

Full Length Research Paper

Oral pyogenic granuloma with mandible involvement: An unusual presentation

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Pyogenic granulomas are relatively common benign mucocutaneous lesions. These are typically solitary and vascular. They may be found in the oral cavity or extraorally. Extraorally common sites are the skin of face and neck, upper and lower extremities and mucous membrane of nose and eyelids. Lesions occurring in the oral cavity are most commonly found in the anterior segment over the gingiva followed by lips, tongue and buccal mucosa. Pyogenic granuloma commonly occurs during pregnancy which requires meticulously planned management. We present a case of pyogenic granuloma in a 63-year old patient with a large size (5 ×3.5 cm) in the mandible.

Key words: Oral pyogenic granuloma, peripheral giant cell granuloma, periodontal ligament.

INTRODUCTION

Pyogenic granuloma 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 Hüllihcn and the term "pyogenic granuloma" or "granuloma pyogenicum" was coined only in 1904 by Hartzcll. The term however is a misnomer as it is not related to any infection, does not contain pus and is not a true granuloma. It predominantly occurs in females in second decade of life. Vilmann et al. (1986) described that pyogenic granulomas can be of few millimetres to several centimetres in size and commonly involve maxillary labial gingiva (Neville et al., 2002; Regezi et al., 2003; Shafer et al., 1983; Vilmann et al., 1986).

Pyogenic granuloma of the gingiva develops in up to 5% of the pregnancies and hence terms like "pregnancy tumour" and "granuloma gravidarum" are commonly used (Sills et al., 1996). When these are surgically removed during pregnancy, there is a tendency for recurrence (Shafer et al., 1983).

In this paper, we present a case of pyogenic granuloma with unusually large size occurring on the posterior

mandibular gingiva in an old female patient of 63 years. Surgical excision of the lesion was planned because of possibility of sepsis due to the infected tooth, discomfort caused due to large size of the lesion, hindrance in mastication and profuse bleeding that could lead to future complications.

CASE SUMMARY

A 63 year old female presented in oral medicine department, with chief complaint of growth in the right molar region. The growth started 3 months ago, as a small sessile painless growth progressively increased to attain the size of 5×3.5 cm at the time of presentation (Figure 1). The growth was associated with profuse bleeding on provocation and there was hindrance in mastication. There was no contributory past medical history. Examination of the head and neck revealed diffuse swelling on the left lower third of the face. No cervical and submandibular lymph node enlargement was noticed. Intraoral examination revealed full complement of teeth. However there was a pedunculated growth arising from the interdental gingiva in relation to 45 and 46 on the buccal aspect extending to the occlusal surface of teeth. There were areas of indentation and ulceration on the occlusal aspect of the growth. Palpatory findings

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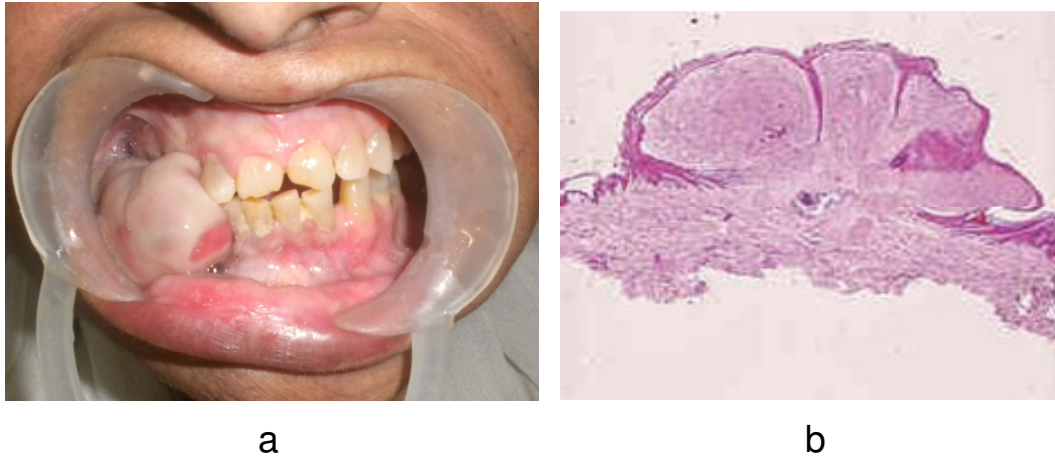


Figure 1. (a) Large soft tissue growth in mandible (b) Histopathology section of pyogenic granuloma.

