

Surgical Management of Pyogenic Granuloma: Case Report and Review of Literature

Shalini Gugnani¹, Salil Kawatra²

1-Professor, Department of Periodontics, J.N Kapoor D.A.V Dental College, Yamunanagar. 2-Dentist, J.N Kapoor D.A.V© Dental College, Yamunanagar.

Correspondence to:
Dr. Salil Kawatra, House No 114 Sector – 4, Urban Estate, Gurgaon, Haryana.
Contact Us: www.ijohmr.com

ABSTRACT

Pyogenic Granuloma represents an exaggerated tissue response to trauma and/or irritation. The lesion may appear as a sessile or a pedunculated growth. The surface of the growth may be smooth or lobulated. Mostly, it appears on the gingiva and may rarely be present extra gingivally. The size may vary from a few millimeters to several centimeters.

KEYWORDS: Pyogenic Granuloma, inflammation , Granuloma Pyogenicum

INTRODUCTION

Pyogenic Granuloma was first reported in literature in 1844 by Hüllihen.¹ Pyogenic Granuloma in man, in 1897, was described as “botryomycosis hominis” by Poncet and Dor.² The term Pyogenic Granuloma was coined by Hartzell in the year 1904 as ‘Granuloma Pyogenicum’.³ Owing to the inflammatory origin and the presence of blood vessels, Angelopoulos described the lesion histologically as ‘hemangiomatous granuloma’.⁴

Oral Pyogenic Granuloma, thus, may be defined as a hyperactive and benign lesion that is inflammatory in origin. It is a vascular proliferation occurring as a result of a variety of stimuli such as chronic low-grade irritation e.g. due to local denture irritation, hormonal fluctuations and responses to certain kinds of drugs , graft materials etc.⁵ The common sites of occurrence of Pyogenic Granuloma include the skin and oral cavity. It may rarely be seen within the intestinal tract.⁶ Within the oral cavity, the Oral Pyogenic Granuloma predominantly occurs on the gingiva, in approximately 75% of the cases.⁷

This article reports a case of Pyogenic Granuloma of the gingiva of a 45 year old female patient, which presented as an enlargement in the lower front region of the jaw.

CASE REPORT

A 45 year old female patient reported to the Department of Periodontics, DAV Dental College, Yamuna Nagar, Haryana, India. The patient complained of growth in the lower front region of the jaw since last 3 months. The patient complained of bleeding from the growth in response to tooth-brushing or trauma. The size of the growth had increased since it first appeared on the surface of the gingiva. The patient had stopped brushing in the area due to bleeding from the area.

The patient was hypertensive and on regular medication for the same since past 3 years. All other systemic factors were normal.

Extra-oral examination revealed no swelling or asymmetry of the face. On intra-oral examination, a large sessile, oval gingival overgrowth was present extending on the buccal surfaces of teeth 25,26 (Figure 1,2). The swelling was reddish in color and measured 6.5 X 3.5 X 10 mm in size. The surface of the gingival growth was smooth and was free of any ulcerated or discolored patches.



Figure 1 Clinical Appearance – Sessile , oval gingival growth



Figure 2 Clinical Appearance – Sessile , oval gingival growth

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Intra-orally, a faulty prosthesis was present between the two lower Central Incisors (24 & 25) which gave an appearance of supernumerary teeth. The gingival overgrowth extended well beyond the occlusal surface of the mandibular teeth and appeared like missing teeth.

The patient's oral hygiene was poor and her teeth showed heavy deposits of calculus and plaque. The teeth, around which the growth was seen, were not mobile, at all.

On the basis of clinical and radiographic findings, the overgrowth was provisionally diagnosed as Pyogenic Granuloma.

All hematological investigations were normal. The patient was hypertensive, hence was prescribed to take his regular medications prior to the surgery. After this, the patient was prepared for surgery in accordance with the clinical and radiographic evidence. Oral prophylaxis was initially done in order to reduce the local precipitating factors. The lesion was excised up to the bone including the mucoperiosteum under aseptic conditions and local anesthesia after which sutures were placed (Figure 3). This was followed by curettage and thorough scaling of the involved teeth.



