CASE REPORT

Oral Pyogenic Granuloma: Series of 3 Case Reports

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Abstract

Oral pyogenic granuloma is a common benign (non-cancerous) growth of blood vessels on the oral tissue. It usually appears as a fast growing red nodule and commonly bleeds. They are neither infective, purulent nor granulomatous as the name might suggest, rather they are reactive enlargement that is an inflammatory response to local irritation such as calculus, fractured tooth, minor trauma, rough dental restorations and foreign materials. Histologically, the surface epithelium may be intact, or may show foci of ulcerations or even exhibiting hyperkeratosis. It overlies a mass of dense connective tissue composed of significant amounts of mature collagen. Gingiva is the most common site affected followed by buccal mucosa, tongue and lips. Surgery is the most common conventional modality of treatment of this lesion, but with advancing time cryosurgery has evolved as a newer treatment which involves the use of either liquid nitrogen spray or a cryoprobe. Nd: YAG, CO² and flash lamp pulsed dye lasers have also been used for the treatment of oral pyogenic granuloma. This article presents a series of 3 case reports of pyogenic granuloma managed by excision of lesion.


Key words: Benign neoplasm, Gingiva, Mandible, Pyogenic Granuloma

Introduction

A soft tissue enlargement may represent a variation of normal anatomic structures, inflammation, cysts, developmental anomalies, and neoplasm. Within these lesions is a group of reactive hyperplasias, which develop in response to a chronic, recurring tissue injury that stimulates an exuberant or excessive tissue repair response. Pyogenic granuloma is one of the most common entities responsible for causing soft tissue enlargements.

The term “Pyogenic granuloma” or “granuloma pyogenicum” was introduced by Hartzell in 1904. It is a hyperactive benign inflammatory lesion commonly seen in the oral cavity with gingiva being the most common affected site followed by buccal mucosa, tongue and lips. Mostly seen in females in the second...
decade of life with high levels of steroid hormones. It is generally believed that female sex hormones play important roles in its pathogenesis.\textsuperscript{2}

**Case Reports**

**Case 1**

A 32 year-old female reported to the Department of Oral Medicine & Radiology, with a chief complaint of overgrowth of gums in the lower front teeth region since 4 months, which caused discomfort while eating. The patient reported that she noticed the swelling 4 months ago, which was painless and gradually increased in size, during this period she had visited a medical doctor who had given him gum paint for application. She had stopped brushing the area due to bleeding from the area since 1 month. She also complained of increase of gap inbetween the tooth as the size of the growth increased. On extraoral examination, there was no visible swelling on the lower front 1/3\textsuperscript{rd} of the face. Intraoral examination revealed a large sessile lobulated oval gingival overgrowth involving the marginal and attached gingival with 31 and 32 measuring 9x9x3 mm in size with the gingival overgrowth reaching middle 1/3\textsuperscript{rd} of 31. The surrounding areas are normal with gingival recession present with 41. The color of the gingival growth is reddish pink and seems to be highly vascular with no ulcerations. Hard tissue finding revealed rotation with 31. Oral hygiene was fair and the mouth showed fair amounts of calculus. The overgrowth was smooth, mobile, firm and granular in consistency & mild tender. Spontaneous bleeding on probing was seen from the lesion. Grade I mobility was seen with 31, 41. A provisional diagnosis of pyogenic granuloma was made on the basis of history & clinical examination.

Intra oral periapical radiograph revealed interdental bone loss seen in the region of 31, 32 reaching upto the apical 1/3\textsuperscript{rd}. Routine hemogram was found to be normal. The patient did not have any systemic problems and so the case was prepared for surgery on the basis of the clinical and radiographic evidence. Oral prophylaxis was completed and the lesion was excised under aseptic conditions (Fig. 2) and the excised lesion was sent for histopathological examination. Antibiotics and analgesics were prescribed for 1 week. HP examination confirmed it to be pyogenic granuloma. The patient didn’t turn up for follow up but was confirmed from her that the lesion did not re-occur.

**Case 2**

A 40-year-old female reported to the Department of Oral Medicine & Radiology, with a chief complaint of overgrowth of gums in the lower front teeth region since 3 months. Growth had appeared 3 months back and has been slowly growing to attain the present size. Mild intermittent pain was associated with the growth which increased on chewing food. Patient reported difficulty in mastication and was concerned for the compromised aesthetics. Medical history was negative for any findings and all vitals were within normal limits. Intra oral examination revealed a solitary growing exophytic, pedunculated lesion measuring 1.2x1x0.5 cm in the lower anterior region attached to the marginal gingival interproximally between 31 and 41 (Fig 3).

