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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/14644
DOI URL: http://dx.doi.org/10.21474/IJAR01/14644

Research Article

PERIPHERAL OSSIFYING FIBROMA - A CASE REPORT

Nomitha Prakash[1], Abha Karanjkar Mehta[2], Prathima Bommineni[3] and Partha Prathim Roy[4]

1. Assistant Professor, Sri Rajiv Gandhi College of Dental Sciences.
2. Assistant Professor, Bapuji Dental College and Hospital.
3. Assistant Professor, Krishnadevaraya College of Dental Sciences.
4. Associate Professor, Sri Rajiv Gandhi College of Dental Sciences.

Manuscript Info

Manuscript History
Received: 28 February 2022
Final Accepted: 31 March 2022
Published: April 2022

Key words:-
Peripheral Ossifying Fibroma, Oral Cavity, Gingival Growth, Histopathologic Differential Diagnosis

Abstract

Peripheral ossifying fibroma is a benign neoplasm that usually develops from gingiva, presenting as an exophytic smooth surfaced pink or red nodular mass that is sessile or is less frequently seen on a pedicle. From the Indian perspective, it is usually noticed in 5th–6th decades of life with female predilection. Microscopically, the tumour shows stratified squamous epithelium and highly cellular fibrous stroma, sparse endothelial proliferation with fibroblasts and dystrophic calcifications. It has to be differentiated histopathologically from pyogenic granuloma, fibroma, peripheral giant cell granuloma, peripheral odontogenic fibroma and fibrous hyperplasia. A case of peripheral ossifying fibroma of mandibular gingiva in a 70-year-old Indian woman is reported.

Introduction:-

Peripheral ossifying fibroma (POF) is a lesion of the gingival tissues[1-5] representing up to 2% of all oral lesions that are biopsied.[1] Other terms used in reference to POF are peripheral cementifying fibroma, peripheral fibroma with cementogenesis, peripheral fibroma with osteogenesis, peripheral fibroma with calcification, calcified or ossified fibrous epulis, and calcified fibroblastic granuloma.[3,6,7]

POF mainly affects women in the second decade of life[1,2,5,6] (50% of all patients being between 5-25 years of age). The lesions are most often found in the gingiva, located anterior to the molars[1,2] and in the maxilla.[8] Clinically, POF usually manifests as a well-defined andslow-growing gingival mass measuring under 2 cm in size and located in the interdental papillary region.[1,2,5-7,9] The base may be sessile or pedunculated, the color is identical to that of the gingiva or slightly reddish, and the surface may appearulcerated.[1,2,5-7]

The definitive diagnosis is based on histological examination,[5-7] with the identification ofcellular connective tissue and the focal presence of bone or other calcifications.[1,6,8]However, it has not been established whether POF is a tumor or represents proliferation of a reactive nature. Surgery is the treatment of choice, though the recurrence rate can reach 20%. POF shows a clinically benignbehaviour.[1,2,6,7]

Case Report

A 70 year old female patient reported to the Department of Periodontics with a complaint of a painless swelling in relation to her lower right front tooth region. The presence of swelling was unaware to the patient and was noticed

Corresponding Author:- Nomitha Prakash
Address:- Assistant Professor, Sri Rajiv Gandhi College Of Dental Sciences.

by her daughter a few days back. The patient did not give any history of trauma, injury or food impaction and there was no significant medical history.

An intra-oral examination revealed a generalised pink gingiva with a well demarcated, non tender, firm sessile nodular growth arising from the interdental papilla involving the marginal and attached gingiva and obliterating the vestibule of the mandibular central incisor till the second premolar buccally. The oval shaped mass was measuring 3.5×3cm in size, with a pale pink superior surface and a reddish pink inferior surface towards the vestibule, the surfacewas smooth with rounded edges.(figure 1).

Bleeding on probing was absent. Oral prophylaxis was done and oral hygiene instructions were given to the patient. Routine investigations were normal and intra oral and an occlusal radiograph revealed widening of the periodontal ligament space with thickening of the lamina dura.(figure 2) Clinically the differential diagnosis for the growth were pyogenic granuloma and peripheral giant cell granuloma, provisional diagnosis of pyogenic granuloma was made. On the next recall visit a punch biopsy was done and sent for histopathologicalexamination. After a week the lesion was completely excised and periodontal dressing was placed, post- operative instructions were given to the patient.(figure 3,4,5) Patient was recalled after aweek for removal of dressing and showed uneventful healing.

Histologically, the specimen showed parakeratinized stratified squamous epithelium and underlying connective tissue, which was composed of densely packed collagen fibers and fibroblasts. Deeper areas showed calcified cementum. Patchy distribution of chronic inflammatory cells were seen.(figure 6) Histologically the specimen was suggestive of peripheral ossifying fibroma. Based on clinical and histological finding the lesion was diagnosed as peripheral ossifying fibroma.

