CLINICAL ASSESSMENT OF ORAL LICHEN PLANUS REFRACTORY TO ANY MEDICAL THERAPY: A CASE REPORT

El Haddad G., Cafaro A., Gambino A., Conrotto D., Arduino P.G.

Department of Surgical Sciences, Oral Medicine Section, C.I.R. Dental School, University of Turin, Turin, Italy

Aim: Oral lichen planus (OLP) is an inflammatory disease that can be painful, mainly in the erosive-atrophic forms. Corticosteroids remain the gold standard therapy but, sometimes, they can produce adverse effects or not be efficiency. Photo biomodulation therapy (PBMT) has been proposed as a new therapeutic approach as a potential treatment of OLP. The aim of this case report was to investigate the effectiveness of PBMT in a patient presenting with long-standing symptomatic erosive-atrophic OLP, not responsive anymore to the medical therapy.

Methods: since 2013, a 77-year-old woman with diagnosis of erosive-atrophic OLP has been followed in our section of Oral Medicine. The painful erosions, 8 in the Visual Analogue Scale (VAS), were located on the dorsum of the tongue and on both buccal mucosae. After several years of corticosteroids medication without long-lasting alleviation of symptoms, we opted for one vial every two weeks of intralesional triamcinolone acetonide (Kenacort 40 mg/ml) for six weeks. After two injections, the patient reported a clinic and symptomatic worsening, and expressed the desire to suspend all pharmacological therapies.

Given the continuous clinical and symptomatic declines we proposed, as an alternative to the usual gold standard treatment, some PBMT sessions. We achieved the PBMT using a diode laser with double wavelengths (645 nm and 980 nm) with the following parameters: Fluency = 8J/cm^2; Power Density = 0,5W/cm^2; Spot Area = 0,5 cm^2 with gaussian profile; point-by-point technique; distance from the lesion = 2 mm. The sessions were performed two times weekly from November 2022 to March 2023. Clinical pictures of the case were taken at baseline, during treatment and at the end.

Results: since the first PBMT session, the patient reported symptom improvements according to the VAS scale (from 8 to 5). After the fourth PBMT session, the outcome of our case showed remarkable improvements in the reduction of erythema, ulceration and burning sensation as recorded by VAS (from 8 to 1.5). Since the symptomatic and the clinical healing was satisfactory after two months of PBMT, we reduced from two sessions to one session in February 2023. However, the patient inconsistent attendance to the scheduled dental appointments led to the increasing appearance of erosions affecting the dorsum of the tongue and the right buccal mucosa. Those lesions had been solved with three other PBMT sessions.

Conclusions: the present case report indicates that PBMT can be efficient and can be used as a valid alternative therapy alongside standard methods or as a new modality for refractory erosive-atrophic OLP forms. However, further investigations are needed to perform a standardization of the treatment procedure.

OHLLT IN PERI-IMPLANTITIS: SURGICAL *VERSUS* NON-SURGICAL APPROACH. A RETROSPECTIVE STUDY

Giordano M.[1,2], Cioffi E.[1,2], Caccianiga P.[1], Ceraulo S.[1,2], Caccianiga G.[1,2]

[1]School of Medicine and Surgery, University of Milano Bicocca, Monza, Italy
[2]IRCCS Foundation San Gerardo dei Tintori, Monza, Italy

Aim: peri-implantitis could be treated with a surgical or non-surgical protocol. Several treatment options have been presented in the literature, such as chemical agents, antiseptic and antibiotic therapies, rotary titanium brushes, curettes, ultrasonic, air abrasive, and laser treatments. Specially, photodynamic therapy combined with hydrogen peroxide (OHLLT) resulted to be valid in the elimination of bacterial biofilm from implant surfaces. The aim of our study is to compare OHLLT performed with a surgical approach to a non-surgical approach.

Methods: a cluster of 227 implants with peri-implantitis were collected: 139 implants underwent to a non-surgical approach and 88 implants to a surgical approach. We registered the bone loss pre-operative and post-operative (with a follow-up of five years).

Results: the results demonstrate a statistically significant difference between the two groups. In the first group, bone loss after treatment was 2.3 mm for OHLLT with a surgical approach. In the second group, bone loss was 3.8 mm for OHLLT with a non-surgical approach; according to the Kolmogorov–Smirnov test,

Doi: 10.19256/abstract.cduo.07.2023

the overall data followed a normal distribution (value of the Kolmogorov–Smirnov test statistic = 0.0891; p = 0.35794).

