

## EPULLIS FISSURATUM - CLINICAL DOCTRINE IN THE SELECTION OF DIFFERENT SURGICAL TECHNIQUES

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### Abstract

Epulis fissuratum - fibrous inflammatory hyperplasia is a benign change in connective tissue that occurs as a result of chronic mechanical irritation caused by inadequate prosthetic devices. Treatment consists of excision of change and prosthetic rehabilitation.

The aim of this paper was to present various surgical techniques performed at the Clinic for Oral Surgery, the advantages and disadvantages offered by each of them: conventional scalpel technique; laser technique; combined (scalpel / lasers).

For this purpose, we present three cases where eupullis fissuratum was clinically registered. Individually, in each case we applied one of the surgical techniques, using local anesthesia, a basic surgical set, and an Er.Yag laser.

The advantages offered by the laser technique in terms of intraoperative bleeding, postoperative flow and healing, which are a dry working field, absence of pain, swelling and redness, recovery of the surgical wound without scarring make the method of choice.

The combined technique had an advantage over laser surgery only in terms of the speed of excision performed with a scalpel.

Postoperative course and healing were equivalent to the laser technique.

**Keywords:** epulis fissuratum, surgical techniques, scalpel, laser, Er.Yag

### Introduction

Epulis fissuratum - fibrous inflammatory hyperplasia is a benign change in connective tissue that occurs as a result of chronic mechanical irritation caused by inadequate prosthetic devices. Factors that can contribute to the development of this change are: candida albicans, smoking, poor oral hygiene and constant, round-the-clock wear of the denture [1].

On inspection, the change is usually normal as well as the rest of the healthy gingiva, painless, but if it gets inflamed and ulcerous, there is pain, redness and light bleeding. It is solid in consistency, of varying size, from a local small hyperplasia to a massive lesion extending over the entire length of the vestum [1], attached to the base with a loop, and very rarely with a broad base. Concerning location, it is most common in the anterior part of the upper jaw, and in terms of sex, it is more likely to occur in females [2, 3].

Pathohistological finding corresponds to transient forms of the inflammatory process, hyperplastic epithelium and connective tissue with moderate inflammation. Dense collagen bundles, concealed with acantholytic or hyperkeratotic squamous epithelium are the first histological manifestations [4,5].

The diagnostics included: medical history (acute and chronic systemic diseases); dental anamnesis and examination (clinical symptoms in the oral cavity, inspection and palpation of soft oral tissues); rentgenography (analysis of panoramic and intraoral Rtg footage) and patohistological verification.

Treatment depends on the size of the lesion, the assessment and affinity of the therapist and the technical possibilities offered by the dentist office itself. If the change is small, by filling the prosthesis, thermocouter, cryotherapy and laser techniques are successfully reduced or eliminated [5].

In hyperplasia covering a larger surface area, the therapy is exclusively surgical, i.e., excision of lesion and reposition. For this purpose, a conventional surgical technique, a laser technique and a combined scalpel / laser technique can be used. If the change is not inflamed and is painless, one of the above-mentioned surgical techniques can be immediately applied. However, if it is sensitive and

ulcerated, before surgery prosthesis use is not recommended; the lesion should be washed with mild herbal, anti-inflammatory and antimycotic fluids. Sometimes antibacterial therapy is needed.

The aim of the paper is to show the various surgical techniques we perform at the Oral Surgery Clinic, the advantages and disadvantages each of them offers.

### Materials and methods

For the realization of the set goal, we present three cases of Epulis fissuratum clinically diagnosed in female patients aged between 55 and 65 years.

When the diagnosis was made, we established an absolute indication for surgical excision of the change/lesion using the conventional scalpel technique for which we needed a basic surgical set in the first case; in the second case the laser technique-irradiation was performed with Er:YAG [wavelength 2940 nm] FOTONA - Fidelis III laser VSP technology, and in the third case a combined scalpel / laser technique.

In all three cases we monitored the excision velocity, intraoperative bleeding, postoperative course: pain, swelling, inflammation and wound healing with and without scar.

### Results

#### Case No. 1

A patient was referred to the Oral Surgery Clinic due to fibrotic hyperplasia of the gingiva caused by a long-lasting wear of an inadequate prosthesis. The urethane was located in the upper jaw in the front of the left and right side, and the presence of a movable soft-tone alveolar ridge was observed (Fig. 1).



