

Novel approach in the management of pyogenic granuloma by 980nm diode laser as an adjunct to surgical excisional biopsy: A Case Report

Dr Rohit Rai¹, Dr Ranjana Mohan², Dr Vandana Sharma¹, Dr Salabh Mehrotra³, Dr Sambhav Jain⁴, Dr Keerti Sharma⁵

¹⁻⁵ Department of Periodontology, Teerthanker Mahaveer Dental College & Research Centre, India

*Corresponding Author:

Name: Dr Rohit Rai

Email: periodontics07@email.com

Abstract: A 34 years female patient reported with a complaint of growth of gingiva in the upper front teeth since 5 years. On Intraoral examination, a localized growth was seen in labial aspect of gingiva in relation to maxillary central incisors which was small in size. The lesion was reddish, soft in consistency, roughly oval in shape, measuring about 10 × 9 mms in size and associated with bleeding on probing. The lesion covered approximately 1/2 of the crown. The lesion was first treated with diode laser which shows considerable decrease in the size and further excised surgically.

Keywords: Pyogenic Granuloma, Diode Laser, Surgical excision biopsy.

INTRODUCTION:

Pyogenic granuloma (PG) is a kind of inflammatory hyperplasia. The term “inflammatory hyperplasia” is used to describe a large range of nodular growths of the oral mucosa that histologically represent inflamed fibrous and granulation tissues (1,2). It includes fibrous inflammatory hyperplasia (clinical fibroma, epulis fissuratum, and pulp polyp), palatal papillary hyperplasia, giant cell granuloma, pregnancy epulis and Pyogenic Granuloma (2).

Pyogenic Granuloma is a common tumor-like growth of the oral cavity or skin that is considered to be non-neoplastic in nature (3,4). Hullihen’s description (5) in 1844 was most likely the first Pyogenic Granuloma reported in English literature, but the term “pyogenic granuloma” or “granuloma pyogenicum” was introduced by Hartzell (6) in 1904. Although it is a common disease in the skin, it is extremely rare in the gastrointestinal tract, except for the oral cavity (7) where it is often found on keratinized tissue (8). There are two kinds of Pyogenic Granuloma namely lobular capillary hemangioma (LCH type) and non-LCH type, which differ in their histological features (9). Because of the high incidence of oral PG, especially in pregnant women, and the critical need for its proper diagnosis, management and treatment, this review will address the etiology, clinical and histopathologic features and its correlation with pregnancy. Excisional surgery is the treatment of choice for pyogenic granuloma, but some new approaches for treatment such as cryosurgery, excision by Nd:YAG laser, flash lamp pulsed dye laser, injection of ethanol or corticosteroid and sodium

tetradecyl sulfate sclerotherapy have been reported as alternative therapies (10-12).

In spite of these treatments, recurrence is not infrequent so in some cases re-excision may be necessary. It should be emphasized that one important point about pyogenic granuloma is the effect of sex hormonal imbalances during pregnancy which is one of the most common causes of pyogenic granuloma. During pregnancy, careful oral hygiene, removal of dental plaque, and use of soft toothbrushes are important to avoid occurrence of pyogenic granuloma (13). This case report shows a new treatment approaches for Pyogenic Granuloma.

CASE REPORT:

A 34 years female patient with a complaint of growth of gingiva in the upper front teeth since 5 years. Soft tissue growth was small in size and was stable for 3 years. The patient had gone for surgical excision 2 year & 1 year but overgrowth reoccur in 3 month. The patient brushed his teeth once daily using a toothpaste and brush using a horizontal stroke and consumed a mixed diet.(Figure 1)

On Intraoral examination, a growth was seen in the gingiva in relation to maxillary central incisors which was small in size, but has now gradually started to increase which is painless. The lesion was reddish, soft in consistency, roughly oval in shape, measuring about 10 × 9 mms in size, and associated with bleeding on probing. The lesion covered approximately 1/2 of the crown. The oral hygiene status was fair and width of attached gingiva was adequate. Intra oral periapical

radiograph revealed mild marginal bone loss (Figure 2). Blood examination revealed normal values.

MANAGEMENT:

At the first appointment, patient underwent careful SRP by ultrasonic dental unit (Denstply Cavitron Bobcat Pro) and Gracey curettes (Hu-Friedy) under local anaesthesia. All patients received special training on brushing their teeth twice daily using the modified Bass technique and flossing. After one week the diode laser (Denlase,ChinaDaheng Group, Inc) operating at a power output of 1.5 W (1.5 W, 30 sec, continuous wave) were used. Laser light were delivered by means of a 300 micron optical fibre. The fibre was used in light contact with a sweeping action that covers the entire epithelial lining of overgrowth. The size of overgrowth decreases after diode laser therapy.

