P. 451-2.
2. Poonacha KS, Shigli AL, Shirol D. Peripheral ossifying fibroma: A clinical report. Contemp Clin Dent.2010;1:54-6. [PUBMED] [Full text]
3. Kumar SK, Ram S, Jorgensen MG, Shuler CF, Sedghizadeh PP. Multicentric peripheral ossifying fibroma. J Oral Sci 2006;48:239-43.
4. Buchner A, Hansen LS. The histomorphologic spectrum of peripheral ossifying fibroma. Oral Surg Oral Med Oral Pathol 1987;63:452-61.
5. Kumar R S, Sateesh CP, Shreedhar A. Peripheral ossifying fibroma: A rarity in elderly males. J Dent Sci Res. 2017;2:1-5.
6. Bodner L, Dayan D. Growth potential of peripheral ossifying fibroma. J Clin Periodontol. 1987;14:551-4.
7. Poon CK, Kwan PC, Chao SY. Giant peripheral ossifying fibroma of the maxilla: Report of a case. J Oral Maxillofac Surg. 1995;53:695-8.
8. D. C. Shetty, A. B. Urs, P. Ahuja, A. Sahu, A. Manchanda, and Y. Sirohi, "Mineralized components and their interpretation in the histogenesis of peripheral ossifying fibroma," Indian Journal of Dental Research.2011;vol. 22, no. 1, pp. 56–61.
9. Mishra MB, Bhishen KA, Mishra S. Peripheral ossifying fibroma. J Oral Maxillofac Pathol. 2011;15:65–8. [PMC free article] [pubmed]
10. Bhaskar NS, Jacoway JR. Peripheral Fibroma and Peripheral Fibroma with Calcification: Report of 376 Cases. JADA. 1966;73:1312–20. [pubmed]
11. Walters JD, Will JK, Hatfield RD, Cacchillo DA, Raabe DA. Excision and Repair of the Peripheral Ossifying Fibroma: A Report of 3 Cases. J Periodontal. 2001;72:939–44.[pubmed]
12. C. S. Miller, R. G. Henry, and D. D. Damm, "Proliferative mass found in the gingiva," The Journal of the American Dental Association, vol. 121, no. 4, pp. 559–560, 1990. View at Google Scholar · View at Scopus
13. B. W. Neville, D. D. Damm, C. M. Allen, and J. E. Bouquot, Oral and Maxillofacial Pathology, Saunders, Philadelphia, Pa, USA, 1995. Rajendran R, Sivapathasundharam B. Shafers's textbook of oral pathology.
14. 6 th ed. Noida, India: Elsevier; 2009. P. 1
15. K. S. Poonacha, Anand L. Shigli, and Dayanand Shirol : Peripheral ossifying fibroma:A clinical report; Contemp Clin Dent. 2010 Jan-Mar; 1(1): 54–56.
16. Jain A, Deepa D. Recurrence of peripheral ossifying fibroma: A case report.People's J Sci Res. 2010;3:23–5.
17. Satish BN, Kumar P. Peripheral ossifying fibroma of hard palate: A case report.Int J Dent Clin.

2010;2:30–4.

18. John R, Prabhu NT, Munshi AK. Peripheral ossifying fibroma report of a case. J Indian Soc Pedod Prev Dent 1996;14:107-8.
19. Kenney JN, Kaugars GE, Abbey LM. Comparison between the peripheral ossifying fibroma And peripheral odontogenic fibroma. J Oral Maxillofac Surg.1989;47:378-82.
20. Gardner DG. The peripheral odontogenic fibroma: An attempt at clarification. Oral Surg. 1982;54:40–8.