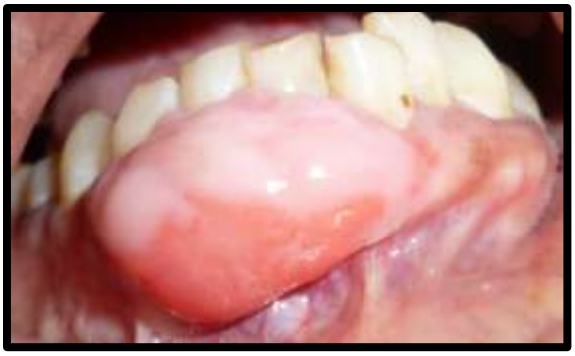

Figure 1: Pre- operative

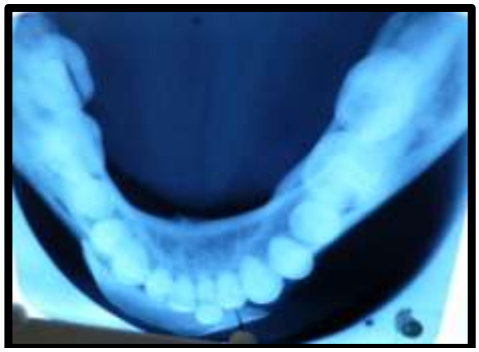

Figure 2: Occlusal radiograph

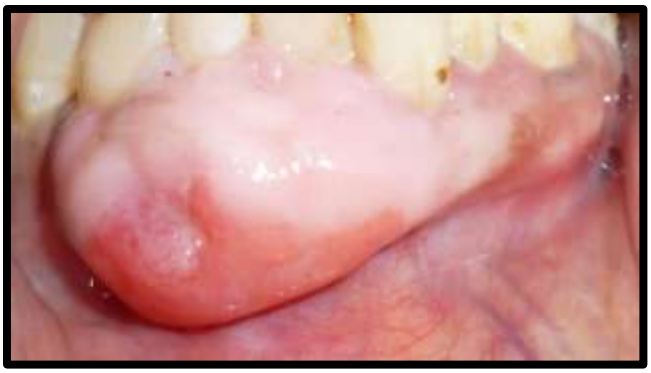

Figure 3: 1 week after punch biopsy

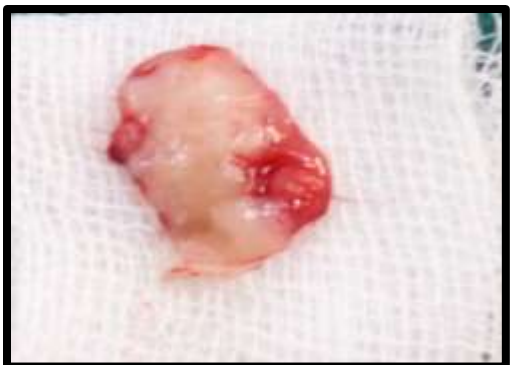

Figure 4: Excised tissue

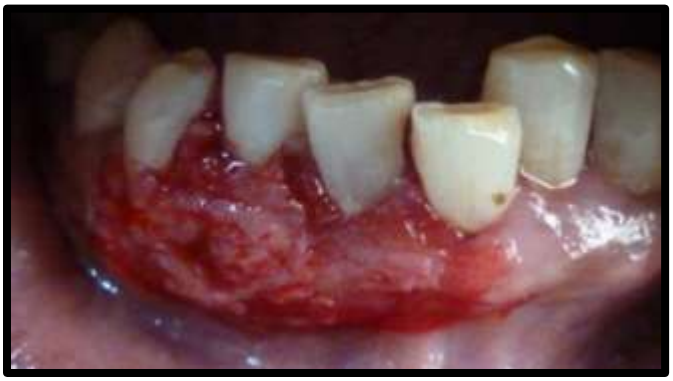

Figure 5: immediate post operative

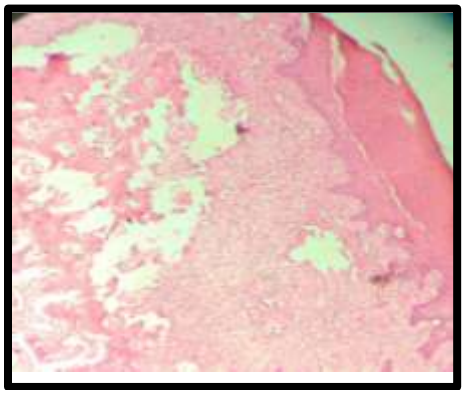

Figure 6: microscopic view

Discussion:-

In 1982, Gardner coined the term peripheral ossifying fibroma for a lesion that is reactive in nature and is not the extraosseous counterpart of a central ossifying fibroma (COF) of the maxilla and mandible.[10]

