



## LASER EXCISION OF PYOGENIC GRANULOMA : A CASE REPORT

## Periodontology

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## ABSTRACT

Pyogenic granuloma is one of the inflammatory hyperplasias of the oral cavity. The condition is associated with periodontal pain and discomfort and may interfere with mastication and aesthetics. The present case reports a localized inflammatory hyperplasia of the maxillary gingiva of a 53 year old male patient. Laser excision followed by biopsy of the lesion revealed findings suggestive of pyogenic granuloma.

## KEYWORDS

Pyogenic granuloma, gingival, diode laser, inflammatory hyperplasia

## INTRODUCTION

Pyogenic granuloma (PG) is an inflammatory hyperplasia describing a large range of nodular growths of the oral mucosa. <sup>(1)(2)</sup> PG is also known as eruptive haemangioma, granulation tissue-type haemangioma, granuloma gravidarum, lobular capillary haemangioma, pregnancy tumour or tumour of pregnancy. <sup>(3-6)</sup> Hartzell in 1904 is credited with giving the current term of "pyogenic granuloma" or "granuloma pyogenicum." It was also called a Crocker and Hartzell's disease. <sup>(7)</sup>

Various studies have suggested varied etiological factors which lead to the formation of pyogenic granuloma in the oral cavity.

Chronic low grade trauma <sup>(8)</sup>, physical trauma <sup>(9)</sup>, hormonal factors <sup>(10)</sup>, bacteria, viruses <sup>(11)</sup> and certain drugs <sup>(12)</sup> have been implicated as causative factors in the development of pyogenic granulomas. Oral pyogenic granulomas accounts for around 75% predilection in gingiva. Of all cases <sup>(13)</sup> Local irritants such as calculus, foreign material in the gingival <sup>(9)</sup> and poor oral hygiene <sup>(8)</sup> are the precipitating factors.

Pyogenic granuloma is a non-neoplastic growth and excisional therapy is the treatment of choice but some alternative approaches such as cryosurgery, excision by Nd:YAG Laser, flash lamp pulsed dye laser, injection of corticosteroid or ethanol, and sodium tetradecyl sulfate sclerotherapy have been reported to be effective.

Although many lesions occurring in the oral cavity have got similar appearance as PG, a detailed history, clinical examination, and a proper treatment plan will be helpful to pinpoint the disease.

## CASE REPORT

A 53 year old male presented with 2 months history of swelling in the upper front tooth region. The swelling was non tender and gradually increased in size. Patient gave a history of foul smell from the swelling for which he had taken saline irrigation. The patient had a medical history of hypertension for past 5 years and was under antihypertensive medication. He also underwent a surgery for renal stone 6 years back. No habit history or drug allergy was reported.

On extra-oral examination, the area below the nose extending up to the upper lips appeared swollen measuring approximately 2cm. On palpation, the area near the right side of the nose was slightly tender and the submandibular lymph node was non tender and non palpable.

Intraoral examination revealed a single, well defined swelling measuring about 2X3cm in size seen in the attached gingiva extending from the upper right lateral incisor to the palatal aspect of upper lateral

left incisor (figure1).which was smooth and pedunculated and the surrounding mucosa appeared pale pink in colour. The swelling was non tender and soft in consistency on palpation, noncompressible or non reducible A draining sinus was observed on the palatal aspect of 22, measuring approximately 0.5mm in size. The surrounding mucosa appeared normal.

Routine blood investigations showed no abnormalities. Patient underwent scaling and root planing along with gingival curettage in the region of the lesion. Betadine irrigation was done. Oral hygiene instructions were given and the patient was motivated to ensure optimum plaque control. Following mechanical debridement a marked improvement in the gingival health was observed during reevaluation after two weeks but the swelling persisted.

With a diagnosis of pyogenic granuloma, the patient underwent excision of the lesion using 980nm diode laser manufactured by Doctor smile with 7W power. Local anaesthesia was not used. The diode laser provided an adequate combination of clean cutting of the tissue and haemostasis (figure 2a,b )Post operative instructions were given. Patient was not prescribed any antibiotics, analgesics, or anti-inflammatory medication.

Histopathological examination of the resected specimen revealed a pyogenic- granuloma (figure 4).The post operative period and healing was uneventful.

