CASE REPORT

Localized Hyperplastic Gingival Lesions: A Case Report

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ABSTRACT

Aim: The aim of this article is to present a clinical and histopathological feature of epulis or localized hyperplastic gingival lesion and usefulness of the surgical excision in a treatment for this lesion.

Summary: Localized hyperplastic lesion of the gingiva or 'epulide', a well-recognized clinical entity used to designate all discrete tumors and tumor-like masses of gingiva. Pyogenic granuloma is a commonly occurring as localised inflammatory hyperplasia of the skin and oral mucosa. It is not associated with pus as its name suggests and histologically it resembles an angiomatous lesion rather than agranulomatous lesion. It is known by a variety of names such as Crocker and Hartzell's disease, granuloma pyogenicum, granuloma pediculatum benignum, benign vascular tumor and during pregnancy as granuloma gravidarum. This tumor like growth is considered to be non neoplastic in nature and it presents itself in the oral cavity in various clinical and histological forms. This article presents a case report of a two pyogenic granuloma of the gingiva and its management.

Keywords: Epulis, pyogenic granuloma, giant cell hyperplasia, granuloma gravidarum, pregnancy tumor

INTRODUCTION

Pyogenic granuloma (PG) is one of the inflammatory hyperplasias, seen in the oral cavity as a tissue response to irritation, trauma or hormonal imbalances. It is a common benign growth seen in the skin and oral cavity. The first case was reported in 1844 by Hullihen and the term 'pyogenic granuloma' or 'granuloma pyogenicum' was coined in 1904 by Hartzell.[1]

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Localized hyperplastic lesion of the gingiva or 'epulide', a well-recognized clinical entity used to designate all discrete tumors and tumor-like masses of gingiva. It is derived from a Greek word 'epi' and 'elon', which means 'on the gingiva'. According to the histopathological classification,[2] epulis are divided into three large groups: granulomatous hyperplasia: epulis in pregnancy, pyogenic granuloma, angiomatous epulis, telangiectatic epulis, capillary hemangioma, hemangioma cavernosum; fibrous hyperplasia: fibrous epulis, fissured epulis, fibroepithelial lesions, primary odontogenic fibroma; and giant cell hyperplasia.[2]

The etiology of epulis is multifactorial: irritative factors (chronic gingivitis, periodontal disease, defective dental fillings, poorly fitting dentures, poor oral hygiene, tobacco smoking), blood dyscrasias (anaemias, haemostatic alterations) and hormonal influences (during pregnancy, due to an increase in estrogen and progesterone levels). The treatment aim is to remove the aetiologic factors and the surgical excision of the lesion.[3] The aim of this article is to present a clinical and histopathological feature of epulis and usefulness of the surgical excision in a treatment for this lesion.

CLINICAL REPORTS

Case 1: A 38 year female patient came to the Department of Periodontology, with chief complain of localized swelling in lower right front gums since 6 month (Fig. 1). The swelling is painless, and has gradually grown to its present size. There was no history of associated pain with the swelling. Patient reported history of bleeding from the gums in the area during tooth brushing. Intraoral examination revealed reddish-pink, well defined, firm, non-fluctuant swelling of 1.2 x 0.9 cm and extending from labially with a sessile base in relation to 41to 43 (Fig. 1). Grade I mobility was present in tooth 41 and 42. Clinical attachment loss of 2-5 mm was detected in 41 to 43. The other gingival and periodontal status of all teeth was good. Routine blood tests were within normal limits. Clinical diagnosis of localized periodontitis with generalized marginal gingivitis with epulis in relation to 41 and 43 was made.

Figure 1: Preoperative localized swelling

Excisional biopsy was done along with open flap debridement as the patient was suffering from localized periodontitis (Fig. 2 and 4). The growth was removed with an external bevel incision and root surface was scaled and planed thoroughly (Fig. 3). Periodontal pack and sutures was placed and the patient was recalled after 7 days for pack and suture removal. (Fig. 5).

Figure 2: Excision of the soft tissue lump

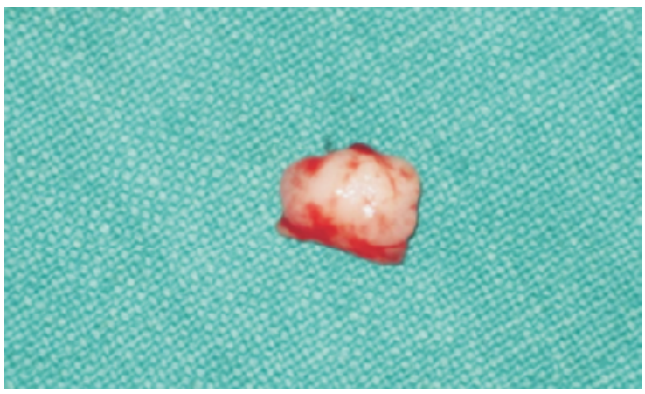

Figure 3: Tissue after excision

Figure 4: After epulis removal

Figure 5: After suture placement

Microscopically the lesion shows parakeratinized stratified squamous epithelium showing focal area of endothelial hyperplasia. The underlying connective tissue is moderate to densely collagenous with patchy chronic inflammatory infiltrate along with focal areas of endothelial cell proliferation, budding capillaries and a dense mixed inflammatory infiltrate predominantly composed of lymphocytes, plasma cells and neutrophills. The overall features were suggestive of pyogenic granuloma undergoing fibrous healing (Fig. 6). At follow up, after 1 month the wound healed satisfactorily (Fig. 7).

Case 2: A 43 year male patient came to the department of Periodontology, with localized swelling in left upper back gums since 7-8 months, increased since its onset and had slowly grown to present size. On examination swelling was approximately 1 x 0.6 cm in size, was found to be sessile, lobulated, sharply demarcated but otherwise of the same color as the surrounding mucosa (Fig. 8). Routine blood tests were within normal limits. Clinical diagnosis of generalized marginal gingivitis with gingival epulis in relation to 26 and

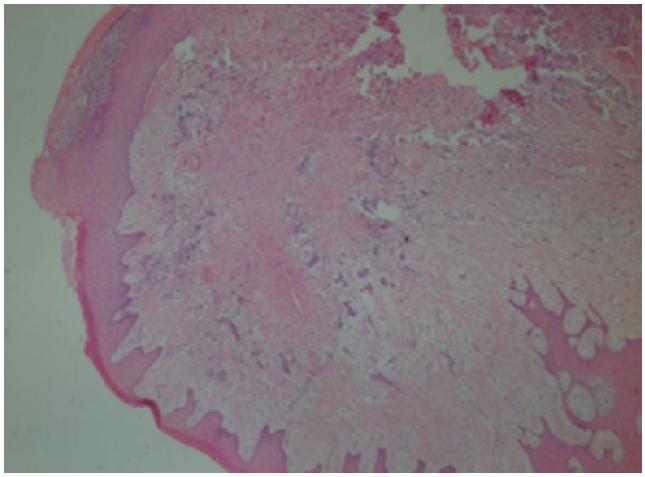

Figure 6: Photomicrograph suggestive of pyogenic granuloma

Figure 7: Postoperative 1 month

Figure 8: Preoperative

27 was made. The treatment plan was outlined as follows: complete removal of the lesion by means of surgical blade with external bevel incision (Fig. 9). The treatment plan was fully explained to the patients and relatives and all