The use of a variety of terminologies for POF indicates a great amount of confusion regarding the lesion and its pathogenesis. Ossifying fibroid epulis, peripheral fibroma with calcification, peripheral cemento-ossifying fibroma, calcifying fibroma, peripheral cementifying fibroma, ossifying fibro-epithelial polyp, peripheral fibroma with osteogenesis, peripheral fibroma with cementogenesis, peripheral fibroma with calcification, calcifying or ossifying fibrous epulis and calcifying fibroblastic granuloma are all terms that have been used to refer to peripheral ossifying fibroma.[11]

There are two types of ossifying fibromas: the central type and the peripheral type. The central type arises from the endosteum or the periodontal ligament adjacent to the root apexand causes the expansion of the medullary cavity. The peripheral type occurs solely on the soft tissues covering the tooth-bearing areas of the jaws.[12] COF was found to exhibit increased proliferative activity compared toPOF.[13]

The term ‘peripheral odontogenic fibroma’ has also been used to describe peripheral ossifying fibroma but should be avoided, as peripheral odontogenic fibroma (POdF) has been designated by the WorldHealth Organization (WHO) as the rare and extraosseous counterpart of central odontogenic fibroma (COdF) and histologically presents as a fibroblastic neoplasm containing odontogenicepithelium.[14]

Regardless of the resemblance in terminology, POF is a completely separate entity from peripheral odontogenic fibroma and central ossifying fibroma. A polarizing microscopy study revealed that 73% of the 22 POF cases examined contained a fibrocellular connective tissue stroma surrounding the mineralized mass. The mineralized mass was comprised of woven bone in 50% of the cases, while 18% of the cases showed a combination of lamellar bone and cellular cementum, 18% of the cases comprised only cementum (cellular and acellular), and the remaining 13.6% exhibited a mixture of woven and lamellar bone. This evidence supports the theory that POF develops from the periodontal ligament/periosteum as undifferentiated mesenchymal cells with an inherent proliferative potential to form bone or cementum.[15]

There is much uncertainty about the pathogenesis of this lesion. An origin in the periodontal ligament has been suggested. The reasons for considering the periodontal ligament as the origin of POF include the exclusive occurrence of POF in the gingiva (interdental papilla), the proximity of the gingiva to the periodontal ligament, and the presence of oxytalan fibers within the mineralized matrix of some lesions.[11] The mature fibrous connective tissue proliferates excessively in response to gingival injury, gingival irritation, subgingival calculus or a foreign body in the gingival sulcus. Chronic irritation of the periosteal and periodontal membranes causes metaplasia of the connective tissue and initiates the formation of bone or dystrophic calcification. Thus, local irritants such as dental plaque, calculus, microorganisms, masticatory forces, ill-fitting dentures and poor quality restorations have been implicated in the etiology of POF.[16]In addition, factors such as ahigher prevalence in females and a peak occurrence in the second decade of life suggest hormonal influences.[14] The rare manifestation of multicentric occurrence points to a role ofgenetics in the pathogenesis of this disease.[11]

POF accounts for 3.1% of all oral tumors and 9.6% of gingival lesions.[14,17] This condition affects both genders but has been reported to occur at a higher rate in females.[14]Whites(71%) are more frequently affected than blacks (36%).[18] POF may occur at various ages, but exhibits a peak incidence between the second and thirddecade.[19]

Clinically, POF appears as a solitary nodular mass that is either pedunculated or sessile. The surface mucosal colour ranges from red to pink, and the surface is frequently ulcerated.

The mass usually arises from the interdental papilla. Lesions occur slightly more frequently in the maxillary arch (60%) and the incisor cuspid region (50%).[20]Multicentric POF has been reported very rarely.[11]POF lesions usually measure less than 1.5 cm in diameter, but lesions with 6 cm and 9 cm diameters have been reported.[19] POF can cause tooth separation, delayed tooth eruption or toothmigration.[21,22]

Radiographically, POF can appear as diffuse radiopaque calcification, but not all lesions exhibit these characteristics. Occasionally, these lesions are associated with bone destruction.[21]

POF is definitively diagnosed through a histopathological examination. The histopathological examination usually shows the following features: 1) benign fibrous connective tissue with varying fibroblast, myofibroblast and collagen content, 2) sparse to profuse endothelial proliferation, and 3) mineralized material that may represent mature, lamellar or woven osteoid, cementum-like material, or dystrophic calcifications. Acute or chronic inflammatory cell infiltration can also be observed in these lesions.[11] The treatment of choice is complete surgical excision with the removal of the irritating factors.

