Gingivectomy of Chronic Inflammatory Gingival Enlargement with Laser: A Case Report

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ABSTRACT

The aim of this study was to present a case report of surgical removal of chronic inflammatoty gingival enlargement using diode laser. The presence of irritative factors in the mucosa triggers a chronic inflammatory process leading to the formation of hyperplastic asymptomatic fibrous tissue. A 38 year old male patient reported with a chief complaint of swelling in the gums of teeth in upper front region. Gingival enlargement removal was done employing diode lasers after phase I therapy.

INTRODUCTION

Gingival enlargement a common feature of gingival disease which can be caused by gingival inflammation, fibrous overgrowth, or a combination of the two[1]. It is a multifactorial condition that develops as interactions between the host and the environment or in response to various stimuli[2].

Most frequently encountered oral mucosal lesions in human beings are reactive in nature [3]. These lesions are called reactive since they are due to some kind of reaction to low grade injury, irritation, calculus, improperly contoured and designed prosthetic appliances or restorations[4]. In early stage chronic irritant stimulates, the formation of granulation tissue later the tissue begins to undergo a process of fibrosis. The presence of irritative factors in the mucosa triggers a chronic inflammatory process leading to the formation of hyperplastic asymptomatic fibrous tissue[5]. Lesion is usually slow growing and asymptomatic, considered a non-neoplastic cell proliferative increase in response to the action of constant physical agents [6].

These enlargements may lead to functional disturbances like difficulty in mastication, altered speech, aesthetic and psychological problems[7].

Laser systems and their application in dentistry and especially oral surgery are rapidly improving today. The specific advantages of lasers are incision of tissues, coagulation during operation and postoperative benefits[8]. Diode laser with wavelengths ranging from 810 to 980 nm in a continuous or pulsed mode was used as a possible modality for soft tissue surgery in the oral cavity. Based on the photothermal effect of the diode laser, the lesions of the oral mucosa are removed with an excision technique, or by ablation/vaporization procedures[9,10,11].

CASE REPORT

A 38 year old male patient reported to the Department of Periodontology, government dental college and Hospital, Patiala with a chief complaint of swelling in the gums of teeth in upper front region. Local factors, like plaque and calculus were present. The enlargement was diffuse, soggy in appearance and fibrotic accompanied by an inflammatory component with probing depth of around 6 mm and generalized gingival bleeding on probing (Fig 1).
There was no drug or systemic history reported. Also, there was no familial history present. On the first visit, oral hygiene instructions were given after scaling and polishing. After phase I therapy, the patient was recalled and results were evaluated. The healing of inflammatory enlargement had taken place and fibrotic enlargement remained on upper front two teeth. (Fig 2).

A written consent was obtained before the procedure. Gingival enlargement removal was done employing diode lasers. (fig3, 4)
The excised lesion was sent for histopathological examination. The patient was motivated to maintain oral hygiene and was asked to rinse her mouth with 0.2% chlorehexidine mouthwash twice daily for 1 week. Microscopic examination revealed hyper-parakeratinized stratified squamous epithelium. The underlying dense fibrous connective tissue stroma showed large amount of chronic inflammatory cell infiltrate which consists of lymphocytes and plasma cells and a moderate number of blood vessels suggestive of chronic inflammatory fibrous hyperplasia (fig 5). The patient was recalled after 10 days but he didn’t revert back.

**DISCUSSION**

Gingival enlargement varies from mild enlargement of isolated interdental papillae to uniform marked enlargement affecting either one or both the jaws[12]. Enlargements are a common clinical finding mostly represent a reactive hyperplasia which is a result of plaque-related inflammatory gingival disease[13]. These are the disorders of the fibrous connective tissue layer of the oral mucosa, which proliferates due to continuous stimulation and chronic irritation. This is caused due to tissue edema and infective cellular infiltration as a result of long standing bacterial plaque, which are treated with conventional periodontal therapy, such as scaling and root planning[14]. When chronic inflammatory gingival enlargements with a significant fibrotic component does not resolve completely after initial periodontal therapy or does not meet the aesthetic demands of the patient, surgical removal is the only treatment of choice.
The most widely employed surgical approaches for the treatment of gingival enlargements is gingivectomy by surgical blade, laser or electrocautery [7]. Among these modalities laser have advantages like relatively bloodless surgery, minimal swelling, scarring and coagulation, no need for suturing, reduction in surgical time and minimal or no post surgical pain. Also, the laser instantly disinfects the surgical wound and allow a noncontact type of operative procedure so that there is no mechanical trauma to the tissue[15,6,17]. Laser transmits energy to the cells causing warming, welding, coagulation, protein denaturation, drying, vaporization and carbonization. The diode laser was introduced in dentistry and oral surgery in the mid-90s[16,18]. The diode laser devices have specifications such as relatively small size, portable and lower cost that attract the dental practitioners and oral surgeons for use in various surgical indications in comparison to other laser equipment[8,19,20].

In our case report chronic inflammatory gingival enlargement was present in relation to maxillary front teeth region causing esthetics problem to the patient. The resolution of the inflammatory component was noticed after nonsurgical therapy with the persistence of the fibrotic component which was then excised by diode laser.

CONCLUSION

Gingival enlargement is disfiguring, and can interfere in mastication and speech; hence a thorough understanding of the pathogenesis is essential. The local factors, dental plaque and calculus are responsible for gingival enlargement. In the present case report, size of the hyperplastic tissue was the main cause of esthetic problems to the patient therefore excised completely. Diode lasers can be used in oral soft tissue surgery and especially small prominent lesions because of easy application, better coagulation, and no need for suturing, less swelling and pain, as well as for its capability for treatment of physiologic gingival pigmentation from an esthetic point of view. It can be considered as a first choice despite periodontal surgery due to faster action, better de-epithelialization, no bleeding and better repair.

REFERENCES