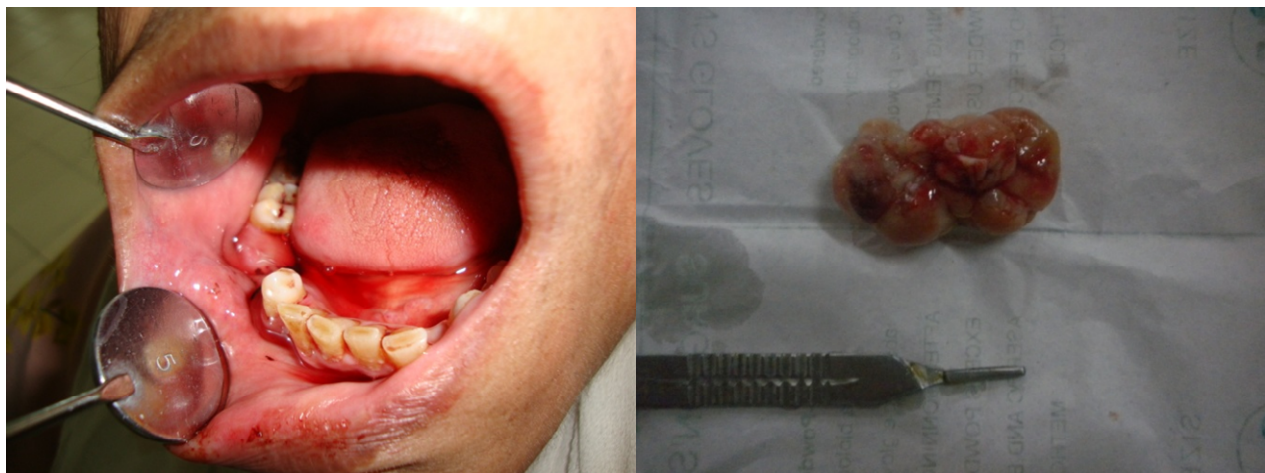


Figure 2. Excised lesion.

revealed swelling measuring 5×3.5 cm which profusely bled on trivial provocation. The consistency of the growth was soft and fragile. With the above said findings, provisional diagnosis of pyogenic granuloma on the buccal gingival in relation to 46 was established. Complete hemogram revealed that the patient was diabetic and was under medication. Peripheral giant cell granuloma and peripheral soft fibroma were considered in the differential diagnosis. Since the growth was causing hindrance in mastication, an excisional biopsy (Figure 2) was carried out under antibiotic coverage of amoxicillin 500 mg 3 times daily for 5 days. Histopathological report shows a band of connective tissue made up of fibrovascular reactive tissue consisting of abundant young proliferating blood capillaries, filled with red blood cells, numerous plump active fibroblasts densely infiltrated with both acute and chronic inflammatory cells. Post excision period was uneventful

with regular follow up at one monthly interval showed no evidence of recurrence.

DISCUSSION

Originally, pyogenic granulomas were believed to be botryomycotic infection which was transmitted from horse to man. Subsequently it was proposed that these lesions are caused due to some pyogenic bacteria like streptococci and staphylococci. However there is no evidence of any infectious organisms isolated from the lesions confirming the unlikely relation to any infection and hence the name is a misnomer. It is now largely agreed that pyogenic granuloma arises as a result of various stimuli such as low grade chronic irritation, trauma, hormonal imbalances or certain kinds of drugs. The tissues react in a characteristic manner resulting in

overzealous proliferation of a vascular type of connective tissue (Shafer et al., 1983). The growth rate of tumour depends upon the proliferative capability and the rate of cell death. Nakamura (2000) described cells in pyogenic granulomas have low apoptosis influenced by the anti apoptotic proteins like bcl-2 family proteins (Nakamura, 2000).

Approximately one-third of the lesions develop after trauma particularly those occurring on the extragingival sites. Trauma from adjacent sharp teeth, ill fitting dentures, accidental biting and tongue piercings are most common (Neville et al., 2002; Vilmann et al., 1986; Pilch 2001; Machleod and Soamcs, 1987).

Poor oral hygiene may be another precipitating factor (Regezi et al., 2003; Shafer et al., 1983). Additionally some drugs, like cyclosporine may be involved in the genesis of the pyogenic granulomas (Bachmeyer et al., 1996; Lee et al., 1994). In a study done by Skinner et al. (1973) described that pyogenic granulomas are more common in females in the second decade of life with a predilection of 3:2 over males possibly because of vascular effect of female hormones (Skinner et al., 1973). In contrast, a recent study by Epivationos et al. (2005) reported that the average patient age was 52 years with a peak incidence of occurrence in the sixth decade of life (Epivationos et al., 2005).