Due to the high rate of recurrence (8% to 20%), close postoperative monitoring is required in all cases of POF. POF recurs due to 1) the incomplete removal of the lesion, 2) the failure to eliminate local irritants and 3) difficulty in accessing the lesion during surgical manipulation as a result of the intricate location of the lesion (usually an interdental area).[15]

Conclusion:-

This report highlights the varied clinical and radiographic features of POF and discusses the contentious terminology used for this disease. Peripheral ossifying fibroma has a high rate of recurrence, making postoperative follow-up mandatory. It is also necessary to use consistent and specific nomenclature in the literature to avoid confusion and the loss of important data.

References:-

1. Batsakis JG (1999) Non-odontogenic tumors: clinical evaluation and pathology. In: Comprehensive management of head and neck tumors, 2nd ed, Thawley SE, PanjeWR, Batsakis JG, Lindberg RD eds, W. B. Saunders, Philadelphia,1641-1642.
2. Marx RE, Stern D (2003) Oral and maxillofacial pathology: a rationale for diagnosis and treatment. Quintessence, Chicago, 23-25.
3. Ono A, Tsukamoto G, Nagatsuka H, YoshihamaY, Rivera RS, Katsuramo M, Yao M, Sasaki A. An immunohistochemical evaluation of BMP-2, -4, osteopontin, osteocalcin and PCNA between ossifying fibromas of the jaws and peripheral cemento-ossifying fibromas on the gingiva. Oral Oncol 43, 339-344.
4. Carrera Grañó I, BeriniAytésL, Escoda CG. Peripheral ossifying fibroma. Report of a case and review of the literature. Med Oral 6, 135-141.
5. Passos M, Azevedo R, Janini ME, Maia LC. Peripheral cemento-ossifying fibroma in a child: a case report. J ClinPediatr Dent 32, 57-59.
6. Kumar SK, Ram S, Jorgensen MG, Shuler CF, SedghizadehPP. Multicentricperipheral ossifying fibroma. J Oral Sci 48, 239-243.
7. Moon WJ, Choi SY, Chung EC, Kwon KH, ChaeSW. Peripheral ossifying fibroma in the oral cavity: CT and MR findings. DentomaxillofacRadiol 36,180-182.
8. Zhang W, Chen Y, An Z, Geng N, Bao D. Reactive gingival lesions: a retrospective study of 2,439 cases. Quintessence Int 38,103-110.
9. Chen CM, Shen YS, Yang CF, ShiehTY, Chen CH, Huang IY. Artificial dermis graft on the mandible lacking periosteum after excision of an ossifying fibroma: a case report. Kaohsiung J Med Sci 23, 361-365.
10. Gardner DG. The peripheral odontogenic fibroma: an attempt at classification. Oral SurgOral Med Oral Pathol1982;54:40.
11. Kumar SK, Ram S, Jorgensen MG, Shuler CF, SedghizadehPP. Multicentricperipheral ossifying fibroma. J Oral Sci 2006;48:239-43.
12. KeluskarV, Byakodi R, Shah N. Peripheral ossifying fibroma. J Indian AcadOral Med Radiol 2008;20:54-6.
13. Sousa SC, Mesquita RA, Araujo NS. Proliferative Activity in peripheral ossifying fibroma and ossifying fibroma. J Oral Pathol Med 1998;27:64-7.
14. Kenney JN, Kaugars GE, Abbey LM. Comparison between the peripheral ossifying fibroma and peripheral odontogenic fibroma. J Oral MaxillofacSurg1989;47:378-82.
15. Shetty DC, Urs AB, AhujaP, Sahu A, Manchanda A, SirohiY. Mineralized components and their interpretation in the histogenesis of peripheral ossifying fibroma. Indian J Dent Res2011;22:56-61.
16. Miller CS, Henry RG, Damm DD. Proliferative mass found in the gingiva. J Am Dent Assoc 1990;121:559-60.
17. Walters JD, Will JK, Hatfield RD, Cacchillo DA, Raabe DA. Excision and repair of the peripheral ossifying fibroma: a report of 3 cases. J Periodontol 2001;72:939-44.
18. Cuisia ZES, Brannon RB. Peripheral ossifying fibroma – a clinical evaluation of 134 pediatric cases. Pediatr Dent2001;23:245-8.
19. Bodner L, Dayan D. Growth potential of peripheral ossifying fibroma. J ClinPeriodontol 1987;14:551-54.
20. NevilleBW,DammDD,AllenCM,BouquotJE.OralandMaxillofacialPathology. 2nd ed. Philadelphia:W.B. Saunders; 2005.p.451-2.
21. Delbem A, Cunha R, Silva J, Soubhia A. Peripheral cementoossifying fibroma in child. A follow-up of 4 years report of a case. Eur J Dent2008;2:134-7.
22. Mishra MB, Bhishen KB and Mishra S. Peripheral ossifying fibroma. J Oral MaxillofacPathol2011;15:65-8.