

## Case report:

# Pyogenic granuloma: a case report and review

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### Abstract

Exophytic gingival lesions represent some of the more frequently encountered lesions in the oral cavity. Some of these lesions are reactive in nature. Pyogenic granuloma is an overzealously proliferative non-neoplastic lesion of connective tissue origin, found commonly in oral cavity and is secondary to chronic low grade local irritation, poor oral hygiene, and hormonal disturbances. Typically, pyogenic granuloma presents as an exuberant, red painless mass that easily bleeds, ulcerates and grows rapidly and is frequently seen on the gingiva. Since it is a benign lesion, choice of treatment is surgical excision. Here by, presenting a case of pyogenic granuloma in a 18 years old healthy female patient over lingual aspect of right posterior mandibular region.

**Key words:** pyogenic granuloma, hemangiomas granuloma

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### Introduction

Pyogenic granuloma (PG) or granuloma pyoemicum is a common tumor-like mucocutaneous overgrowth that occurs in the oral cavity or on the skin. It is considered to be non-neoplastic in nature, but a kind of inflammatory hyperplasia. Although it was originally thought to be caused by pyogenic organisms, it is now believed to be unrelated to infection. So the term “pyogenic granuloma” is a misnomer because the lesion does not contain pus and is not strictly speaking a granuloma.<sup>1,2</sup> Chronic low grade trauma, physical trauma, hormonal factors, bacteria, viruses and certain drugs have been implicated as causative factors in the development of pyogenic granulomas. Local irritants such as calculus, foreign material in the gingiva and poor oral hygiene are the precipitating factors.<sup>3</sup>

Clinically these lesions usually present as Single nodule or Sessile Papule with Smooth or lobulated Surface and maybe Seen in any size from a few

millimeters to Several Centimeters. As lesion mature, the vascularity decreases and the clinical appearance are more collagenous and pink. The peak prevalence is in teenagers and young adults with a female predilection. It preferentially affects the gingiva, but may also occur on the lips, tongue, oral mucosa and palate. Lesions are slightly more common on the maxillary gingiva than the mandibular gingiva; anterior areas are more frequently affected than posterior areas. Also, these lesions are much more common on the facial aspect of the gingiva than the lingual aspect; some extend between the teeth and involve both the facial and lingual gingiva.<sup>2,4</sup> Pyogenic granuloma is also known as pregnancy granuloma or pregnancy tumour when occurring in pregnant women or as vascular epulis, benign vascular tumour and hemangiomas granuloma.<sup>1</sup> Microscopic examination of Pyogenic Granuloma shows a highly vascular proliferation that resembles granulation tissue. Numerous small and large

channels are formed which are engorged with red blood cells and lined by banal flat or plump endothelial cells that may be mitotically active. The blood vessels often show a clustered or medullary pattern separated by less vascular fibrotic septa.<sup>1,2</sup> Surgical excision is the treatment of choice. After surgical excision of gingival lesions, curettage of underlying tissue is recommended.<sup>5</sup> A case of pyogenic granuloma involving lingual gingiva in mandibular posterior region is presented.

#### Case report

A 18-year-old girl patient reported to Oral medicine and radiology department, GDCH, Ahmedabad with the chief complaint of growth on lower right posterior lingual gingival region since 15 days with occasional pain.

The patient was relatively asymptomatic 15 days back, then she noticed a small growth inside the oral cavity in the right mandibular alveolar region, and gradually started increasing in size and becomes painful. Few days later patient noted fetid odour from the oral cavity. Patient did not have

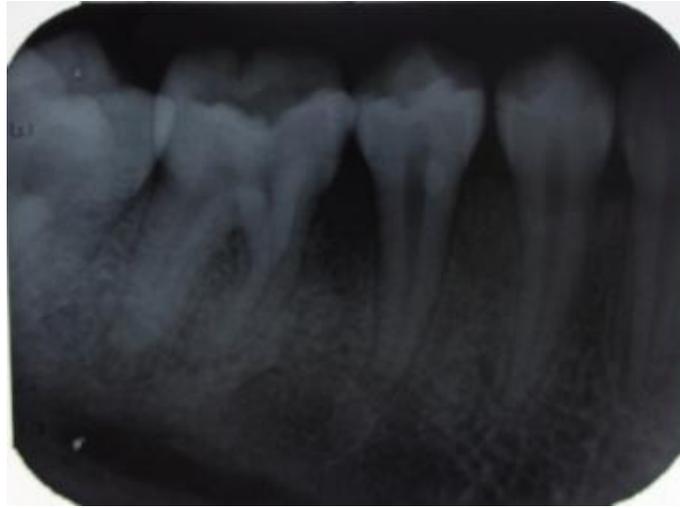
difficulty in chewing and mastication as it was not a big growth. The Pt had reported trauma to the lower right jaw before 5 years. Patient had habit of chewing areca nut, 1-2 pouches per day since last 10 yrs. On intra-oral examination single, well defined, smooth surfaced and lobulated growth of approximately 1.5 cm × 1.5 cm in size was present covering the lingual attached and alveolar gingiva from the mesial of 43 to mesial of 46. Surface of the growth was smooth except mild indentation of opposing maxillary teeth and showing red pink color and in certain area covered by yellowish plaque like material. Growth was pedunculated and was freely movable and it was non tender, non fluctuant, firm and fibrous in consistency (Figure 1). No mobility of teeth was noted. All the teeth were vital with normal response. Provisional diagnosis of pyogenic granuloma was made. Peripheral giant cell granuloma and peripheral ossifying fibroma were considered in differential diagnosis.



