

Performing Gingivoplasty Without Injected Anaesthesia: A Case Report

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Abstract: A male patient, 65 years old presented to the clinic with generalized gingival overgrowth on the anterior mandible. The nifedipine intake, a calcium channel antagonist, caused this pathological condition. The diode laser applied on gingival tissues without injected anaesthesia. The healing was assessed and found to be uneventful. The advantages and disadvantages of this technique are discussed.

Key words: Diode laser gingivoplasty, painless, anaesthesia

INTRODUCTION

Oral surgery procedures were performed to correct functional or aesthetic discrepancies. Many surgical techniques have been described but with established advantages and disadvantages. In the last decade, laser procedures in the oral cavity showed a lot of optimum effects for operations such as soft tissue and hard tissue cut. Many types of laser have been implicated in performing those specific oral treatments. Probably the least investigated laser type in dental field was the diode light. The fiber optic technology allowed the surgeon to use the contact surgical technique, something that is missing from most of other types of laser.

Drug induced gingival overgrowth should be considered as common in individuals who were under specific medication. The best drug representatives were calcium channel blockers such as nifedipine and diltiazem hydrochloride (Scully and Cawson, 2004).

In our case a unique treatment of nifedipine induced gingival overgrowth is discussed. The role of diode laser found to be perfect in performing such a surgical procedure without injected anaesthesia.

CASE REPORT

A male patient, 65 years old presented to the clinic for evaluation of painless lower jaw gingival overgrowth (Fig. 1). The medical history revealed an old myocardial infarction and hypertension. The individual received salicylic acid and nifedipine. No allergies reported. The patient did not smoke nor drink alcohol. Probing examination showed the presence of calculus and microbial biofilm attachment on tooth surface.



Fig. 1: Nifedipine induced gingival overgrowth



Fig. 2: The fiber optic of diode laser applied on the right anterior mandible for removal of the pathological tissue without injected anaesthesia



Fig. 3: The inflamed gingival tissue on the right side was removed initially



Fig. 4: Three days later the healing on the right side was assessed. The left side treated using the same laser parameters without injected anaesthesia

It was decided to excise gingival tissue using diode laser fiber optic technology. The technical parameters used for the diode laser were, 1500 mw of continuous emission and the fiber diameter was 300 μm . The tissues sprayed with xylocaine for surface anaesthesia. Firstly the anterior right lower region treated (Fig. 2 and 3). The patient advised to rinse his mouth with 0.2% chlorhexidine mouth wash for ten days starting from the initial therapy. Three days later the tissue healing was evaluated and the lower left side was surgically treated (Fig. 4). At the end of the week the patient was followed up to evaluate the gingival condition. Furthermore, supragingival and subgingival calculus removed using ultrasonic scalers and hand instruments specific for root planning. Tooth stains removed using a special paste on dental polisher system (Fig 5). The patient advised to contact his



Fig. 5: One week later the healing was uneventful and the teeth polished from calculus, biofilm and stains

cardiologist to discuss the possibility of an alternative drug treatment. No antibiotics prescribed during the course of therapy. The patient did not report pain or discomfort when the laser fiber applied on the gingival tissues.

DISCUSSION

Currently there are many hard and soft laser equipments with various properties. Hard laser types are used for cutting tooth or bony structures. Soft tissue laser is mainly indicated in dentistry and dermatology for skin or mucosal operations.

In dentistry, CO₂ laser has been used for many years (Israel, 1994) for treating surgically ankyloglossia due to lingual frenum extension or other highly attached buccal frenae. Other soft laser procedures performed in the oral cavity may be: Dentine desensitization, biopsy, tooth whitening, small neoplasm excision, root canal treatment, aphthous ulcer treatment, second stage implant surgery and gingivoplasty.

Gingivoplasty may be defined as local or generalized. Local gingivoplasty may be performed in cases where the cause was topical such as localized gingival hyperplasia in congenital or acquired conditions.

Generalized gingival overgrowth most probably is characterized as drug induced clinical condition. Others may be characterized as congenital, haematological or deposit dependent (Demirer *et al.*, 2007; Gokbuget *et al.*, 1997; Khara *et al.*, 2005). The drugs most commonly involved were nifedipine, diltiazem, felodipine, nitrendipine, verapamil, phenytoin, cyclosporin, sodium valproate and tranexamic acid (Scully and Cawson, 2004).

The mechanism of gingival overgrowth found to be the fibroblastic stimulation in the submucosa or increased production of the ground substance of collagen and extracellular matrix (Wright *et al.*, 2005).

This case described a laser gingivoplasty without injected anaesthesia. This constituted the great advantage of this laser surgery in addition to the healing process, antiseptis and postsurgical course keeping in mind that laser transmits energy to the cells causing warming, welding, coagulation, protein denaturization, drying, vaporization and carbonization (Sarver and Yanosky, 2005). According to the existing literature the diode laser may be used without anaesthesia for soft procedures in the oral cavity (Jarjoura, 2005). If we consider all the previous advantages, this technique may be defined as cost effective. The time required when the device is set as described before for tissue cutting is the main disadvantage. If we compare to other techniques such as scalpel excision or electrosurgery, according to our experience, the needed time is almost double for the same procedure. These disadvantages according in the sphere of evidence should not overcome the positive effects of diode laser.

CONCLUSION

Concluding, diode laser gingivoplasty may be performed without injected anaesthesia with the optimum healing postsurgically. It may be considered as a novel alternative to the well established methods.

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