## DISCUSSION

Pyogenic granuloma is a benign lesion of vascular origin <sup>(3)</sup>. It is now universally agreed that this lesion is formed as a result of an exaggerated localized connective tissue reaction to a minor injury or any underlying irritation. <sup>(14)</sup>

Calculus, poor oral hygiene, non specific infections, overhanging restorations, cheek biting act as the irritating factors and the underlying fibro vascular connective tissue becomes hyperplastic on irritation and cause proliferation of granulation tissue which leads to the formation of pyogenic granuloma. Clinically pyogenic granuloma is a smooth or lobulated epiphytic lesion manifesting as a small, red erythematous papule on a pedunculated or sessile base. Pyogenic granuloma is predominantly seen in the second decade of life in young adult females, possibly because of vascular effects of female hormones. The gingival is the most commonly affected site followed by the buccal mucosa, tongue and lips <sup>(15)</sup>

Histologically, PG appears in two forms: lobular and nonlobular. The

lobular form is characterised by the presence of a larger number of proliferating blood vessels with little or no specific changes. The non-lobular form is characterised by the presence of dilated capillary channels and aligns with the endothelial cells. Histologically, the tumour is more like a granulomatous lesion and not a pyogenic lesion.<sup>(6)</sup>

Radiographic findings are usually absent, however, some long standing gingival PGs can cause localized alveolar bone resorption.<sup>(16)</sup>

Differential diagnosis for the lesion includes peripheral giant cell granuloma, peripheral ossifying fibroma, metastatic cancer, hemangioma, pregnancy tumor, hyperplastic gingival inflammation, Kaposi's sarcoma, bacillary angiomatosis, angiosarcoma, and non-Hodgkin's lymphoma.<sup>(17)</sup>

The treatment of choice for these lesions is wide surgical resection with margins of 2 mm from its periphery. Aetiological factors are eliminated in order to reduce the risk of recurrence. Several other treatments may be considered: diode or CO2 laser resection, nitrogen cryosurgery, intralesional injection of corticosteroids or sclerosing agents<sup>(3)</sup>. In this case, the patient received initial phase I therapy and excision of the lesion by diode laser followed by histopathological examination of the resection to confirm the diagnosis.

Laser therapy using continuous and pulsed CO2 and Nd:YAG systems have been used for a variety of intraoral soft tissue procedures such as haemangioma, lymphangioma, squamous papilloma, lichen planus, focal melanosis, and pyogenic granuloma, as they carry the advantage of being less invasive and sutureless procedures that produce minimal postoperative pain. Rapid healing can be observed within a few days of treatment, and as blood vessels are sealed, there are both a reduced need for post-surgical dressings and improved haemostasis and coagulation. It also depolarizes nerves, thus reducing post-operative pain, and also destroys many bacteria and viral colonies that may potentially cause infection. Reduced post-operative discomfort, oedema, scarring, and shrinkage have all been associated with its use.<sup>(18)</sup>

Diode laser has shown excellent results in cutaneous pyogenic granulomas with minimal complications. Gonzales et al<sup>(19)</sup> demonstrated both symptomatic and clinical clearing of the lesions with excellent cosmetic results in 16 of 18 treated patients.

Recurrence rate for pyogenic granuloma is said to be 16% of the treated lesions and so re-excision of such lesions might be necessary.<sup>(20)</sup>

**CONCLUSION**

Pyogenic granuloma is a common lesion of the skin and oral cavity, especially the gingiva. In this case report, an excisional biopsy was performed for appropriate diagnosis and treatment. Even though PG is a relatively common presentation, a careful management and diagnosis of the lesion helps in preventing its recurrence.



Figure 1: pre operative view

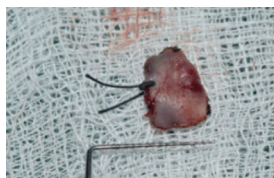


Figure 2a: Excisional biopsy specimen

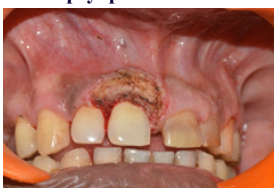


Figure 2b: post operative view

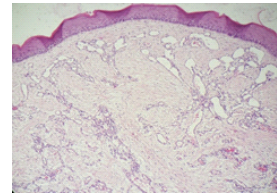


Figure 3 : histopathologic section under low magnification

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