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Pyogenic Granuloma Related to Trauma- A Brief Case report

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# Abstract

Pyogenic granuloma is one of the hyperplastic inflammatory lesions of the oral cavity. It is also seen in skin and mucous membrane. It can also be called lobular capillary hemangioma. Thea etiology is idiopathic but the causative factors are trauma, inflammation and infectious agents, certain drugs and hormonal influence associated with pregnancy. Clinically it presents a nodular growth smooth or lobulated with erythematous papules either sessile or pedunculated base which is hemorrhagic. The common method of treatment is Surgical excision. Other treatment options are laser (Nd: YAG), flash lamp pulsed dye laser, cryosurgery, intralesional injection of ethanol or corticosteroid or sodium tetradecyl sulphate and photodynamic therapy. This article represents a case report of a 24 years old male patient with a suspect of post traumatic pyogenic granuloma in the palatal surface of upper anterior.

**Keywords:** Pyogenic granuloma, hemangioma, cryosurgery, photodynamic therapy, laser therapy.

## Introduction

Pyogenic granuloma also known as lobular capillary hemangioma is a benign vascular tumour that occurs in skin, mucous membrane and oral cavity. It occurs mostly solitary or it could be multiple grouped or disseminated. Mucocutaneous lesion of oral cavity caused by local irritation/trauma, bacterial infection, hormonal changes especially during pregnancy or due to certain drugs like corticosteroids, antiretrovirals, antineoplastics and immunosuppressive drugs (Bhaskar SN et al. 1966; Mussalli et al 1976).

Pyogenic granuloma was identified as small vascular tumors (Poncet and Dor et al. 1897). During that time, it was called botryomycosis hominis. Other names are granuloma pediculatum benignum, benign vascular tumor, pregnancy tumor, vascular epulis. Crocker and Hartzell's disease are the various other names given to the lesion. It was first named by Crocker in 1903. But the term "Pyogenic granuloma" was coined by another researcher (Hartzell et al. 1904). Commonly found in females than in males and especially in teenagers.

It is found as the soft tissue of the oral cavity seen frequently in the keratinized mucosa hard palate and gingiva (Kamal R et al. 2012). It could be slow or rapid in growth. It is commonly found in maxillary gingiva than in mandibular gingiva and in the anterior region than in posterior region. The two types of pyogenic granuloma are Lobular capillary hemangioma and nonlobular capillary hemangioma differ by histopathologic findings (Srikanth Adusumilli et al. 2014). The course of the lesion are as follows "early," "established," and "healing". The colour of the lesion also varies and depends on the vascularity of the lesion. It could be pinkish or purplish in colour. With nodular growth smooth or lobulated with erythematous papules either sessile or pedunculated.

Differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, peripheral odontogenic fibroma, hemangioma, hyperplastic gingival inflammation, conventional granulation tissue, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma, non-Hodgkin's lymphoma and metastatic cancers. Confirmatory diagnosis needs histopathologic evidence.

Treatment of choice includes surgical excision with debridement of the underlying region to remove if any foreign objects or local factors like calculus (Peter A 2000; Patil K et al 2006). Excision of the lesion to be done along with the removal of irritant agents such as dental plaque, calculus, foreign bodies, defective restoration. Electric cauterization, cryosurgery, Sodium tetradecyl sulphate, sclerotherapy, Monoethanolamides oleate ligation, absolute ethanol injection, cauterization with silver nitrate, intralesional steroids (Parisi et al 2006). flash lamp pulsed dye laser (Meffert JJ et al 1998) neodymium-doped yttrium aluminum garnet (Nd: YAG) laser (Powel JL et al 1994), carbon dioxide (CO2) laser, erbium-doped yttrium aluminum garnet (Er: YAG) laser and diode laser are used by practitioner to eliminate the lesion. It does not have any malignant transformation potential, the recurrence rate after simple excision is comparatively high and it varies from 6 to 16%; hence in some cases re-excision is required. Recurrence is because of incomplete excision, failure to eliminate etiologic factors or re-injury of lesions (Hamir Jafarjadeha et al 2006; Ashish Shrestha et al 2016).

Microscopic features are partly or completely covered by parakeratotic or non-keratinized stratified squamous epithelium. Lesion is formed by a lobulated or a nonlobulated mass of angiomatous tissue. Usually, lobulated lesions are composed of endothelial proliferation or proliferation of capillary sized blood vessels. Collagen fibers of pyogenic granuloma is usually sparse. Surface can be ulcerated and if ulcerated edema becomes a prominent feature and the lesion is infiltrated by plasma cells, lymphocytes and neutrophils (Gomes SR et al 2016).