The surgical excision was performed which extend down to the periosteum and the adjacent teeth should be thoroughly scaled to remove the source of continuing irritation.

HISTOPATHOLOGY:

Histopathological examination of the growth revealed Stratified squamous orthokeratinized epithelium covering cellular connective tissue. The epithelium shows area of ulceration below which can be seen inflammation in the connective tissue. the connective tissue shows proliferating fibroblasts and collagen fibres interposed in which can be seen lot of epithelial lined spaces within the connective tissue can be seen patchy distribution of lymphocytes and plasma cells. There was no evidence of atypia or malignancy. The clinical and histopathological findings confirmed it to be a case of pyogenic granuloma.(Figure 3)



Fig- 1: A) Pre-operative B) Decrease in size of lesion after Diode Laser therapy C) Post surgical excision D) After 1 month



Fig-2: Radiographic appearance



Fig-3: Histopathologic appearance (100X)



Fig- 4: After 6 month

DISCUSSION:

The pyogenic granuloma most frequently occurs on the buccal surface of gingiva interproximally. History of trauma is common in extragingival sites, whereas most lesions of the gingiva occurs in response to irritation. Individuals with poor oral hygiene and chronic oral irritants (eg, overhanging

restorations, calculus) most frequently are affected. In the present case as there was gradual increase in the size of the growth covering almost 1/ 2 of the crown resulting in esthetic concern to the patient. Patient was unable to maintain the oral hygiene A gingivectomy procedure was performed adjunct to the 980nm Diode Laser and the growth was excised and send for biopsy. Both the clinical and histopathological findings showed it to be a case of pyogenic granuloma. The case was followed up for six months and growth did not reoccur (Figure 4).

CONCLUSION:

The pyogenic granuloma occurs most frequently on the labial aspect of gingiva in the interproximally. The lesion was first treated with diode laser which shows considerable decrease in the size and further excised surgically. The management of pyogenic granuloma with diode laser in adjunct to surgical excision was more promising and further reduces the chances of reoccurrence.

REFERENCES:

1. Eversole LR; Clinical outline of oral pathology: diagnosis and treatment. 3rd ed, BC Decker, Hamilton, 2002; 113-114
2. Greenberg MS, Glick M; Burket's oral medicine: diagnosis and treatment. 10th ed, BC Decker, Hamilton, 2003; 141-142
3. Neville BW, Damm DD, Allen CM, Bouquot JE; Oral & maxillofacial pathology. 2nd ed, WB Saunders, Philadelphia, 2002; 437-495
4. Vilmann A, Vilmann P, Vilmann H; Pyogenic granuloma: evaluation of oral conditions. Br J Oral Maxillofac Surg, 1986; 24:376-382
5. Hullihen SP; Case of aneurism by anastomosis of the superior maxillae. Am J Dent Sc, 1844; 4:160-162
6. Hartzell MB; Granuloma pyogenicum. J Cutan Dis Syph, 1904;22, 520-525
7. Yao T, Nagai E, Utsunomiya T, Tsuneyoshi M; An intestinal counterpart of pyogenic granuloma of the skin. A newly proposed entity. Am J Surg Pathol, 1995;19:1054-1060
8. Fowler EB, Cuenin MF, Thompson SH, Kudryk VL, Billman MA; Pyogenic granuloma associated with guided tissue regeneration: a case report. J Periodontol, 1996; 67:1011-1015
9. Epivatianos A, Antoniadis D, Zaraboukas T, Zairi E, Pouloupoulos A, Kiziridou A, Iordanidis S; Pyogenic granuloma of the oral cavity: comparative study of its clinicopathological and immunohistochemical features. Pathol Int, 2005; 55: 391-397
10. Powell JL, Bailey CL, Coopland AT, Otis CN, Frank JL, Meyer I; Nd:YAG laser excision of a giant gingival pyogenic granuloma of pregnancy. Lasers Surg Med, 1994;14:178-183

11. White JM, Chaudhry SI, Kudler JJ, Sekandari N, Schoelch ML, Silverman S Jr; Nd:YAG and CO2 laser therapy of oral mucosal lesions. *J Clin Laser Med Surg*, 1998;16:299-304
12. Meffert JJ, Cagna DR, Meffert RM; Treatment of oral granulation tissue with the flashlamp pulsed dye laser. *Dermatol Surg* 24, 845-848 Ishida CE, Ramos-e-Silva M; Cryosurgery in oral lesions. *Int J Dermatol*, 1998; 37:283-285
13. Shafer WG; Benign and malignant tumors of the oral cavity. chapter 2, textbook of oral pathology, shafer, hine and levy, 4th edition, USA, W.B. Saunders 1983;89-95.