Conclusions: the explanation to these results could be found in a greater difficulty to efficiently decontaminate implant surfaces in the case of the non-surgical approach because of air abrasives and ultrasonics could not completely reach implant surface, while with a surgical approach, these devices are clearly able to perform it.

OHLLT IN PERI-IMPLANTITIS: OHLLT *VS* OHLLT WITH ER: YAG LASER. A RETROSPECTIVE STUDY

Giordano M.[1,2], Cioffi E.[1,2], Caccianiga P.[1], Ceraulo S.[1,2], Caccianiga G.[1,2]

[1]School of Medicine and Surgery, University of Milano Bicocca, Monza, Italy
[2]IRCCS Foundation San Gerardo dei Tintori, Monza, Italy

Aim: the aim of our retrospective controlled study is to compare an oxygen high-level laser therapy (OHLLT) protocol alone to a OHLLT protocol with Er:YAG laser in order to maximize bacterial removal and to evaluate if an Er:YAG laser could enhance hard tissue regeneration.

Methods: two hundred and ten implants affected by peri-implantitis were organized into two groups: the OHLLT alone was used on 88 implants (control group) while 122 underwent OHLLT and Er:YAG treatment (test group). Data collected were about the mean bone loss before (T0) and after treatment (T1) for all implants with a follow-up of 5 years.

Results: no statistically significant differences were found. In the OHLLT group, the mean bone loss after treatment was of 2.1 mm in the upper arch and 2.4 mm in the mandible. In the OHLLT + Er:YAG group, the results shows a mean bone loss of 2.0 mm in the upper arch and 2.5 mm in the mandible. Both groups revealed a mean bone loss after treatment of 2.3 mm. According to the Kolmogorov–Smirnov test, overall, data followed a normal distribution (value of the K-S test statistic = 0.0912; p = 0.36112).

Conclusions: this retrospected study confirms the central role of the OHLLT in improving clinical results in peri-implantitis treatment, leading to an effective bacterial decontamination. Our results showed no statistically significant differences between OHLLT and OHLLT + Er:YAG laser; therefore, the ineffectiveness of the Er:YAG laser in order to obtain advantageous enhancements in the treatment of peri-implantitis with OHLLT was demonstrated.

EVALUATION OF PHOTOBIOMODULATION SUPPORTED TOOTH EXTRACTION IN PATIENTS WITH RISK OF MRONJ

Mohsen A., Rocchetti F., Vasile G., Borghetti L., Graniero F., Pergolini D., Palaia G.

Department of Oral Sciences and Maxillofacial Surgery (Director: U. Romeo), Sapienza University of Rome, Rome, Italy

Aim: is to share our experience of Photo-Biomodulation (PBM) as a supportive modality for tooth extraction in patients with risk of Medication-Related Osteonecrosis of the Jaw (MRONJ).

Methods: a single-center retrospective study was performed by searching the department database between 2018 and 2023 for patients with risk of MRONJ development, with history of anti-resorptive and/or anti-angiogenic therapy, and underwent tooth extraction combined with the preventive PBM protocol. The PBM protocol was 4 sessions. In each, the extraction sites were irradiated by a multidiodic laser emitting simultaneously 650nm, 810nm, and 910nm wavelengths. The parameters were: total power = 0.6W, total energy = 577.4J, frequency = 30kHz, and time = 15 min. The collected data were age, gender, primary pathology, concomitant pathologies, type and duration of medication, route of administration, number and site of extracted teeth, and MRONJ development.

Results: the database search revealed a total of 60 patients (57 females and 3 males) fulfilling the inclusion criteria with average age of 67.4 underwent total of 142 extractions. MRONJ was observed in 12 (20%) female patients, 4 in maxilla, 7 in mandible, and 1 in both. A significant risk of MRONJ was observed with Zoledronic acid administration (p = 0.01). Marginal risks were observed with the increase of extracted teeth number (p = 0.066), oral administration (p = 0.067), and oncologic patients (p = 0.067).

Conclusions: the data shows that PBM seems to be a reliable supportive modality for dental extractions in patients with risk of MRONJ.

PHOTOBIOMODULATION AS TREATMENT FOR ORAL ULCERS IN ONCOLOGIC PATIENT: CASE REPORT

Pergolini D., Purrazzella A., Pernice E., Cerullo V., Troiani E., Todescato L., Nistor E.B., Neagu K.G., Palaia G.

Department of Oral and Maxillofacial Sciences, Director: U. Romeo, Pediatric Dentistry and Odontostomatology Unit, Sapienza University of Rome, Rome, Italy

Aim: Photobiomodulation (PBM) is a medical treatment by the means of a laser that makes use of the interaction between a light beam and specific molecular targets in the oral cavity's tissues in order to obtain analgesic, anti-inflammatory and biostimulant effects. PBM is currently being employed in odontostomatology to treat several osteo-mucosal diseases. The aim of this study is to report a case in which PBM was the first therapeutic choice for multiple oral ulcers in an oncological patient, who underwent chemotherapy and has been taking Rituximab.

Methods: a 81-year-old woman was referred to the Pediatric Dentistry and Odontostomatology Unit after an ENT consultation. The patient presented several ulcers and mucositis in the mouth and oropharynx. The remote pathological history consisted in a Follicular NH Lymphoma, that was treated with 6 cycles of Rituximab-Bendamustine. The lesions appeared between the 5th and 6th cycle of therapy. The patient received a PBM treatment (8 sessions in 4 weeks) with a diode laser (43J, 10 KHz) and perilesional injections of half the vial of Triamcinolone (40 mg/ml).

Results: the patient, thanks to the laser therapy sessions adjuvated by one-off perilesional cortisone treatments with Triamcinolone, referred right after the first session a decrease in perceived pain. At the end of the therapeutic treatment there has been an improvement in painful symptomatology from an initial value of 10 to one of 7/8.

Conclusions: PBM has been proven effective although further studies are needed to set up standardized protocols.

COMPARISON OF DIODE LASER AND TRADITIONAL SURGERY FOR THE TREATMENT OF PYOGENIC GRANULOMA

Amato M.[1], Viglianisi G.[1], Polizzi A.[1], Santonocito S.[1], Pedullà E.[1], Matarese M.[2], Di Stefano M.[1], De Luca N.[1], Lo Giudice A.[1], Isola G.[1]

[1]Department of General Surgery and Medical-Surgical Specialties, School of Dentistry, University of Catania, Policlinico Universitario G. Rodolico-San Marco, Catania, Italy
[2]Department of Biomedical and Dental Sciences, Morphological and Functional Images, School of Dentistry, University of Messina, Policlinico G. Martino, Messina, Italy

Aim: the aim of this study was to compare the following surgical techniques: the use of diode laser and the use of a cold blade as conventional surgical technique in the surgical removal of a pyogenic granuloma (PG).

Methods: 21 patients with clinical diagnosis of PG in the gingival tissue were enrolled for this study. They underwent preliminary biopsy punch of 2x2 mm of gingival soft tissue to confirm the clinical diagnosis of PG by histomorphometric analysis. After a week all patients were recalled for the surgical excision of the PG, executed by the same operator. According to the used surgical technique they were divided into two groups: the cold blade group and the diode laser group. All samples had the same dimensions (less than 3cm in the larger size) and a second biopsy was executed.

Results: a significant reduction of the mean speed of incision was observed in the diode laser group (0.61±.29 mm/s) while in the cold blade group was (1.47±1.23 mm/s) ($p < 0.05$). The mean lengths of time for the whole surgery were (221.15±220.89 s) in the diode laser and (316.10±248.69s) in the cold blade group ($p < 0.05$). The intraoperative bleeding was 42.1% for diode laser group and 86.5% for cold blade group ($p < 0.05$). The 26.3% of diode laser group and the 39.2% of cold blade group needed the suture ($p = 0.139$). The mean number of stitches was 0.74±0.23 in diode laser group and 1.26±1.22 in cold blade group ($p = 0.121$).

Conclusions: diode laser was advantageous, in fact it was able to prevent bleeding, to reduce post-operative pain and to favor healing of gingival tissue.

MANAGEMENT OF PERIMPLANTITIS THROUGHT ERBIUM:YAG LASER: A CRITICAL REVIEW OF THE LITERATURE

Pizzorni A., Corradi G., Ruggeri K., Vescovi P., Meleti M.

Department of Medicine and Surgery, Oral Medicine and Laser Surgery Unit, University Center of Dentistry, University of Parma, Parma, Italy

Aim: peri-implants inflammation (periimplantitis) represents a frequent serious disease after dental implant treatment, and its management is still unclear and difficult. The aim of this critical review was to summarize the advantages and disadvantages of using Erbium laser (Er:YAG) in surgical treatment of peri-implantitis.

Methods: literature research was conducted on Medline database using the entry terms "Erbium laser" and "Er:YAG" combined through the Boolean indicator "and" with the following words "Implant decontamination", "Implant decontamination", "Implant disinfection", "Implant disinfection", "Perimplantitis", "Perimplantitis". Inclusion and exclusion criteria for paper selection were applied. Duplicates were deleted through End Note X9®, Clarivate Analytics software.

Results: eventually, 34 papers were included in the review. Twenty-six of 34 analysed the advantages of Er:YAG laser in surgical treatment of periimplantitis: a better antimicrobial action, a non-alteration of the implant surface when used at low power, a low overheating, an higher attachment gain and a better healing. Instead, 8 paper reported the disadvantages of using Er.YAG laser, such as: the impossibility to irradiate each area equally, due to the rough surfaces of the thread; chipping of the coating (from an energy of 160 mj); the negative effects on the osteoblast proliferation at high energy level. The statistical analysis of the included papers show that the use of the Er:YAG laser as a good alternative to the traditional techniques.

Conclusions: the result of the present review highlighted that Er:YAG laser can be safely used as a treatment for periimplantitis.

OSTEOTOMY WITH ER:YAG LASER: A STEREOMICROSCOPIC EVALUATION ON *EX-VIVO* MODEL

Bellettini G., Ferrari L., Antonelli R., Manfredi M., Meleti M.

Department of Medicine and Surgery, Oral Medicine and Laser Surgery Unit, University Center of Dentistry, University of Parma, Parma, Italy

Aim: the aim of the present work is to report results of an *ex vivo* experiment to assess the best osteotomy technique, comparing surgical bur and two erbium laser application techniques (Medium Short Pulse (MSP) and Quantum Square Pulse (QSP)). Thermal injuries, amount of bone debris, healing times were evaluated.

Methods: fifteen blocks of porcine bone were created, which were divided into 3 groups and sectioned into two equal parts using the following techniques:

- surgical bur mounted on a straight handpiece at 40,000 rpm.
- Erbium laser in MSP mode, energy 250 mJ, frequency 20 Hz, water 4 and air 6, obtaining a total of 5 Watts of power.
- Erbium laser in QSP mode, energy 330 mJ, frequency 15 Hz, water 4 and air 6, obtaining a total of 4.95 Watts of power.

Section times have been recorded. Cut surfaces were analyzed using a stereomicroscope (SMZ25, NIKON, Tokyo, Japan), and areas with bone tissue debris were highlighted with a colorimetric software (ImageJ®).

Results: the bur is fastest tool to perform osteotomies. However, the analysis of the cut surfaces highlighted the presence of a large amount of bone debris with the surgical bur, both in cortical and trabecular areas. In MSP mode laser cuts, no debris is visible and trabecular lacunae appear clean, while QSP mode performed even better.

Conclusions: the experiment demonstrates how the erbium laser has superior features in terms of cutting precision and cleanliness, with consequent positive effects on healing. However, cutting time records show that laser requires a longer application time to perform osteotomies. Further research is required to determine whether the benefits of laser technology are truly advantageous in clinical settings.

ND:YAG LASER AND HYALURONIC ACID FOR IMPLANT REHABILITATION IN AESTHETIC AREA

Iaria R., Giovannacci I., Bortolotti G., Meleti M., Vescovi P.

Department of Medicine and Surgery, Oral Medicine and Laser Surgery Unit, University Center of Dentistry, University of Parma, Parma, Italy

Aim: this paper describes a combined technique of implant rehabilitation in the aesthetic area performed using Hyaluronic Acid (HA) and laser photobiomodulation (LPBM) application. HA has the advantage of promoting clot stabilization, osteogenesis, angiogenesis and it also has a bacteriostatic, anti-inflammatory, anti-oedematous nature. LPBM instead stimulates osteoblastic activity and osteogenesis improving implant stability and reduces tissue inflammation supporting tissue healing.

Methods: after loco-regional anesthesia, the extraction of the fractured lateral incisor was performed, followed by implant insertion with immediate loading. Hyaluronic acid mixed with autologous bone, taken from the drills used for implant insertion, is then applied inside the socket. Two stitches to stabilize bone graft was applied and an Nd:YAG laser (1064 nm) application was performed (320 microns fiber, 1W power, 10Hz frequency for 5 minutes).

Results: the follow-up shows optimal soft tissue healing and, consequently, the achievement of an aesthetically pleasing result: the gingival margin and interdental papillae are well represented. In addition, the radiograph at 4 months shows successful osseointegration and the absence of non-physiological hard tissue loss.

Conclusions: the combined use of HA and LPBM leads to a complementary and additive effect that, for implants in aesthetic areas, seems to have a positive influence on both osseointegration and soft tissue healing, which is fundamental for aesthetic results.

APDT IN ADJUNCT TO NON-SURGICAL PERIODONTAL THERAPY: A RANDOMIZED CONTROLLED TRIAL

Annunziata M.[1], Donnarumma D.[2], Guida A.[3], Nastri L.[1], Cecoro G.[1], Fusco A.[2], Sanz-Sánchez I.[4], Guida L.[1]

[1]Multidisciplinary Department of Medical-Surgical and Dental Specialties, University of Campania Luigi Vanvitelli, Naples, Italy
[2]Department of Experimental Medicine, University of Campania Luigi Vanvitelli, Naples, Italy
[3]U.O.C. Odontostomatologia, A.O.R.N. A. Cardarelli, Naples, Italy
[4]Etiology and Therapy of Periodontal and Peri-Implant Diseases (ETEP) Research Group, University Complutense, Madrid, Spain

Aim: the present randomized clinical trial (RCT) aimed to evaluate the efficacy of antimicrobial photodynamic therapy (aPDT) by indocyanine green (ICG) in adjunct to the non-surgical periodontal therapy in the treatment of periodontitis, in terms of clinical and microbiological outcomes.

Methods: twenty-four periodontitis patients received a full-mouth ultrasonic subgingival debridement (FMUD) and, after 1 week, were randomly assigned to receive the test (ICG-aPDT with an 810 nm diode laser) or the control treatment (off-mode aPDT) at sites with probing depth (PD) ≥5 mm. After 3 weeks test and control treatments were repeated. Clinical parameters were registered and microbiological analyses of subgingival samples by real-time PCR were performed, at 3 and 6 months. Ethical Committee approval (Ref. 525). ClinicalTrials.gov (NCT04671394).

Results: significant clinical improvements for both treatments at 3 and 6 months were found, with no inter-group differences, except for a higher PD reduction in initial deep pockets (PD ≥6 mm) and a higher percentage of closed pockets (PD ≤4 mm/no bleeding on probing) for the test group at 6 months. Limited intra-group and inter-group microbiological changes were observed, except for a significant reduction in Aggregatibacter actinomycetemcomitans and Parvimonas micra in the test group at 3 months.

Conclusions: limited clinical and microbiological adjunctive effects were found for the combination of repeated ICG-aPDT and FMUD. Further, well-designed RCTs with larger sample sizes are needed to confirm the clinical relevance of these findings.

PHOTOBIOMODULATION ON SALIVARY GLANDS: USE OF DIODE LASERS WITH ALTERNATING WAVELENGTH

Pulicari F.[1,2], Pellegrini M.[1,2], Modugno F.[3], Ghizzoni M.[3], Porrini M.[1,2], Bosotti M.[1,2], Barenghi L.[2], Spadari F.[1,2]

[1]Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Maxillo-Facial and Odontostomatology Unit, Milan, Italy
[2]Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
[3]Department of Clinical, Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Pavia, Italy

Aim: evaluation of the clinical utility of photobiomodulation treatment (PBMT) in patients with diagnosed hyposalivation to stimulate salivary flow.

Methods: 8 patients with diagnosed hyposalivation being treated at the Clinic of Oral Medicine and Pathology of Milan were recruited. 4 patients were randomly assigned to the PBMT group (4 Laser applications, once a week, 10 application points, 3 extraoral and 2 intraoral. The parameters used were 450 nm, 660 nm and 970 nm one minute for each wavelength, and 3 minutes per spot with scanning movement. 4 patients were randomly applied to the control group. 1 week before the (T0) first Laser application, 3 weeks later after the second laser application (T2) and 2 weeks after the last Laser application (T5), sialometry was performed. Before the T0 phase, an ad hoc questionnaire was administered to all patients to evaluate the extent of the hyposalivation problem. VAS and NRS scales were registered before and after each laser application. Patients, operators, and statisticians were blinded. ANOVA test for variance was followed by linear regressions. Significance was predetermined as $p < 0.05$ for all the tests performed.

