Scholars Journal of Dental Sciences
Abbreviated Key Title: Sch J Dent Sci
ISSN 2394-4951 (Print) | ISSN 2394-496X (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Pyogenic Granuloma- A Case Report

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DOI: 10.36347/sjds.2021.v08i10.001 | **Received:** 06.10.2021 | **Accepted:** 10.11.2021 | **Published:** 14.11.2021

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Abstract **Case Report**

Pyogenic granulomas (PG) (also known as a "Pregnancy tumours") is primarily a disease which appears in the mouth as an overgrowth of tissue due to chronic irritation such as trauma, microorganisms, plaque, calculus or hormonal factors etc,. The condition is frequently associated with periodontal pain and in some cases interfering with mastication and creating esthetical problems. It is often seen in young adults, and gingiva is most common site. Here we present a case of pyogenic granuloma with management. This work reviews the clinical and histological characteristics and therapeutic modalities of pyogenic granuloma of the gingiva.

Keywords: Pyogenic Granuloma, Gingiva, Trauma, Benign Lesion, Therapeutic Modalities.

INTRODUCTION

Pyogenic granuloma (PG) is a hyperactive benign inflammatory lesion that occurs mostly on the mucosa of females with high levels of steroid hormones. It is generally believed that female sex hormones play important roles in its pathogenesis [1, 2]. It is a benign, non-neoplastic growth of the oral cavity and skin, frequently located surrounding the anterior teeth [3, 4]. Approximately one-third of the lesions occur due to trauma, and poor oral hygiene may also be one of the precipitating factors, hormonal factors and certain kinds of drugs are also accused of growth of PG [5-8].

Synonyms of PG are eruptive haemangioma, tissue-granuloma gravidarum, lobular capillary haemangioma, pregnancy tumour [9]. The term "pyogenic granuloma" is a misnomer because the lesion does not contain pus and is not strictly speaking granulomas [1, 3, 5, 7]. However it was thought to be a horse-borne mycotic infection, it is caused by inflammatory changes in benign oral tumours [10]. It often presents as a painless, soft, pedunculated, or sessile mass of gingiva. This pathology can be found at any age but is more common in the second and third decades of life. It is encountered more frequently (3/2) in females than in males [11].

CASE REPORT

A 26-year-old female patient reported to a private dental clinic with the chief complaint of growth in the oral cavity on the lower left back tooth region. She noticed the growth 5months back which started as small size and gradually increased to reach the present size as shown in figure 1. The patient had mild discomfort due to its increased size, especially during mastication and brushing. The medical and family history was non-contributory and the patient was not pregnant. On extra-oral examination, there was no significant asymmetry elicited. The intraoral examination revealed a single exophytic lesion measuring approximately 2 X 1 cm in size which was attached to the marginal gingiva extending between the right mandibular second premolar and first molar. The lesion was reddish in colour, oval in shape, pedunculated with a smooth surface, and bleeding on probing was elicited. There was no noticeable mobility of the mandibular second premolar, and these findings were confirmed by palpation of the lesion. Correlating the history and intra-oral findings, a provisional diagnosis of PG was made. Intraoral periapical radiograph of left 2nd premolar and 1st molar revealed no significant bone loss as shown in figure 2. Differential diagnosis of irritational fibroma was given and planned for excision biopsy. The patient was subjected to routine hematological investigations which were normal. Under sterile aseptic conditions excision

was done under 2%local anesthesia with 1:80,000 adrenaline, followed by scaling and curettage of the involved teeth and adjacent teeth was performed. 3-0 black braided silk sutures were used to achieve hemostasis. The patient was recalled after seven days and as healing was satisfactory, removal of sutures was done. The specimen was sent for histological examination for final diagnosis as shown in figure 3.

DISCUSSION

PG is a result of the reactive or reparative tumour process as it represents an exuberant connective tissue proliferation to known stimuli. An injury like calculus or foreign bodies, injury to the primary tooth, hormones, drugs, gingival inflammation, pre-existing vascular lesions, irritation due to exfoliation of primary tooth and eruption of the permanent tooth, defective fillings, food impaction, periodontitis, toothbrush trauma, etc. As a result of minor trauma to the tissues, there is a pathway for invasion of Staphylococci or Streptococci microorganisms which produces colonies with fungus-like characteristics [5, 12]. It is also seen that during pregnancy, large intraoral PGs may develop [13].

Murata *et al*. 1997 stated that key to wound healing is formation of granulation tissue, which is formed as a result of migration of inflammatory cells, proliferation of vascular endothelial cells and fibroblasts, and synthesis of extracellular matrix. Such wound healing is controlled by Cytokines and all this lead to angiogenesis [14]. Due to presence of numerous blood vessels Pg is also known as granuloma telangiectacticum [15].

PG occurs in all age groups with no clear predominance appears as small or large, smooth or lobulated, reddish exophytic vascular nodules that can grow rapidly. Larger lesions become lobulated and sometimes develop into mushroom-like, pediculated tumours and have a tendency to bleed profusely.

PG commonly mimics other lesions like irritational fibroma. It can also mimc Kaposi sarcoma, so-called “Kaposi-like PG [16]”. Other malignancies that can mimic PG are peripheral Giant Cell granulomas, malignant lymphomas, basal cell carcinoma, or malignant melanoma [17-19].