FIGURES:

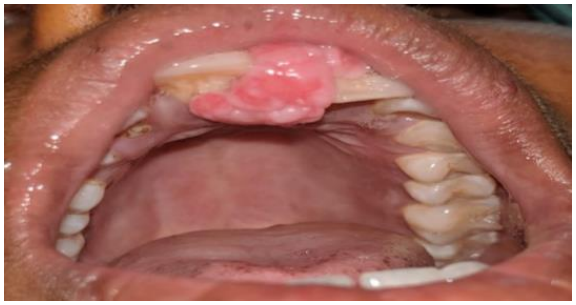

Figure 1: a) solitary gingival growth with 11 & 21.

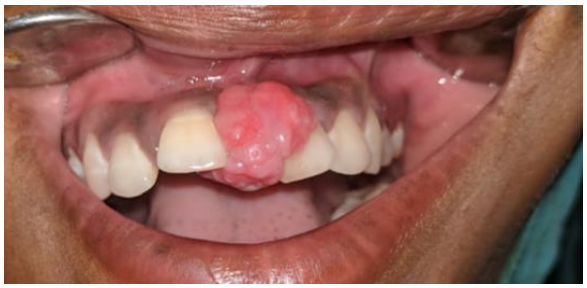

Figure 1:b) pathological migration of 11 & 21 due g

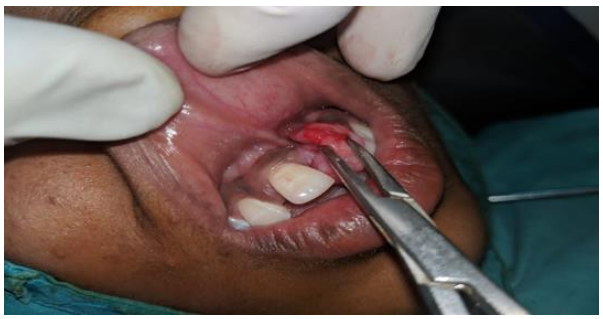

Figure 1:c) sessile base of the growth.

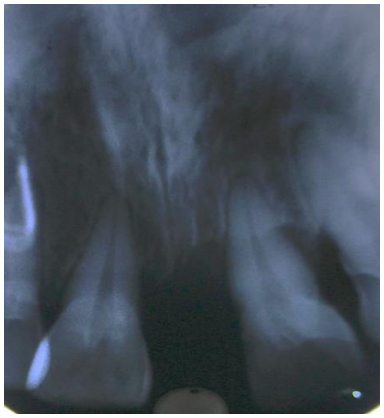

Figure 2 :IOPA with 11 & 21 showing crestal bone erosion and PDL space widening.

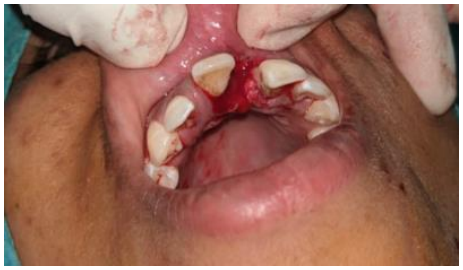

Figure 3:After excision of the gingival growth with 11 & 21.

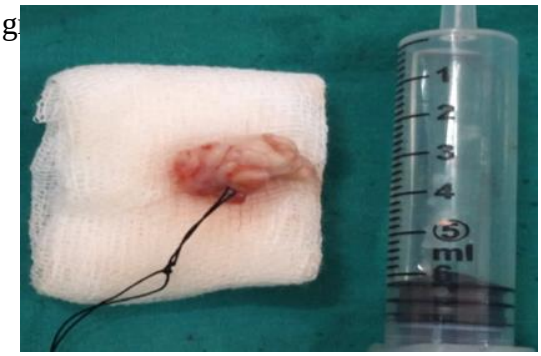

Figure 4:Excised tissue with 2.5 to 3cm in size.

