

Oral Pyogenic Granuloma an Unusually Large Lesion - A Case Report with Review of Literature

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ABSTRACT

Introduction: Pyogenic Granuloma is a relatively common, tumor like, exuberant tissue growth in the oral cavity, which occurs in response to localized irritation or trauma. The growth is prone to haemorrhage, even with minor trauma and does not produce purulent secretion. It can occur at any age, but most frequently affects young adults. The maxillary facial gingiva is more frequently involved.

Case report: We report here a case of pyogenic granuloma of the left mandibular posterior gingiva, present since a month in a 53 year old female patient and the case was managed by surgical intervention.

Conclusion: Pyogenic granuloma is thought to occur in response to various stimuli such as low grade local irritation, traumatic injury or due to hormonal factors. The correct diagnosis with careful management of the lesion by surgical excision along with eradication of local irritants would help to prevent the recurrence of this benign lesion.

Keywords: Gingiva, Inflammatory hyperplasia, Maxilla, Pyogenic Granuloma, Surgical excision

INTRODUCTION

Presence of soft tissue enlargements in the oral cavity is often creates a diagnostic challenge, because of the many groups of pathologic processes causing such lesions. Pyogenic granuloma (PG) is one such common entity manifesting as a soft tissue enlargement in the oral cavity. In 1904, Hartzell introduced the term "Pyogenic Granuloma" and has been referred by a variety of other names such as pregnancy tumor, vascular epulis, granuloma pediculatum benignum, benign vascular tumor and Crocker and Hartzell's disease. The name pyogenic granuloma is a misnomer since histologically the condition is not associated with the presence of pus or a granuloma.¹

The etiology of the lesion is not well known, though it was originally believed to be a botryomycotic infection.² PG is thought to be a non neoplastic growth of the oral cavity occurring in response to various stimuli such as low grade local irritation, traumatic injury or due to hormonal factors. It predominantly occurs in the second decade of life in young females, possibly because of the vascular effects of female hormones.² Site of occurrence of PG is mostly in the gingiva followed by lips, tongue, buccal mucosa and palate. It usually appears as a localized lump with a sessile or pedunculated base and has smooth or lobulated surface with a deep red or purple color. Since it is a vascularized lesion which tends to bleed even after minor form of injury or stimulus.³

We report a case of pyogenic granuloma which was present at the left mandibular posterior gingival region and was causing swelling and discomfort to the patient since a month.

CASE REPORT

A 53 year old female patient presented to the Department of Oral medicine and Radiology with a chief complaint of swelling on gums at the left lower back region of the jaw since a month. On eliciting history she was apparently alright a month back following which she noticed a small growth in left lower back gingival region. Initially the growth was small in size and associated with pain which was mild and intermittent. The growth progressively increased and reached upto present size causing difficulty in brushing and mastication. Patient had visited a local dentist for the same, there she was prescribed medications (Tab.Augmentin, Tab. Metrogyl, Tab.Ibugesic). Patient was advised blood investigation, panoramic radiograph and also advised to get the tooth removed by the dentist. When she reported to us there was mild pain. No history of any similar swelling elsewhere in the body was reported.

Her medical history was non contributory and all vital signs were within normal limits. On extra oral examination, a diffuse swelling was seen near the left posterior body of the mandible approximately measuring about 3.5 X 2 cm (Figure 1). Extending anteroposteriorly 1 cm away from the corner of mouth to 3.5cm posterior, superoinferiorly from the line joining corner of mouth to tragus and extending up to inferior border of mandible. Skin over the swelling appeared normal and surrounding skin appeared normal, it was non tender and firm in consistency.

On Intraoral examination, a solitary pinkish red growth was seen on left mandibular posterior gingiva and vestibular region approximately 36,37,38 approximately 3.5 X 2.5 cm in size, oval in shape (Figure 2). Extending anteroposteriorly from mesial of 36 to distal of 38 and superiorly from the marginal gingiva of 36,37,38 with involvement of interdental, attached gingiva, inferiorly extending up to the depth of buccal vestibule. The growth had a pedunculated base. The overlying mucosa was erythematous superiorly and covered with slough in anterior region. The surface of the growth appeared smooth with indentations of buccal surface of upper teeth in medial aspect of growth. The growth was non tender, firm in consistency, no bleeding on manipulation and overlying slough was partly scrapable. Oral hygiene was poor with calculus and stains.

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Grade III mobility of 38. Based on the history and clinical appearance a provisional diagnosis of pyogenic granuloma was made. The differential diagnosis of peripheral ossifying fibroma, peripheral giant cell granuloma and fibroma were considered.

Intraoral periapical radiograph (Figure 3), showed severe dental caries in cervical third of crown extending to mesial root surface with severe interdental bone loss wrt 38. Mandibular cross sectional Occlusal radiograph did not show the expansion of bony plates. Apart from these radiographs Panoramic radiograph was taken and showed generalized moderate periodontitis.

