

# MEDICINA ORAL PATOLOGÍA ORAL Y CIRUGÍA BUCAL


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- Sociedad Española de Disfunción Craneomandibular y Dolor Orofacial
- Sociedad Española de Láser Odontostomatológico
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*The art of the light*

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## 20. The use of Er,Cr: YSGG laser on treatment of periimplantitis: effects on morphology and temperature around dental implants inside the bone.

*Gottardi MS, Ana PA, Zezell DM.  
Center for Lasers and Applications- IPEN - CNEN/SP, Brazil.*

Periimplantitis is still a problem in dental offices, considering that conventional treatments sometimes cannot propitiate the complete removal of microorganisms. Infrared laser irradiation can be a promissory alternative for the treatment of periimplantitis. This study evaluated the morphological changes at implants surface, as well the temperature variations in the surrounding bone tissue during the irradiation with Er,Cr:YSGG laser aimed at periimplantitis treatment. 30 titanium implants were inserted in blocks of pig bone and simulated defects of periimplantitis were performed. Samples were randomly divided in 3 groups for = 2.78  $\mu\text{m}$ ) irradiation, adjusted with 50% air-water cooling:  $\lambda\text{Er,Cr:YSGG laser}$  ( G1- 16.09 J/cm<sup>2</sup>; G2- 22.65 J/cm<sup>2</sup>; G3- 28.31 J/cm<sup>2</sup>. During irradiations, the temperature in the surrounding bone tissue was monitored by 3 fast-response thermocouples and all samples were evaluated by scanning electron microscopy. Irradiations in G1 and G2 promoted melting in some regions of the implants surface and discrete ablation in G3. Cracks or carbonization were not observed. It was promoted a decrease of local temperature during all irradiations due to the air-water cooling. It was concluded that Er,Cr:YSGG laser irradiation promote morphological changes on titanium surfaces dependent on energy density, and it is not promoted harmful temperature variations on surrounding bone tissue. Within the studied parameters, Er,Cr:YSGG is safe for future clinical application.

## 21. Comparison of laser-assisted and non laser-assisted techniques for oral surgery.

*Mergoni G, Meleti M, Merigo E, Manfredi M, Sarrai A, Vescovi P.  
Unit of Oral Pathology, Oral Medicine and Laser-Assisted Oral Surgery, Section of Odontostomatology - University of Parma - Italy.*

**Introduction:** In the last decades an increasing interest for new surgical techniques have been observed among oral surgeons and manufacturers. New devices should be able to reduce patient discomfort, reduce operation time and improve healing process.

**Aim:** The aim of this study was to compare 3 different surgical techniques, namely cold blade, quantac molecular resonance scalpel (QMR) and laser Nd:YAG.

**Material and Methods:** Two hundred eleven surgical

interventions (including biopsies, benign lesion removal and frenulectomies) were performed. For each intervention intra-operative variables (length of operation, grade of emostasis, suture, patient compliance) and post-operative variables (pain assessed by means of VAS scales, pain-killers drugs intake, quality of life) were recorded and compared according the surgical technique utilized.

**Results:** The need of suture and pain killer were reduced in patient treated with QMR or laser compared to traditional cold blade (p Conclusions: Quantac molecular resonance scalpel and Nd:YAG laser represent convincing alternative to traditional surgery allowing more satisfying surgical experience for patients and operators.

## 22. Treatment of vascular lesions of maxillofacial area with Nd: YAG and diode laser.

*Mozokina MM, Tarasenko SV, Smyslenova MV, Grishin AA, Repina SI, Makarova EV.*

**Introduction:** Traditional methods of treating vascular lesions of maxillofacial area in adults do not always lead to excellent results. Positive effect has been achieved by using surgical laser.

**Aim of the study:** To evaluate the efficacy of the diode and the Nd:YAG laser obliteration in the treatment of maxillofacial vascular lesions.

**Material And Methods:** The diode laser (wavelength 980 nm) and Nd:YAG laser (1064 nm) were used for non-contact technique and for intravascular obliteration. Changes in the size and vascularization of the lesion and energy needed to produce these changes were evaluated clinically. Vascularization and flow type, location and type of vascular pedicles, lesion volume was assessed by color Doppler ultrasonography.

**Results:** 48 patients with vascular lesions of oral and maxillofacial region were treated. The healing of the wound after non-contact technique passed in 14 days under coagulation layer without pain or discomfort for patients. Long-term follow-up revealed regression of the lesion in all patients with good aesthetic results. Size reduction varied from 45% to 95%. No complications or reperfusion of the lesions was noted.

**Conclusion.** Laser surgery of vascular lesions is an effective method, causing less trauma, reducing healing duration. The color Doppler ultrasonography is a significant diagnostic and evaluation tool. Treatment of vascular lesions with diode and Nd:YAG laser can be recommended for wide use in clinical practice.