It has a striking affection for the gingiva accounting for almost 75% of the cases possibly caused by the presence of calculus and foreign material in the gingival crevice. It may be found in 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 granulomas are limited to the gingival and rarely involve the alveolar bone (Neville et al., 2002; Regezi et al., 2003; Shafer et al., 1983).

Clinically the lesion is usually elevated, pedunculated or sessile, mass with smooth, sometimes lobulated and warty surface which can commonly show ulcerations covered with yellow fibrinous membrane. The colour ranges from deep red, reddish purple to pink depending on its duration and vascularity of the lesion. Pyogenic granuloma has to be differentiated from peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, hyperplastic gingival inflammation, bacillary angiomatosis, kaposi's sarcoma, angiosarcoma and non-Hodgkins lymphoma.

Peripheral giant cell granuloma (PGCG) is not a true neoplasm but rather a benign hyperplastic reactive lesion caused by local irritation or chronic trauma. PGCG originates from the periodontal ligament or mucoperiosteum (Flaitz, 2000; Pandolfi et al., 1999; Bagán-Sebastián et al., 1999). The lesions can appear at an age, though the highest incidence (40%) is in the fourth to sixth decades of life (Neville et al., 2002; Regezi et al., 2003; (Shafer et al., 1983; Vilmann et al., 1986; Ishida and Ramos-e-Silva, 1998). PGCG is more

common in the lower jaw (55%) than in the upper jaw (Sills et al., 1996; Lee et al., 1994), the reported proportion being 2.4:1 (Jafarzadeh et al., 2006). To rule out above said differential diagnosis, clinicians have to rely on the histopathological examination of the biopsied tissues (Jafarzadeh et al., 2006).

Depending on its rate of proliferation and vascularity, there are 2 histological variants of pyogenic granuloma called lobular capillary hemangioma (LCH type) and non-lobular capillary hemangioma (non-LCH type) (Neville et al., 2002; Shafer et al., 1983).

The treatment of pyogenic granuloma depends on the severity of the symptoms in the lesion. If it is small, painless and free of bleeding, clinical observation and follow up are advised (Sills et al., 1996). If the lesions are huge, surgical excision and removal of causative irritants (plaque, calculus, foreign material, source of trauma) are among the choice of treatment. Recently, other treatments like Nd: YAG lasers have been used because of less risk of bleeding and superior coagulation characteristics (Powell et al., 1994).

Pulsed dye lasers have also been tried with good results (Meffert et al., 1998). Cryosurgery has been considered for the treatment of pyogenic granuloma as oral mucosa because of its humidity and smoothness is an ideal site for this technique. It shows excellent aesthetic result (Ishida and Ramos-e-Silva, 1998). Excisional treatments result in scars, and hence injection of absolute ethanol, sodium tetradecyl sulfate and corticosteroids have been tried with varied success rates (Parisi et al., 2006; Ishimiya et al., 2004; Moon et al., 2005).

Treatment considerations during pregnancy are very important as these lesions are more common during pregnancy. Oral hygiene maintenance and regular follow up are recommended. Recurrences are believed to result from incomplete excision, failure to remove etiologic factors or injury to the area (Neville et al., 2002; Regezi et al., 2003; Shafer et al., 1983). Some recurrences manifest as multiple deep satellite nodules that surround the site of the original lesion (Parisi et al., 2006). Most of the pregnancy tumours regress after pregnancy. Controversy exists over the surgical excision during pregnancy. Some authors believe that surgical and periodontal treatment should be completed in second trimester with continued surveillance of home care until after delivery (Greenberg and Glick, 2003), while some others believe that in gravid patient recurrence is likely and treatment to be successful should await parturition. The lesions may regress after delivery and make the surgery unnecessary (Eversole, 2002) Bouquot et al., 2001). In the presented case, the patient had difficulty in normal activities like chewing and oral hygiene maintenance because of size of the lesion and profuse bleeding. Considering the future risk of further enlargement of the lesion, uncontrolled bleeding from the lesion and sepsis from the grossly destructed tooth,

surgical excision of the lesion and extraction of the decayed tooth was planned. After the removal of the tumour mass, a thorough oral prophylaxis was carried out and patient was instructed for the maintenance of oral hygiene. Regular follow up revealed no recurrence of the lesion.

CONCLUSION

Pyogenic granuloma can present with unusual features. They can be present in uncommon site and with unusual size. In such clinical situations, the treatment plan should be altered accordingly and surgical excision should be done. Good oral hygiene maintenance and regular follow up can prevent recurrence of such lesions.

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