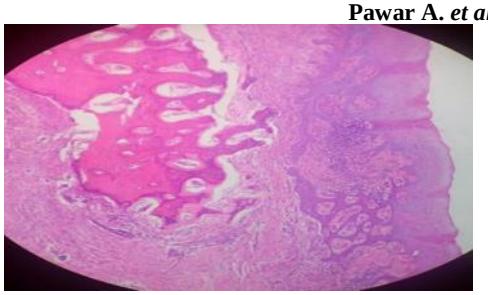

Figure 5:a) The specimen showed Para keratinized stratified squamous epithelium overlying the connective tissue stroma. Epithelium showed hyperplasia in some areas. Connective tissue stroma consisted of highly cellular mass of proliferating fibroblast intermingled with fibrillary tissue.

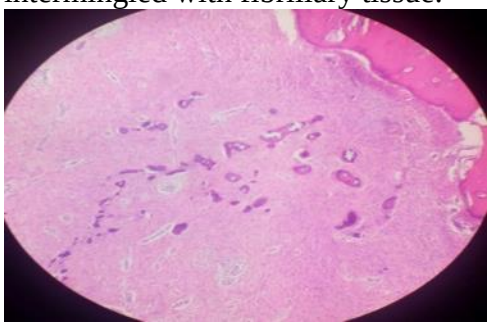

Figure 5 :b) Numerous plumps to spindle shaped fib These cells were also a irregular mineralization foci in the centre.

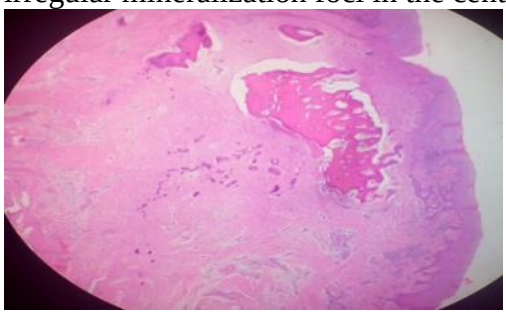

Figure 6: a)Few blood vessels with RBC and proliferating endothelial cells were also evident.

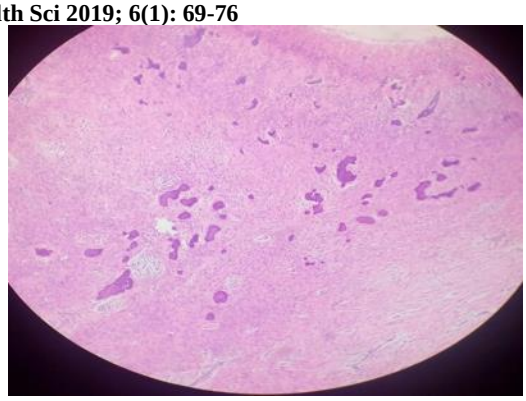

Figure 6 :b) Fibrous connective tissue also consisted of large and small trabeculae of bone and some dystrophic calcifications, chronic inflammatory cell infiltrate was seen evenly distributed in whole area and the cells comprised mainly of lymphocytes and plasma cells. The calcified area resembled cementum-like and bone-like ossifying areas.

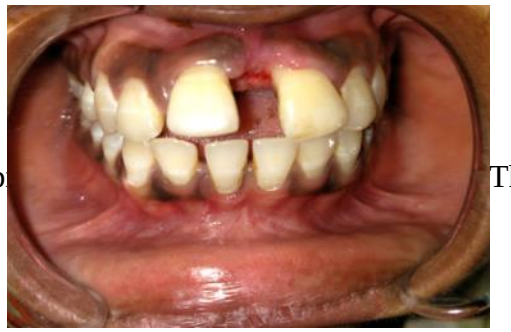

Figure 7: Follow up after 1 week.

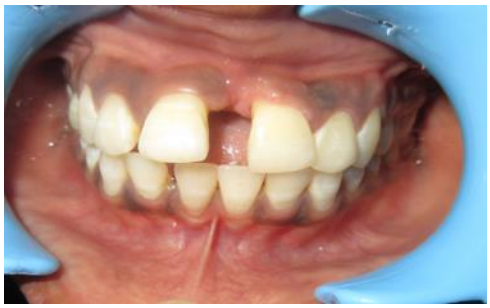

Figure 8:Follow up after 1 month.