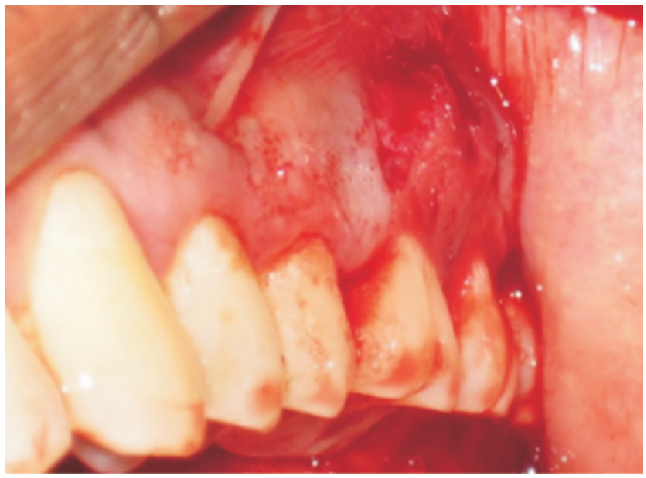

Figure 9: After excision

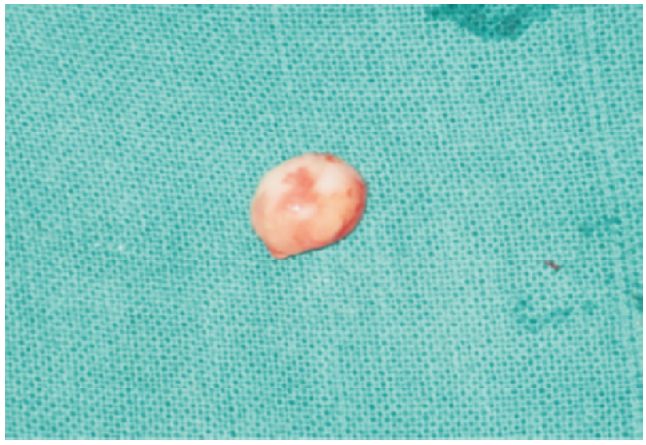

Figure 10: Excised tissue

associated risk was outlined, a written consent form was signed by the patient in the presence of witness.

Soft tissue anesthesia was induced with infiltration. The surgical excision of the lesion was carried out using 11 no. surgical blade. After the excision Coe-pak was applied and patient was recalled after 7 days. Postsurgical instruction to the patient was given. Postsurgical medication including chlorhexidine mouthwash was prescribed. Microscopically the lesion shows a connective tissue mass covered by an ulcerated parakeratinized stratified squamous epithelium exhibiting areas of atrophy as well as hyperplasia, exocytosis, vesicular nuclei with prominent nucleoli, and increased mitosis. The underlying connective tissue is loose and edematous showing fibroblastic and endothelial proliferation, budding capillaries, and a dense mixed inflammatory infiltrate predominantly composed of plasma cells, lymphocytes and scattered neutrophills. The ulcerated surface is covered by fibrino-purulant membrane needs. The overall features were suggestive of pyogenic granuloma (Fig. 11). After 4 weeks of follow-up, clinical appearance of normal gingiva was present at the site of the lesion (Fig. 12).

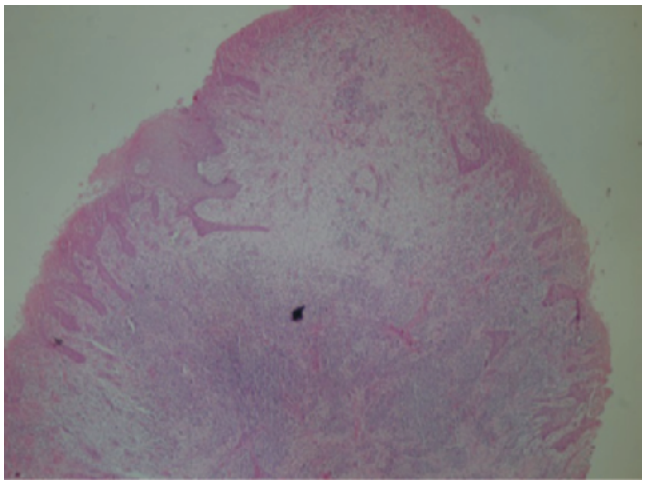

Figure 11: Photomicrograph suggestive of pyogenic granuloma

Figure 12: One month postoperative healing

DISCUSSION

Pyogenic Granuloma is an inflammatory hyperplasia affecting the oral tissues. Almost 75% of the cases are possibly caused by the presence of calculus and foreign material in the gingival crevice. It may be found on the lips, gingival mucosa, tongue and hard palate. They are more commonly seen on the anterior attached gingiva of the maxilla, more on the labial than the lingual gingiva. Pyogenic Granuloma's are limited to the gingiva and rarely involve the alveolar bone.[1] Regezi *et al*.,[4] suggested that pyogenic granuloma is caused by a known stimulant or injury such as calculus or foreign material within the gingival crevice resulting in exuberant proliferation of connective tissue. Ainamo[5] suggested that routine tooth brushing habits cause repeated trauma to the gingiva resulting in irritation and formation of these lesions. Release of variety of endogenous substances and angiogenic factors caused disturbances in the vascularity of the affected area.