The lesion was firm in consistency and non-tender, reddish with minimum bleeding. In addition, the patient had poor oral hygiene. Teeth associated with it did not show any mobility. A provisional diagnosis of pyogenic granuloma was made on the basis of history & clinical examination.
Radiographically, there were vertical bone loss was seen between 31 and 41. Routine hemogram was found to be normal. Oral prophylaxis was completed and the lesion was excised (Fig 4).

The excised lesion was sent for histopathological examination which confirmed it to be as pyogenic granuloma. The patient was recalled up to 6 month which showed no signs of recurrence (Fig 5).

Case 3

A 32-year-old male reported to the Department of Oral Medicine & Radiology, with a chief complaint of overgrowth of gums in the lower front teeth region since 2 months. The growth was gradual on onset and progressive in size & had attain the present size in the course of 2 months. Mild intermittent pain was associated with the growth which increased on chewing food. He complained of bleeding while brushing. Medical history was negative for any findings and all vitals were within normal limits. Clinical examination revealed a localized gingival swelling of 1x1.5x0.3 cm with 32,33 (Fig 6).

The growth was smooth, pedunculated & was firm in consistency and non-tender, reddish with spontaneous bleeding on probing. In addition, the patient had poor oral hygiene. Radiographic examination revealed no bone loss. A provisional diagnosis of pyogenic granuloma was given. The lesion was surgically excised & sent for histopathological examination which revealed presence of endothelial cell proliferation, with abundant fibroblasts & area of hemorrhage suggestive of pyogenic granuloma. During a period of 6 month follow up, no recurrence was noticed (Fig 7).

Discussion

Gingival enlargement is defined as an increase in size of the gingiva. Depending on etiologic factors, gingival enlargement can be of many types like inflammation, drug induced effects, neoplasm, hormonal imbalance, nonspecific conditioned enlargement and systemic involvement like Leukemia, Wegener’s granulomatosis etc.

Poncet and Dor in 1897 first described pyogenic granuloma granuloma pyogenicum. Over the years various authors have suggested other names such as granuloma gravidarum/pregnancy tumour, Crocker and Hartzell’s disease, vascular epulis, benign vascular tumour, hemangiomatosis granuloma, epulisteleangiectaticum granulomatosa, and lobular capillary hemangioma.

The pyogenic granuloma is a relatively common, tumor like, exuberant tissue response to localized irritation or trauma. The name pyogenic granuloma is a misnomer. It is neither infectious nor granulomatous. In the oral cavity pyogenic granulomas show a striking predilection for the gingiva with interdental papillae being the most common site. They are more common in the maxillary anterior region than any other area in the mouth. Extruding/ly it can occur on the lips,
tongue, buccal mucosa, palate. Pyogenic granuloma may occur in all ages but is predominantly seen in second decade of life in young adult females possibly because of vascular effects of female hormones.\textsuperscript{6}

Although the exact pathogenesis is unknown, it is believed to be a botryomycotic infection, but later suggested it is caused by streptococci & staphylococci. Presently it is believed low grade trauma (as seen in case 3), viral oncogens & certain drugs are the main causative factors.\textsuperscript{7}

The typical clinical presentation of pyogenic granuloma is a small, deep red to reddish-purple lesion occurring on the gingiva which is either sessile or pedunculated. The surface may be smooth, lobulated or occasionally warty which is commonly ulcerated and shows a tendency for hemorrhage either spontaneously or upon slight trauma. The lesion is painless and soft in consistency; although older lesions tend to become more collagenized and firm. The size of the lesion usually ranges between 0.5-2 cm, and they may grow at an alarming rate reaching that size in just 4-7 days.\textsuperscript{8}

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 destructions suggestive of malignancy or to identify a foreign body.\textsuperscript{9} Histologic examination reveals sectioned soft tissue consisting of a lesion composed of ulcerated mucosa covering a core of cellular fibrous connective tissue admixed with proliferating vascular channels and a mixed inflammatory infiltrate. This lesion is a reactive/inflammatory process.

Differential diagnosis of PG includes parulis, peripheral giant cell granuloma, peripheral ossifying fibroma, hemangioma, peripheral fibroma, leiomyoma, hemangioendothelioma, hemangiopericytoma, bacillary angiomatosis, kaposi sarcoma, metastatic tumor, post extraction granuloma and pregnancy tumor.\textsuperscript{10}

Surgical excision is the treatment of choice. After surgical excision of gingival lesions, curettage of underlying tissue is recommended.\textsuperscript{8} Incomplete excision, failure to remove etiologic factors or repeated trauma contributes to recurrence of these lesions.\textsuperscript{12}

\textbf{Conclusion}

Pyogenic granuloma is benign in nature and usually do not attain unusually large size. Considering these characteristics, pyogenic granuloma can be adequately treated with correct diagnosis and proper treatment. A careful management of the lesion also helps prevent the recurrence of this benign lesion.

\textbf{References}