Results: variance analysis showed a significant increase ($p < 0.05$) between the T1 control and the T1 PBMT groups. The VAS and NRS scales demonstrated decreased discomfort related to hyposalivation, concerning the increase in salivary flow.

Conclusions: it is possible to appreciate how patients with hyposalivation, treated with multiple applications of PBMT exhibit an increase in basal and stimulated salivary flow. It is necessary to investigate whether the effect of photobiomodulation can be amplified by pharmacological treatment.

SOFT-CURVED LAMINA FUNCTIONALIZED WITH PHOTODYNAMIC THERAPY IMPROVES OSTEOBLASTS ACTIVITY

D'Amico E.[1], Petrini M.[1], Pierfelice T.V.[1], D'Ercole S.[1], Lepore S.[1], Vecchiet F.[1], Piattelli A.[2], Barone A.[3,4], Iezzi G.[1]

[1]Department of Medical, Oral and Biotechnological Sciences, University G. D'Annunzio of Chieti-Pescara, Chieti, Italy
[2]School of Dentistry, Saint Camillus International University of Health and Medical Sciences, Rome, Italy
[3]Complex Unit of Stomatology and Oral Surgery, University-Hospital of Pisa, Pisa, Italy
[4]Unit of Oral Surgery and Implantology, University Hospital of Geneva, University of Geneva, Geneva, Switzerland

Aim: in our previous studies we have verified that a novel antibacterial protocol of photodynamic therapy, if applied on osteoblasts and fibroblasts *in vitro*, showed a proliferative enhancement. This protocol ALAD-PDT (AlphaStrumenti) was based on a gel with 5% 5-aminolevulinic acid incubated for 45 min and irradiated for 7 min by a LED light at 630 nm. The present study hypothesized that ALAD-PDT application on a porcine cortical membrane (soft-curved lamina, OsteoBiol) with cultured osteoblasts might increase its osteoconductive properties. Thus, this study aimed to characterize the Lamina and to investigate the effects of ALAD-PDT on the adhesion, the growth, and the mineralization activity of HOBs seeded on the lamina.

Methods: the topographical characteristics of the membrane surface, the adhesion, and the morphology of hOBs were investigated at SEM at 3 days. The viability was assessed at 3 days, the Alkaline Phosphatase (ALP) activity at 7 days, and calcium deposition at 14 days.
The control was represented by the membrane with cultured cells (Lamina).

Results: the Lamina showed a porous surface. An increase in cell attachment of hOBs was observed compared to Lamina. A significative enhancement ($p < 0.0001$) was observed in the proliferative rate, in ALP and calcium deposition after ALAD-PDT with respect to Lamina.

Conclusions: the application of ALAD-PDT protocol to oral osteoblasts cultured on the cortical Lamina stimulated a higher cellular proliferation, adhesion and increased matrix bone deposition, improving its osteoconductive properties.

Q-SWITCHED ND:YAG IN TRANSEPITHELIAL GINGIVAL DEPIGMENTATION: *IN VIVO* OBSERVATIONAL STUDY

Esposito L., Armogida N.G., Cernera M., Iaculli F., Simeone M., Valletta A.

Department of Neuroscience, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy

Aim: smile esthetics can be adversely affected by para-physiological conditions such as gingival hyperpigmentation. This condition may also affect the subjects' quality of life. Therefore, the aim of the present study was to use Q-Switched Nd:YAG laser, according to a defined protocol, to treat Gingival Melanin Hyperpigmentation with a transepithelial approach.

Methods: ten patients with different grades of gingival hyperpigmentation were treated using Q-Switched Nd:YAG in one to four laser sessions without local anesthesia. The degree of depigmentation was assessed by comparing Oral Pigmentation Index (OPI) and Melanin Pigmentation Index (MPI) at baseline and three weeks after last laser session. Oral discomfort, rated by the Numeric Rating Scale (NRS), one, three, and five days after the procedure was also recorded. Finally, patients' perception of the procedure was appreciated 12 months after treatment.

Results: a complete depigmentation was achieved in all cases. No/little discomfort (NRS 0 to 3) was reported by patients during the laser session, and if present, lasted a maximum of five days.

No major complications were reported as well as recurrences during at least 12 months follow-up. According to patients' perception, all of them were available to be re-treated, if necessary.