A possible hormonal (Estrogen and progesterone) influence for some Peripheral Giant Cell Granuloma has been postulated,[6,7] whereas in others these hormones have immunosuppressive actions which contribute to growth of lesions.[6] In the present Case-1, this could also be one of the reasons, as the patient was female. Peripheral Giant Cell Granuloma shows a wide age distribution. Cooke[8] quoting Darlington's study and others showed that majority of cases are between 4 - 6 decades. Brown, Darlington and Kupfer[9] showed 37% of lesions in range of 31 - 45 years of age, whereas Anderson stated that it was found in younger patients. The present case-1 was 38 year old female patient. Hosseini*et al*.,[10] observed that gingival enlargements increased in pregnancy and atrophied in menopause. Yuan *et al*.,[11] concluded that the morphogenetic factors were higher in pyogenic granuloma rather than normal gingiva supporting the mechanism of angiogenesis in oral pyogenic granulomas in pregnant females. Due to its frequent occurrence in pregnant females pyogenic granuloma is also called as granuloma gravidarum or pregnancy tumor.[12] Hormonal changes and reaction of plaque bacteria are responsible for pregnancy gingivitis in some pregnant female patients.[13] Jafarzadeh*et al*.,[14] has reviewed the correlation of oral pyogenic granuloma, pregnancy and the role of oral hormonal contraceptives in detail. However, the effects of female hormones on oral pyogenic granulomas were questioned by Bhaskar and Jacoway[15] since they found lesions both in males and females with no specific sex predilection.

Bhasker*et al*.,[16] and Daley *et al*.[17] have shown male predilection whereas several authors have noted a female predilection. Cases which are mentioned here were female and male patients. The histopathology reveals large number of multinucleated giant cells in vascularized fibrocellular stroma. In some cases the giant cells may be found in lumen of Capillaries. Hemorrhage, hemosiderin pigment, inflammatory cells and newly formed bone or mature calcified material throughout the cellular stroma can be seen. Lesion may be covered by stratified squamous epithelium and ulcerated in some cases. In both cases the histopathological findings were corresponding to the above description.[18]

Pyogenic Granuloma is a benign lesion; therefore, a surgical excision is the treatment of choice. The other conventional surgical modality which has been reported for the treatment of Pyogenic Granuloma is cryosurgery in the form of either a liquid nitrogen spray or a cryoprobe, which has been used for the eradication of the lesion. It is a safe, easy, and an inexpensive technique which is suited for an out patients clinic setting. Elctrocautery can also be used to removing pyogenic granuloma. Electrocautery permits an adequate contouring of the tissue and controls hemorrhage. Less pressure required to incise tissue, thus allowing a more

precise incision than is obtained by scalpel. Disadvantage of using electrocautery that it causes an unpleasant odour, irreparable damage can occur when electrosurgery point touches to the bone and when electrode touches the root; areas of cementum burns are produced. Nd: YAG and CO2, and flash lamp pulsed dye lasers have also been used for the treatment of Pyogenic Granuloma. Lasers have proved to be a successful option for the excision of Pyogenic Granuloma, with the advantages of minimal pain and invasiveness and the lack of a need of suturing or packing. Other treatment modalities such as use of sodium tetradecyl sulfate sclerotherapy[19] and use of intra lesional steroid[20] have been used by various clinicians. There is a relatively high rate of recurrence (about 16%) after a simple excision. Recurrences after surgeries of the extragingival pyogenic granuloma are however uncommon.[21]

CONCLUSION

Although the etiology was not exactly determined, unfavourable oral hygiene and hormonal changes seemed to be predisposing factors in above cases. Since the etiology to cause epulis are multifactorial , it is not easy to determine the exact cause favouring the development of lesion. Clinically it is difficult to diagnose the lesion differentially with other closely resembling lesions like peripheral ossifying fibroma and fibroma. Hence a histopathological examination of the tissue specimen is mandatory for confirming the diagnosis. Treatment may be delayed due to painless nature, as nerves do not proliferate within the reactive hyperplastic tissue, contributing to its unhindered growth. Complete surgical excision along with its base and elimination of irritating factors seems satisfactory to prevent further recurrence.

REFERENCE

1. Mubeen K, Vijayalakshmi KR, Abhishek RP. Oral pyogenic granuloma with mandible involvement: an unusual presentation. J Dent Oral Hyg 2011; 3: 6–9.
2. Anneroth G, Sigurdson A. Hyperplastic lesions of the gingiva and alveolar mucosa. A study of 175 cases. Acta Odontol Scand 1983; 41: 75-86.
3. Tamarit-Borràs M, Delgado-Molina E, Berini-Aytés L, Gay-Escoda C. Removal of hyperplastic lesions of the oral cavity. A retrospective study of 128 cases. Med Oral Patol Oral Cir Bucal 2005; 10: 151-62.
4. Regezi JA, Sciubba JJ, Jordan RC. Oral Pathology: Clinical Pathological Considerations. 4th ed. Philadelphia: WB Saunders; 2003; 115−6.
5. Ainamo J. The effect of habitual tooth cleansing on the occurrence of periodontal disease and dental caries. Suom Hammaslaak Toim 1971; 67: 63−70.
6. Whitaker SR, Bouquot JE. Identification of estrogen and progesterone receptors in peripheral giant cell lesions of the Jaws. J Periodontol 1994; 65: 280-3.
7. Giansanti JS, Waldron CA. Peripheral Giant Cell Granuloma: Review of 720 cases. J Oral Surg 1969; 27: 787-91.
8. Cooke BED. The fibrous epulis and the fibroepithelial polyp: Their histogenesis and natural history. Br Dent J 1952; 93: 305- 9.
9. Brown GN, Darlington CG, Kupfer SR. A clinico-pathologic study of alveolar border epulis with special emphasis on benign giant cell tumor. Oral Surg 1956; 9: 765-75, 888-901.
10. Hosseini FH, Tirgari F, Shaigan S. Immunohistochemical analysis of estrogen and progesterone receptor expression in gingival lesions. Iran J Public Health 2006; 35: 38−41.
11. Yuan K, Jin YT, Lin MT. Expression of Tie−2, angiopoietin−1, angiopoietin−2, ephrinB2 and EphB4 in pyogenic granuloma of human gingiva implicates their roles in inflammatory angiogenesis. J Periodontal Res 2000; 35: 165−71.
12. Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and Maxillofacial Surgery. 2nd ed. Philadelphia: Saunders; 2002. p. 447−9.
13. Sooriyamoorthy M, Gower DB. Hormonal influences on gingival tissue: Relationship to periodontal disease. J Clin Periodontol 1989; 16: 201−8.
14. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: A review. J Oral Sci 2006; 48: 167−75.
15. Bhaskar SN, Jacoway JR. Pyogenic granuloma – Clinical features, incidence, histology, and result of treatment: Report of 242 cases. J Oral Surg 1966; 24: 391−8.
16. Bhasker SN, Duane E, Beasley JD, Perez B. Giant cell reparative granuloma (Peripheral): Report of 50 cases. J Oral Surg 1971; 29: 110-5.
17. Daley TD, Wysocki GP, Wysocki PD, Wysocki DM. The major epulides: Clinocopathological correlations. J Can Dent Assoc 1990; 56: 627-30.
18. Neville BW, Damm DD, Allen CM, Bouquott JE. Oral and Maxillofacial Pathology, 1st ed, Philadelphia: WB Saunders Company, 1995.
19. Jafarzadeh H, Sanatkhani M, Mohtasham N. Oral pyogenic granuloma: A review. J Oral Sci 2006; 48: 167−75.
20. Parisi E, Glick PH, Glick M. Recurrent intraoral pyogenic granuloma with satellitosis treated with corticosteroids. Oral Dis 2006; 12: 70−2.
21. Gordon-Nunez MA, De Vasconcelos CM, Benevenuto TG, Lopes MF, Silva LM, Galvao HC. Oral pyogenic granuloma: a retrospective analysis of 293 cases in a Brazilian population. J Oral Maxillofac Surg 2010; 68: 2185-8.