Bhaskar and Jacoway have reported a recurrence rate of 15.8% after conservative excision [1]. Vilmann *et al*., observed that gingival cases show a much higher recurrence rate than lesions from other oral mucosal sites. PG lacks infiltrative or malignant potential.[4] Sapp et al. stated that oral PG has a relatively high rate of recurrence after simple excision. If the patient is pregnant, recurrence is commonly expected. Recurrence after surgery in extra gingival sites is uncommon [20].

Histological findings

The Histopathological examination revealed Stratified squamous epithelium with underlying connective tissue stroma. The epithelium is hyperplastic with elongated rete ridges. The underlying connective tissue stroma shows numerous endothelial lined blood capillaries inter-spread with chronic inflammatory cell infiltrates chiefly lymphocytes, neutrophils, and plasma cells. In 4X there was an appearance of stratified squamous epithelium with underlying fibrovascular connective tissue. In 10X there was the appearance of hyperplastic stratified squamous epithelium with elongated rete ridges. The connective tissue stroma showed numerous blood capillaries inter-spread with inflammatory cell infiltrates. In 40X there was an appearance of stratified squamous epithelium with underlying connective tissues showing numerous endothelium-lined blood capillaries interspersed with collagen fibers, lymphocytes, and plasma cells as shown in Figure 4.

PG may be lined by parakeratotic or non-keratinized stratified squamous epithelium. The bulk of the lesion is may be formed by a lobulated or a non-lobulated mass of angiomatous tissue. Usually, lobulated lesions are composed of proliferated endothelial cells or capillary-sized blood vessels and in the connective tissue there is sparse distribution of collagen fibers. The surface can be ulcerated and in such ulcerated lesions, edema was a prominent feature and the lesion is infiltrated by plasma cells, lymphocytes, and neutrophils.[1] Thus, correlating clinical and histological findings a final diagnosis of pyogenic granuloma was given.

Treatment options

Treatment includes surgical excision of the lesion with the removal of irritants, recommended for small painless lesions. Excision of gingival lesions up to periosteum with thorough scaling and root planning of adjacent teeth to remove all visible sources of irritation [21]. Various other treatment modalities include Nd: Yttrium-aluminum-garnet lasers, carbon dioxide lasers, flash lamp, pulse dye laser, cryosurgery, sodium tetradecyl sulphate sclerotherapy, and use of intralesional steroids have been proposed by clinicians. Treatment of oral PG during pregnancy would depend on preventive measures such as careful oral hygiene, removal of dental plaque, and use of a soft toothbrush. In some cases, shrinkage of the lesion after pregnancy may make surgical treatment unnecessary [22].

Conclusion

Pyogenic granuloma is a commonly occurring reactive lesion of the oral cavity and is non-neoplastic. The presence of histopathological variation is related to its chronological phase. Knowledge of the same is essential for understanding the lesions. Also, the clinical correlation should be done for accurate diagnosis.

Legends

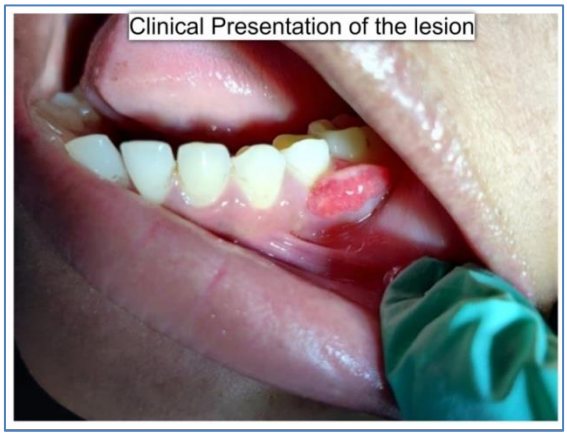

Fig-1: Intraoral swelling

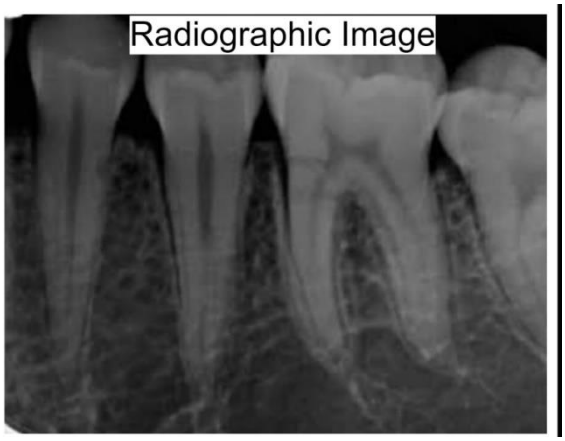

Fig-2: Intraoral periapical radiograph

Fig-3: Excision of the lesion

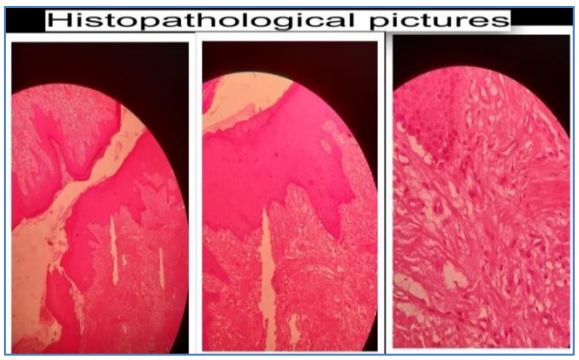

Fig-4: Histopathological picture of the lesion

Patient consent

Informed and written consent taken

ACKNOWLEDGMENT

We would like acknowledge Dr. Vijayalaxmi and Dr. srikanth for their general support.

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