

# LASERS “VANGUARD” FOR THE TREATMENT OF PYOGENIC GRANULOMA- A CASE REPORT

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## Abstract

Lasers, a revolutionized adjunct, has been adapted for use in dentistry including oral medicine, oral surgery, pediatric and operative dentistry, periodontics and implantology, prosthetic dentistry. Current scenario finds various hard and soft tissue applications with advantages of being precision in procedure, painless, bloodless and patient's acceptability.

This case report here, emphasizes the diode laser as a treatment modality for excision of pyogenic granuloma without the use of anesthesia and sutures. The clinical features and histopathology are discussed, evincing the correct diagnosis of discussed lesion.

Laser excision is an effective modality with minimal invasion. Less intra-operative bleeding, hemostasis and reduced pain and satisfactory healing are various clinical advantages associated with it.

**Key-words:** Laser, Pyogenic granuloma, Diode.

## INTRODUCTION

Pyogenic granuloma was initially described by two French surgeons, Poncet and Dor and named the lesion as botryomycosis in 1897. The term pyogenic granuloma is a misnomer as it is capillary hemangioma and not a true granuloma. The various contributory factors for its development includes chronic low grade trauma, poor oral hygiene, foreign material in gingiva, calculus, hormonal factors, bacteria, viruses and certain drugs.<sup>1,2</sup>

Clinical features of lesion include being painless, exophytic masses which can be either sessile or pedunculated. Pyogenic granuloma of oral cavity commonly involves gingiva and it can occur on the lips, tongue, buccal mucosa, palate extralingually. Gingival granuloma presents with a base beginning from the gingival margin or, in most cases, from the interproximal tissues in the maxillary anterior. Pyogenic granuloma can develop at any age, with peak incidence between the ages of 20 to 30 with more predisposition in females.<sup>3,4</sup>

The management of pyogenic granuloma is determined by clinical appearance of the lesion, which is turn governed by the microstructure. If the lesion is red and soft and the irritating cause can be eliminated, a significant reduction in size may be observed. The excision is easier and less blood is lost if lesion is permitted to regress (sclerose) before procedure. And if lesion is pale pink and quite firm, its predominantly fibrous tissue. In such cases no reduction can be expected and excision is indicated. Recurrence rate of 16% treated cases is reported after excision indicating their reexcision. Various other effective approaches include cryosurgery, sodium tetradecyl sulphate sclerotherapy, corticosteroid injection, excision by Diode laser, Nd:YAG, CO<sub>2</sub> laser and Er:YAG laser.<sup>5,6,9</sup>

This case report emphasis upon the use of Diode laser for the management of mucosal pyogenic granuloma.

## CASE REPORT:

A 38 year old female patient reported with chief complaint of swelling wrt her upper front gum region. On intraoral examination an asymptomatic oval shaped growth measuring approximately 1x1.2 cm was seen in relation to labial aspect of gingiva originating from interproximal region w.r.t 11, 12 region. Other findings included poor oral hygiene.(FIG.1)

On palpation, the inspeactory findings were confirmed in terms of site, size, shape and number. The lesion was pedunculated and firm in consistency with slight bleeding on probing. Radiographic findings revealed as no evidence of bone loss. Complete Hemogram revealed as normal.

## TREATMENT

A 940nm diode was used for excision of lesion with due care of safety protocols. Topical anaesthetic gel (Precaine) was applied to the site. A 380um tip was initiated with 7 mm length, 1W continuous mode was used in contact mode to excise pathology. An additional 0.5mm was added circumferentially to the margin to account for the lateral zone of thermal necrosis for histopath study. The diode laser provided precision cuts without the bleeding of traditional scalpel (Figures 2). Patient was given all necessary post-operative instructions. No drugs (anti-inflammatory, antibiotics) were prescribed. LLT (Low laser therapy) was applied on the site to aid in healing. Follow up was done after 24 hrs, 1 week and 1 month. Healing was not painful for patient and there is no reoccurrences till date.

Excised sample was sent for Histopathology revealing thin walled capillaries surrounded by fibroblast and infiltrated with acute and chronic inflammatory cells. Diagnosis of pyogenic granuloma was confirmed.



Figure 1: Pre-operative picture showing epulis wrt 11,12 region; Figure 2: Intra- operative picture showing usage of laser; Figure 3: Post- operative picture



Figure 4: Histopathological image; Figure 5: Follow up picture after 1 week follow up

## DISCUSSION

The pyogenic granuloma is a relatively common, tumor like, exuberant tissue response to localized irritation or trauma. Differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, haemangioma, conventional granulation tissue, hyperplastic gingival inflammation.

The most commonly used technique for treatment of PG is surgical excision, with alternative therapy including removal with electric scalpel or cryosurgery, cauterization with silver nitrate, sclerotherapy with sodium tetra decyl sulfate and monoethanolamine oleate, absolute ethanol injection dye, Nd:YAG and CO<sub>2</sub> laser, excision, and laser photocoagulation. Surgical excision has been reported to have 16% rate of recurrence in treatment of PG.<sup>3,4</sup>

Laser is basically a “light scalpel” producing precision in excision without bleeding in contrast to scalpel surgery. The advantages of laser surgery compared with conventional methods include maintenance of sterility and precision, reduction of bleeding, reduction in the number of instruments, very often sutureless, painless intra- and post-operatively, increased wound healing.

White et al documented that laser excision is well tolerated by patients with no adverse effects and reported lasers as surgical treatment. Meffert et al used the flash lamp pulsed dye laser on a mass of granulation tissue and concluded that previously resolute tissue responded well to the series of treatments with pulsed dye laser. Diode laser has shown excellent results in cutaneous pyogenic granulomas with only minimal pigmentary and textural complications. Licata et al also supported use of Er, Cr:YSGG (Erbium, Chromium doped Yttrium Scandium Gallium Garnet) laser as the treatment method for pyogenic granuloma. We achieved complete resolution of this lesion located on the upper gingiva with diode laser without producing any complications. There was no scarring or recurrence. Hence, diode laser is a good therapeutic adjunct for intraoral pyogenic granulomas.<sup>6,7</sup>

## CONCLUSION

Lasers have been used for various oral hard and soft tissue procedures proving edge over various conventional treatments. But laser has never been the “magic wand” having its own limitations. Future needs to explore new advances in energy delivery with less lateral thermal effects, more specific tissue interactions based on new wavelengths so that maximum benefit is derived in terms technology and patient’s acceptance.

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