**Figure 1.** Epulis fissuratum-convectional scalpel technique

Based on the clinical finding and the scope of work, we decided to treat the patient with the conventional scalpel technique - excision and tissue reposition. After the application of infiltrative plexus anesthesia and preparation of the work field, excision of the fibrous lesion in the base to the periost was made. After repositioning of the tissue and suture with an atraumatic thread, advice was given for further treatment.

#### Case No. 2

A patient was referred to the Oral Surgery Clinic due to the presence of fibrous hyperplasia of the gingiva caused by the prolonged wear of an inadequate prosthesis. The lesion was located in the upper jaw vestibule anteriorly on the right.



**Figure 2.** Epulis fissuratum-laser technique

Based on the clinical finding and the scope of work, we decided to treat the patient with the laser technique. For the excision of the change, a contactless R-02 instrument without water and cooling was used, with the following parameters for achieving photomechanical - ablative effect: pulse width SP, LP; energy 200 mJ; frequency 20-40 Hz.

After the excision, it was necessary to irradiate the surface with a laser using the following parameters to achieve the photothermal effect: pulse width VLP; energy 120 mJ; frequency 10-15 Hz.

The intervention was performed with smaller amounts of local anesthetic medication, and there was no need for suture and application of a medical bandage.

#### Case No. 3

A patient was referred to the Oral Surgery Clinic due to the presence of fibrotic hyperplasia caused by the prolonged wear of an inadequate prosthesis. The lesion was located in the vestibule of the lower jaw anteriorly on the right.



**Figure 3.** Epulis fissuratum-combined laser and convectional tehcnique

On the basis of the clinical finding and the scope of work, we decided to perform a combined conventional scalpel / laser technique by which the shift was removed in a faster way with a scalpel, and then the surface was treated with a laser where we used the R-02 toolbox without water and cooling, with the following parameters for achieving the photothermal effect: pulse width VLP; energy 120 mJ; frequency 10-15Hz.

The intervention was performed with smaller amounts of local anesthetic medication, without suture and without application of a medical bandage.

## Discussion

All the three surgical techniques we applied to remove *Epulis fissuratum* [conventional scalpel technique, laser technique and combined scalpel / laser technique] have provided us with results that satisfy the requirements for further development of prosthetic devices.

Conventional scalpel technique offers rapid excision as opposed to the excision performed with contactless Er:YAG laser sagging instrument R-02. The transparency and accuracy is reduced due to extensive bleeding; tissue and suture repositioning is needed; postoperative course is with pain, swelling and redness, and wound healing is faster than with the laser technique, but with a visible scar [6].

Laser surgical excision is performed in a slower manner - we have a R-02 tool that offers satisfactory performance but does not offer a quick incision. The excision of soft tissues is due to the photomechanical ablative effect of a 2940 nm wavelength absorbed in water and hydroxyapatite. This wavelength enables rapid and selective evaporation of the water from the tissues, high pressures generate removal of the tissue - microexplosion. The greater visibility with the laser technique is due to the photothermal effect [laser energy is transformed into a heat] that seals the blood vessel terminations achieving haemostasis. The absence or reduced bleeding, the ability to focus on the laser beam in addition to precision result in a minimal damage to the surrounding tissue [7]. There is no need for tissue and suture reposition. The postoperative course is without pain, swelling and redness, and this is due to the photothermal effect of the laser which, besides the blood, seals the lymph and the sensitive nerve endings [8, 9]. The heat generated by the surgery retains the work field intact from the bacteria [because the Er:YAG laser has an affinity for the water in the bacterial cell] and reduces the risk of infection and redness [10,11]. The laser-induced lesion heals through the repair synthesis of the protein matrix leading to the filling of the tissue defect. The relative resistance of the protein matrix to laser radiation, its slow removal and replacement with a new matrix is the cause of the defect and scarring and contraction of the laser-treated area [12]. Recently, the possibility of the Er:YAG laser has been investigated for its photo-stimulating effect.

The combined [scalpel / laser] technique as a choice uses the advantages of both techniques.

## Conclusion

Our clinical trials, our so far positive experiences confirmed by scientific evidence, and the large number of studies have confirmed the superiority of the laser technique versus the conventional [scalpel] technique. With good theoretical knowledge and strict adherence to the principles of working with a laser, we create well-being unrivaled both for the patient and for the therapist.

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