Figure 3 Sutures Placed after surgical removal

The tissue excised was then sent, for histological investigations, to the Department of Oral Pathology. The examination of H&E stained section revealed keratinized stratified squamous epithelium with underlying connective tissue stroma. The epithelium is flattened in the region of the jaws whereas at some sites it shows elongated rete pegs. The underlying connective tissue shows bands of collagen with widespread inflammatory infiltrate. A few blood vessels were also seen. The diagnosis of Pyogenic Granuloma was confirmed histologically.

For most cases of Pyogenic Granuloma biopsy and excision of the lesion is the most favorable and recommended line of treatment. These treatment modalities are not preferred if complete excision would result in a deformity. Cases of such kind should be subjected to incisional biopsy.¹⁶ Excision would involve removing the lesion including the mucoperiosteum and a thorough removal of local irritants and calculus.⁸ Clinicians have undertaken a variety of treatment

modalities such as use of lasers electro-desiccation, sodium tetradecyl sulfate sclerotherapy and intra-lesional steroid use.^{15,16}

In this case, the gingival lesion was surgically excised with thorough scaling and removal of calculus. Patient was recalled after 15 days for suture removal.



Figure 4 Post-Operative -Sutures removed after 15 days

DISCUSSION

Regezi et al. proposed that an extensive proliferation of connective tissue in a case of Pyogenic Granuloma maybe caused by a stimulus or injury due to deposits on the tooth surface and other foreign material within the gingival crevice.⁸ Some of the other etiologic factors that may precipitate Pyogenic Granuloma may include deciduous tooth trauma, abnormal development of teeth, occlusal interferences and immune-suppressants like cyclosporine.^{9,10,11} It has also been suggested by Ainamo, that daily tooth brushing habit may result in repeated trauma to the surface of the gingiva, thus causing irritation and formation of these lesions.¹²

Oral Pyogenic Granulomas may occur in almost all age groups but they are more often seen in females due to increased levels of circulating estrogen and progesterone. This can be elucidated by the fact that enlargements of the gingival tissue have been seen to aggravate in pregnancy but atrophy or reduce completely at or after menopause.¹³

This article reports of 45 year old female with pyogenic granuloma. Amongst all of the factors enlisted above that may serve to precipitate pyogenic granuloma, the most probable factor that would have precipitated the growth, in this case, would be trauma due to tooth brushing and calculus. Repeated trauma, maybe of low grade would have contributed to an increased vascularity of the already present lesion and an increase in its size.

Chronic trauma is an important etiological factor for the pathogenesis of Pyogenic Granuloma.¹⁴

Literature suggests that Oral Pyogenic Granuloma appears as an elevated growth that may be smooth or exophytic, sessile or pedunculated and may be ulcerated or smooth. The color of the lesion may vary from red to

reddish purple or even pink depending on the vascularity of the lesion.¹⁵ It is most likely seen on the marginal gingiva but may occasionally be seen on lips, tongue, or buccal mucosa. Even though it may mostly be seen as an asymptomatic and painless growth but at times may also grow rapidly.¹⁶ This case depicts a reddish pink colored gingival growth in the region of lower right mandibular central and lateral incisors. The gingival growth bled in response to the brushing of teeth and thereby had increased in size since its occurrence over the past 3 months.

In almost all cases of Pyogenic Granuloma radiographic findings are usually absent. On the contrary, Angelopoulos conclusively showed that some cases of long standing Pyogenic Granuloma of the gingiva might result in localized resorption of the alveolar bone.⁴ The case reported in this article also shows no obvious radiographic features.

CONCLUSION

This article describes the surgical management of a clinical case of pyogenic granuloma and discusses the literary background supporting the diagnosis of the lesion. On the basis of histological and clinical findings the lesion was diagnosed as Pyogenic Granuloma, and due to the size of the lesion, a minor surgical procedure was undertaken to excise the lesion.

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