#### Case report

A 24-year-old male patient reported to the Department of Oral medicine, Sree Balaji Dental College and hospital, Chennai with the chief complaint of swelling over the left upper region of the teeth for the past 1 month with occasional pain. Patient has difficulty in chewing and mastication. He gives an history of trauma before 2 years. He also has an habit of chewing areca nut, 1 to 2 pouches/day for the past 5 years. On intraoral examination reveals single nodular growth with irregular surface having sessile base of 2cm x2cm x2.5cm in size. It covers the palatal surface the gingiva extending from distal to central incisor and mesial to first premolar. It is reddish pink in colour. It non-tender, non-fluctuant, firm and fibrous in consistency as shown in figure 2 and 3. There was no mobility of teeth. All the teeth were vital with normal response. Provisional diagnosis was pyogenic granuloma. The differential diagnosis was peripheral giant cell granuloma and peripheral ossifying fibroma. Histopathogical investigation confirms the diagnosis as Pyogenic granuloma, as shown in figure 1. It shows dense chronic inflammatory infiltrate with proliferating fibroblast with collagen fibers interposed. There was no evidence of atypia or malignancy. On basis of the clinical and histopathological findings it suggested to be a case of pyogenic granuloma.

#### Discussion

Pyogenic granuloma is a hyperplastic lesion secondary to trauma/irritation. It is a non-neoplastic soft tissue tumour. It is a benign lesion in response to various stimuli such as chronic low-grade local irritation, traumatic injuries, hormonal factors or certain kind of drugs. Poor oral hygiene and tooth brush trauma are predisposing for its occurrence in gingival region. Many cases of pyogenic granuloma occur with history of trauma. Oral pyogenic granuloma mostly involves the gingiva but also affects lips, tongue and buccal mucosa. Lesion are more common on maxillary anterior gingiva than mandibular gingiva, Facial/ buccal gingiva more commonly affected than lingual/ palatal gingiva (Neville B W et al 2002). It can affect any age group but predominantly occur in second decade of life in young adult females, this is because of vascular effects of female hormones.

Clinical appearance of pyogenic granuloma seems to be a single nodular tumor like growth with a sessile base or an elevated mass. The size of the lesion can vary from mm to cm. It can be slow in growth, painless and

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asymptomatic. Depending on the long standing of the lesion the colour may vary from pink to purple. Pyogenic granuloma in early phases bleed easily since the lesion is hyperemic. Usually, it occurs in 2<sup>nd</sup> and 5<sup>th</sup> decades of life. Females are more commonly affected. In our case it is a rare entity seen in male. Etiology is idiopathic. Here it is related to the exaggerated response related to trauma. Cases of pyogenic granuloma is seen in pregnancy are known as "pregnancy tumour"/ "granuloma gravidarum", which contribute to 5% of cases of pyogenic granuloma. In pregnant patients, it appears in the1st trimester of pregnancy and regress spontaneously after delivery. Similar lesion was reported on patients with oral contraceptives. Histologically it exhibits the presence of numerous capillaries with inflammatory infiltrate mimicking granulation tissue. The vascular channels are engorged with red blood cells cells of inflammation and polymorphonuclear neutrophils and monocytes are seen scattered in the stroma of the lesion. Histologically pyogenic granuloma is of two kinds lobular capillary hemangioma (LCH) and non-LCH type (Mills SE et al 1980). Metastatic tumours are uncommon in oral cavity; when involving gingiva mostly affects attached gingiva. In comparison to PG hemangiomas shows positive diascopy test. They are plumper with endothelial proliferation and no acute inflammatory cell infiltrate is seen in these lesions (Janier M et al 1999) Excisional biopsy is usually indicated as treatment along with the removal of local irritant factors like plaque, calculus and foreign body impaction. In the cases of pregnancy careful oral hygiene, removal of dental plaque, use of soft tooth brushes is important to avoid occurrence of a pregnancy tumour. If lesion occurs surgical and periodontal treatment can be considered during second trimester with continuous follow ups. After excision recurrence occurs

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in 16% of cases recurs which needs re-excision. Other modes of treatment are laser therapy, cryosurgery, sclerotherapy and photodynamic therapy.

## Conclusion

Pyogenic granuloma is commonly seen as soft tissue enlargements in the oral cavity. Proper diagnosis is essential to differentiate the lesion from other vascular lesions. Treatment includes complete surgical excision along with meticulous oral hygiene. Recurrence rate is high if the lesion is not completely removed. Hence, complete debridement along with meticulous oral hygiene measures will prevent recurrences of the lesion.

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Legend Figures

Figure 1:



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Figure 2:

