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Pyogenic Granuloma- A Case Report

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Case Report

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ABSTRACT

Pyogenic Granuloma (also known as “Granuloma gravidarum” and “Pregnancy tumor”) is a primarily oral disease which appears in the mouth as an overgrowth of tissue due to irritation, physical trauma or hormonal factors. Clinically these lesions usually present as single nodule or sessile papule with smooth or lobulated surface. These may be seen in any size from a few millimeters to several centimeters. It predominantly occurs in the second decade of life in young females, possibly because of the vascular effects of female hormones. Because of the high frequency of pyogenic granuloma in the oral cavity, this case report presents a case of pyogenic granuloma in pregnant female, discussing its clinical and histopathological features that distinguish this lesion from other similar oral mucosal lesions and also successful management of the lesion.

INTRODUCTION

Pyogenic granuloma is a relatively common, soft tissue tumor of oral cavity that is non-neoplastic in nature. The name pyogenic granuloma is a misnomer since the condition is not associated with pus and does not represent a granuloma histologically [1]. The term “inflammatory hyperplasia” is used to describe a large range of nodular growths of the oral mucosa that histologically represent inflamed fibrous and granulation tissue [2]. It includes fibrous inflammatory hyperplasia (clinical fibroma, epulis fissuratum, and pulp polyp), palatal papillary hyperplasia, giant cell granuloma, pregnancy epulis and pyogenic granuloma [3]. Hullihen’s description in 1844 was most likely the first PG reported in English literature, but the term “pyogenic granuloma” or “granuloma pyogenicum” was introduced by Hartzell in 1904 [4,5]. The pyogenic granuloma is thought to represent an exuberant tissue response to local irritation, physical trauma or hormonal factors [6]. Clinically these lesions usually present as single nodule or sessile papule with smooth or lobulated surface [7]. Pyogenic granuloma (PG) may occur in all age groups, though it is predominantly seen in young females in the second decade of life because of the hormonal changes in this period [8]. The increased incidence of these lesions during pregnancy may be related to the increasing levels of oestrogen and progesterone [4]. This article reports the case of a 25 years old female patient with pyogenic granuloma which was surgically managed.

CASE REPORT

A 25 years old female patient was referred to the Department of Periodontics, Yamunanagar with the chief complaint of a swelling in gums in relation to lower front region since 7 months. The swelling was of pinpoint size when the patient first noticed it (7 months ago), but had gradually enlarged to attain the present size of around 1.5 cm in relation to 41 and 42 (**Figure 1**). Patient noticed that this swelling started during her first trimester of pregnancy but did not regress after the parturition. The swelling was firm in consistency and non-tender, with bleeding on probing. The growth covered approximately 2/3rd of the crown (**Figure 1**). The oral hygiene status was fair and width of attached gingiva was adequate. Blood examination revealed normal values.



Figure 1. Pre-operative view showing the size of pyogenic granuloma.

The patient's medical history was non-significant. Dental history revealed that patient had similar swelling thrice before. First time it occurred 10 years back and patient got it excised. Then again it occurred after 7 years and was again excised. Following this, during her first pregnancy around 3 years back, patient noticed same swelling which was excised in our department only (**Figure 2**). There was no relapse for 3 years and now it reoccurred during her second pregnancy.

Due to the relatively small size of the lesion, after obtaining informed consent, excisional biopsy was done with blade, along with histopathologic evaluation was recommended as the diagnostic approach (**Figure 3**).

Radiographic findings were normal which distinguished it from peripheral giant cell granuloma in which there is an underlying alveolar bone loss.



Figure 2. Picture showing excised tissue which was later on sent for biopsy.



Figure 3. Immediate post-operative picture.

HISTOPATHOLOGY

The studied H and E stained tissue section showed parakeratinized stratified squamous epithelium associated with fibrovascular connective tissue. The overlying epithelium is of varble thickness and detached at intervals. The underlying connective tissue exhibits numerous endothelial cell lined blood capillaries with dense mixed inflammatory cells chiefly of lymphocytes, plasma cells and neutrophils (**Figure 4**).

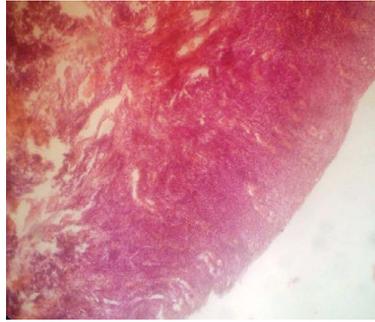


Figure 4. Histological view.

DISCUSSION

In the oral cavity pyogenic granulomas show a striking predilection for the gingiva, with interdental papillae being the most common site in 70% of the cases^[9]. They are more common in the maxillary anterior area than any other area in the mouth. Gingival irritation and inflammation that result from poor oral hygiene, dental plaque and calculus or over-hanging restorations as well as hormonal changes may be precipitating factors in many cases^[3,9]. Cawson et al. in dermatologic literature have described it as “granuloma telangiectacticum” due to the presence of numerous blood vessels seen in histological sections. They described two forms of pyogenic granulomas, the lobular capillary hemangioma (LCH) and the non-lobular capillary hemangioma (non-LCH)^[10]. Pyogenic granuloma of the gingiva develops in upto 5% of pregnancies, hence the terms “pregnancy tumor” or “granuloma gravidarium” are often used^[3]. In the present case, swelling occurred during the puberty and pregnancies which related that this reoccurrence of the swelling could be due to hormonal imbalance especially during pregnancy. Recent studies have revealed that sex hormones manifest a variety of biological and immunological effects^[11]. Oestrogen enhances Vascular Endothelial Growth Factor (VEGF) production in macrophages, an effect that is antagonized by androgens and which may be related to the development of PG during pregnancy^[11]. During pregnancy, PG when treated by surgical excision may reappear due to incomplete excision or inadequate oral hygiene^[10]. Harri et al. suggested that progesterone functions as an immunosuppressant in the gingival tissues of pregnant women, preventing a rapid acute inflammatory reaction against plaque, but allowing an increased chronic tissue reaction, resulting clinically in an exaggerated appearance of inflammation^[12].

Although pyogenic granuloma can be diagnosed clinically with considerable accuracy, radiographic and histopathological investigations, aid in confirming the diagnosis and treatment. Radiographs are advised to rule out bony destruction suggestive of malignancy or to identify a foreign body. Radiographic findings are absent in pyogenic granuloma^[13].

All clinically suspected pyogenic granulomas must be biopsied to rule out more serious conditions. Treatment of pyogenic granuloma consists of conservative surgical excision which is usually curative. There is a relatively high rate of recurrence (about 15%) after simple excision⁹. The recurrence rate is higher for pyogenic granulomas removed during pregnancy.

CONCLUSION

A pyogenic granuloma is an exuberant growth of granulation tissue secondary to irritation, trauma or hormonal factors. Intra-orally, it can present with a wide array of clinical appearances, ranging from a sessile lesion to an elevated mass. They are usually more common in females, and often found on the keratinized tissue. Hence, pyogenic granuloma should always be kept in mind as a differential for reddish lesions affecting oral cavity. In the present case, the growth did not regress after delivery. The growth was excised and sent for biopsy. Both the clinical and histopathological findings showed it to be a case of pyogenic granuloma. The case was followed up for three years and growth did not recur. Treatment considerations during pregnancy are very important. During this period, careful oral hygiene, removal of dental plaque, and use of soft toothbrushes are important to avoid occurrence and reoccurrence of a pregnancy tumor.

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