The routine blood investigation was done and found to be within normal limits. The need for surgical excision was explained to the patient. A complete surgical excision of the lesion was done under local anaesthesia (Figure 4) along with extraction of 38. The excised lesion was sent for the histopathological examination. Patient was recalled after 1 week for review and no complaints were reported. The healing was satisfactory.

Histopathological examination showed (Figure 5) ulcerated parakeratinized stratified squamous epithelium with fibropurulent membrane. The connective tissue showed numerous small and large blood vessels lined by endothelial cells with extravasated RBCs and dense collagen fibre bundles arranged haphazardly. Focal collections of inflammatory cells consisting predominantly of lymphocytes were also seen. There was no evidence of malignancy. Hence on the basis

of clinical and histopathological findings we confirmed the diagnosis to be a case of pyogenic granuloma.

DISCUSSION

Pyogenic granuloma is an inflammatory hyperplasia affect-

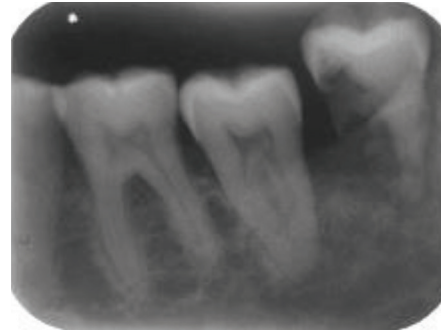


Figure-3: IOPA shows Severe dental caries and bone loss

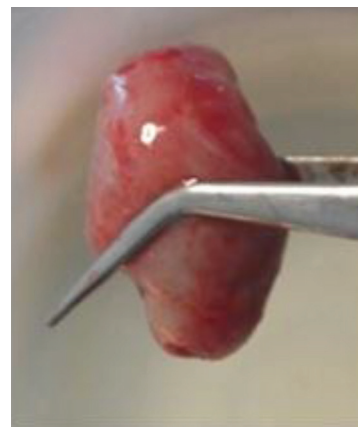


Figure-4: Biopsy Specimen



Figure-1: Patient presented with extraoral swelling in Left posterior body of the mandible

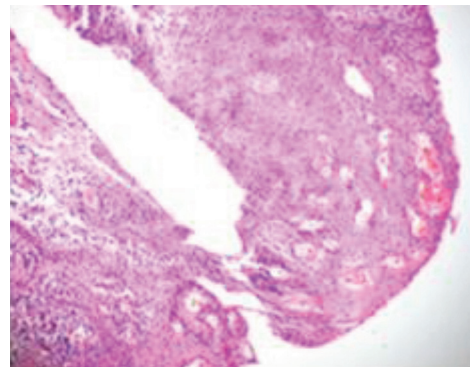


Figure-5: Histopathology of specimen shows various sized blood vessels with chronic inflammation (40X)



Figure-2: Pre operative lesion



Figure-6: Post operative site after 6 months

ing the oral mucosa, as a result of an exaggerated localized connective tissue reaction to a minor injury or irritation.⁴ Various studies have shown that precipitating factors could be calculus, nonspecific infection, over hanging restorations, foreign material within the gingival crevice, Aberrant tooth development, occlusal interferences, Immunosuppressive drugs such as cyclosporine.⁵

Oral pyogenic granuloma can occur at any age, but are more frequently encountered in females in their second decade due to the increased levels of circulating hormones estrogen and progesterone. Bhaskar and Jacoway in 1966 demonstrated the presence of gram positive and gram negative bacilli in the superficial areas of the ulcerated form of PG, rather than non ulcerated form suggesting that these organisms could be contaminants from the oral cavity. The lesion in our patient was ulcerated in anterior aspect. The clinical appearance of PG varies as an elevated, smooth or exophytic, sessile or pedunculated growth with ulcerations and covered by yellow fibrinous membrane.⁶ The color varies from red, reddish purple to pink depending on the vascularity of the growth. Besides the gingiva it is also noticed on the lips, tongue or buccal mucosa, affecting the maxilla more than mandible, the anterior region rather than the posterior with buccal surfaces being affected more than the lingual surfaces.⁶ The size varies from a few millimeters to several centimeters, rarely exceeding 2.5cm⁷ usually slow growing but at times it grows rapidly. The case presented here showed a large asymptomatic rapidly growing lesion within 1 month (2.5 X 3.4 X 2.4 cm).

The radiographic findings are usually absent. However, localized alveolar bone resorption may be seen in large and long standing gingival tumors, in the present case, there was severe interdental bone loss noted between 37 and 38.