**Figure 1. Intraoral view showing smooth surfaced pedunculated growth with mild indentations of opposing maxillary teeth.**

Intraoral periapical radiograph and lateral oblique radiograph shows mild triangular crestal resorption of the alveolar ridge in mesial aspect of 46 suggestive of localized periodontitis. No displacement / root resorption of adjacent teeth

present. Shape and root canal morphology of mandibular first molar is altered with 5\*5 mm sized sclerotic area present at the apex of 46 region [Figure 2(a), Figure 2(b)]. Routine hematological examination found to be within normal limits.



**Figure 2 (a). Intraoral periapical radiograph showing mild triangular crestal bone loss in mesial of 46 with altered morphology of root canal and root of 46 and sclerotic area at apex of 46**



**Figure 2 (b). Lateral oblique radiograph showing mild triangular crestal bone loss in mesial of 46 with altered morphology of root canal and root of 46 and sclerotic area at apex of 46.**

As the lesion was medium in size and having pedunculated base, treatment plan comprised excisional biopsy.

#### **Discussion**

The incidence of PG among other reactive lesions has been described as between 26.8% and 32%. Although it has been reported to occur in almost all age groups, it occurs mainly between 11 and 40 years with the peak incidence in 30 years. A study by Skinner et al. revealed that females are affected more than male with the female:male ratio of 3:2.<sup>6</sup>

In this case, the patient discussed was a 18-year-old healthy female.

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.<sup>7</sup> Regezi et al.,

suggested that pyogenic granuloma is caused by a known stimulant or injury such as calculus or foreign material within the gingival crevice resulting in exuberant proliferation of connective tissue. Ainamo suggested that routine tooth brushing habits cause repeated trauma to the gingival resulting in irritation and formation of these lesions. Release of variety of endogenous substances and angiogenic factors caused disturbances in the vascularity of the affected area. Trauma to deciduous teeth, aberrant tooth development, occlusal interferences, immunosuppressive drugs such as cyclosporine and wrong selection of healing cap for implants are some of the other precipitating factors for pyogenic granulomas.<sup>3</sup> Some factors such as inducible nitric oxide synthase, vascular endothelial factor, fibroblast growth factor, or connective tissue growth factor are known to be involved in angiogenesis and rapid growth of pyogenic granuloma.<sup>4</sup> Trauma, habit of chewing and hormonal factors can be considered for the development of this growth in 18 yr old female patient.

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.<sup>7</sup> The case presented here was in 18 year female patient having a medium sized growth localized to the lingual surfaces of the right

posterior middle mandible region, reddish pink in color, the growth was present since 15 days it had gradually increased in size, it had started to bleed intermittently while brushing. The growth involved the attached gingiva and the marginal gingiva extending at the occlusal plane, thereby no interfering with mastication.

Rarely, Pyogenic Granuloma may cause significant bone loss, as reported by Goodman-Topper and Bimstein.<sup>1,6</sup> In the presented case, radiographs shows a mild triangular crestal bone loss at the interproximal region of 45 and 46 suggestive of localized periodontitis. There is also altered morphology of root canal and root of 46 with 5\*5 mm sized sclerotic area at apex of 46 can be correlated with history of trauma and chewing habit.

The fibroma is most common reactive hyperplasia of fibrous connective tissue in response to local irritation or trauma. Most commonly seen on buccal mucosa, other sites being labial mucosa, tongue and gingiva. It is likely that many gingival fibromas represent fibrous maturation of preexisting pyogenic granuloma. They typically appears as a smooth surfaced pink nodule with a sessile base sometimes pedunculated. Surface may appear white due to hyperkeratosis. The size ranges from 1.5cm or less in diameter, usually seen in 4th to 6th decade of life with male to female predilection of 1:2. Surgical excision is the treatment of choice with no recurrence rate.<sup>8</sup>

Although metastatic tumors to the oral region are uncommon, the attached gingiva is the most common affected soft tissue site followed by the tongue. Hirshberg et al. analyzing 157 cases, reported that most cases (64%) were diagnosed in patients in their fifth to seventh decade which is different from PG. The clinical appearance of the metastatic oral lesion in most cases resembled

hyperplastic or reactive lesions such as PG.<sup>2</sup> Pyogenic granuloma is distinguished from Kaposi's sarcoma in acquired immune deficiency syndrome due to the proliferation of dysplastic spindle cells, vascular clefts, extravasated erythrocytes and intracellular hyaline bodies none of which are seen in pyogenic granuloma. Management of pyogenic granuloma depends on the severity of symptoms. If the lesion is small, painless and free of bleeding, clinical observation and follow up are advised. Other treatment modalities include laser surgery, electrodesiccation. Injection of absolute ethanol, sodium tetracycl sulfate (sclerotherapy) and corticosteroids have also been tried with successful results in cases with recurrent lesions. Recurrence occurs in upto 16% of the lesions, which might be

due to incomplete excision, failure to remove etiologic factors, or due to reinjury to the area, making follow up necessary.<sup>4</sup>

#### **Conclusion**

Although pyogenic granuloma is non-neoplastic growth in the oral cavity, proper diagnosis, prevention, management, and treatment of the lesion are very important. Pyogenic granuloma arises in response to various stimuli, such as local irritation, traumatic injury, sex hormones, so removal of causative irritant is a major line of treatment. Excisional surgery is the treatment of choice for pyogenic granuloma. In spite of these treatments, the recurrence of the lesion is not so infrequent, so in some cases re-excision may be necessary

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