Histologically, PG is covered with parakeratinized or non keratinized stratified squamous epithelium. This is classified into two types such as the Lobular Capillary Hemangioma (LCH) and non-LCH type.^{6,7} The LCH type has proliferating blood vessels organized in lobular aggregates, no specific changes such as edema, capillary dilatation or inflammatory granulation are noted. The non-LCH type consists of a vascular core resembling granulation tissue with small foci of fibrous tissue. Regezi et al found a strong activity of angiogenesis in PG by demonstrating prominent capillary growth in the hyperplastic granulation tissue. Yuan et al⁸ found imbalance between the angiogenesis enhancers vascular endothelial growth factor (VEGF), basic fibroblast growth factor (bFGF) and angiogenesis inhibitors angiostatin and thrombospondin-1. Vascular morphogenesis factors Tie-2, Angiopoietin 2, Ephrin B2 and Ephrin were found to be up-regulated in Oral PG.

We considered various differential diagnosis for PG which includes peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, hemangioma, pregnancy tumor, conventional granulation tissue hyperplasia, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma and non Hodgkin's lymphoma.⁹

Peripheral giant cell granuloma (PGCG) is an exophytic lesion that is seen exclusively in the gingiva and is clinically similar to PG, but PGCG is more often bluish-purple

compared to the bright red of a typical PG. PGCG is more likely to occur in sites where irritation or trauma is present and can cause bone resorption, and also histologically shows presence of multinucleated giant cells. Peripheral ossifying fibroma also occurs exclusively on the gingiva with minimal vascular component unlike a PG. Metastatic tumor is more common in older age group and the attached gingiva is the most commonly affected soft tissue site followed by tongue. Clinically they resemble reactive or hyperplastic lesions such as PG, but microscopically they usually resemble the tumor of origin which is distant from the metastatic lesion seen in the oral cavity.

One important differential diagnosis of PG is hemangioma which is a developmental disorder, but smaller lesions are distinguished from PG by diascopy test. The diagnosis of pregnancy tumor is based on the history and the apparent influence of the female sex hormones. Conventional granulation tissue is another differential diagnosis should be considered. Despite the close relation between them, PG shows clinically different behaviour, such as rapid growth, multiple occurrence and frequent recurrence from those as in granulation tissue. PG is distinguished from Kaposi's sarcoma in AIDS due to the proliferation of dysplastic spindle cells, vascular clefts, extravasated erythrocytes and intracellular hyaline bodies none of these findings are seen in histopathology of PG.

Bacillary angiomatosis, also AIDS-related, shows dense, extracellular deposit of pale hematoxyphilic granular material representing masses of bacilli that stain positive with Warthin-Ostarry stain. PG can be distinguished from angiosarcoma by its lobular growth pattern, well-formed vessels and cytologically bland endothelial cells. Primary site for Non Hodgkin's Lymphoma (NHL) in head and neck region are Waldeyer's ring, paranasal sinuses, salivary glands, the oral cavity and larynx. The most common clinical appearance of NHL in the mouth is a non-healing, painless ulceration mainly involve palate and mandible. Clinical appearance of gingival NHL is found to be an asymptomatic gingival enlargement or mass resembling a PG. But histologically NHL can be differentiated from PG by presence of proliferation of lymphoblastic appearing cells with varying degrees of differentiation.

Treatment of PG involves a complete surgical excision. After surgical excision of gingival lesions, curettage of underlying tissue is recommended. Various other treatment modalities such as use of Nd: YAG laser, carbon dioxide laser, flash lamp dye laser, cryosurgery, electrodesiccation, sodium tetradecyl sulfate sclerotherapy and use of intralesional steroids have been used by various clinicians.⁷ Sandhu M et al¹⁰ reported the use of Nd:YAG laser for PG treatment over CO₂, flash lamp dye laser because of lower risk of bleeding and superior coagulation characteristics. Sodium tetradecyl sulphate sclerotherapy successfully offers a better alternative than excision because of its simplicity and lack of scarring, even though multiple treatment sessions are required.⁷ In the present case, complete surgical excision was done along with extraction of 38, there was no scar formation and patient was satisfied with the outcome.

Recurrence of pyogenic granuloma after excision is a known

complication but can be prevented. The recurrence rate for pyogenic granuloma is said to be 16% of the treated lesions and so re-excision of such lesions might be necessary.⁷ Recurrence is believed to result from incomplete excision, failure to remove etiological factor or reinjury of the area. The end of pregnancy often brings considerable shrinkage of pregnancy associated PG, but residual lesion may need to be excised. In our case patient was followed up for a period of 6 months and there has been no recurrence so far (Figure 6).

CONCLUSION

Pyogenic granuloma is a common and well known lesion. With this case report it can be concluded that the combinations of various etiological factors might have caused the inflammatory tissue to cross the threshold from regular gingivitis to granuloma formation. The lesion was painless as nerves do not proliferate within the reactive hyperplastic tissue and PG is usually do not attain unusually large size like our case. Considering these characteristics, PG can be adequately treated with correct diagnosis and proper treatment. A careful management of the lesion also helps to prevent the recurrence of this benign lesion.

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