Conclusions: within the limitation of the present study, it could be concluded that Q-Switched Nd:YAG may be considered as an effective and well-tolerated approach in the treatment of gingival melanin hyperpigmentation.

PEDIATRIC ORAL VASCULAR MALFORMATIONS: ULTRASOUND-AND MR-ANGIOGRAPHY-GUIDED LASER THERAPY

Scrimieri P., Siciliani R.A., Novielli G., De Rosa G., Diana A.C., Tempesta A., Limongelli L., Dell'Olio F., Favia G.

Department of Interdisciplinary Medicine, Complex Unit of Odontostomatology, University of Bari Aldo Moro, Bari, Italy

Aim: this observational prospective study describes the relevance of intraoral ultrasonography and magnetic resonance angiography as guidance for the photocoagulation of oral vascular malformations in pediatric patients.

Methods: the authors included patients ≤17 years old and showing at least one intraoral vascular malformation referred to the Unit of Odontostomatology of Aldo Moro University of Bari from 2020 to 2022. All patients underwent ultrasonographical examination of the lesions by using an 18 MHz linear probe with color doppler and those with malformations showing superficial diameter ≥3 cm and/or thickness ≥5 mm also underwent magnetic resonance angiography. The children underwent laser therapy under conscious sedation or general anesthesia depending on their compliance. All patients received at least a cycle of diode laser transmucosal photocoagulation (14 W/cm^2; pulsed mode; t-on 190 ms; t-off 250 ms). In addition, the authors performed intralesional photocoagulation in the lesions with thickness ≥5 mm. After a healing period of 40 days, a further cycle of photocoagulation was performed for persisting lesions.

Results: the authors included 11 children (7 females and 4 males) during the study period. Since 5 children showed multiple oral vascular malformations, the authors treated 19 lesions, and 6 of them required at least two cycles of intralesional laser application.

Conclusions: the current results support intraoral ultrasonography and magnetic resonance angiography as guidance for photocoagulation of oral vascular malformations in pediatric patients.

USE OF LOW ENERGY ND:YAG LASER FOR THE AESTHETIC TREATMENT OF VENOUS LAKES

Traino F., Armogida N.G., Esposito L., Cernera M., Maglitto M., Iaculli F.

Department of Neuroscience, Reproductive and Odontostomatological Sciences, University of Naples Federico II, Naples, Italy

Aim: Venous Lakes (VL) are common vascular lesions of the superficial dermal layers, predominantly involving face skin, oral mucosa and lips, thereby impacting on the self-confidence of the patients. In the current research, the use of Nd:YAG laser, according to a defined protocol with a low level of absolute energy, is proposed for the treatment of VL of the lips.

Methods: 47 patients with 50 labial VL were treated with the Nd:YAG in one laser session, without local anaesthesia. The area reduction, according to the Vlachakis criteria, was evaluated 7 and 30 days after the laser application. Additionally, the oral discomfort, rated according to the Numeric Rating Scale (NRS) during and 24-hours after the procedure, was recorded.

Results: all the patients achieved a complete clinical healing within 30 days after the laser application. In particular, those patients with VL with a diameter ≤6 mm (62.1%) achieved a complete resolution after 7 days ($p < 0.001$). Such patients reported no or little discomfort (NRS 0 to 3) during the laser session and no discomfort after 24-hours ($p < 0.001$). No major complications were reported, and no recurrence was observed at a 2-year follow-up.

Conclusions: the use of Nd:YAG laser in the treatment of phlebectasias could represent an excellent effective alternative to the conventional invasive procedures due to its safer and more tolerable profile.

THIRD MOLAR SURGERY FOLLOWED BY LOW LEVEL LASER THERAPY TO IMPROVE POSTOPERATIVE PERIOD

D'Agostino S.[1,2], Ben'Mhamed A.[2], Valentini G.[2], Ferrara E.[2], Siciliani A.[1], Favia G.[1], Dolci M.[2]

[1]Interdisciplinary Department of Medicine, Complex Unit of Odontostomatology, University of Bari Aldo Moro, Italy
[2]Department of Medical, Oral and Biotechnological Sciences, University G. D'Annunzio of Chieti-Pescara, Chieti, Italy

Aim: third molar surgery is often followed by pain, edema and trismus due to the complexity of the surgery. In the last decade the use of Low Level Laser Therapy (LLLT) has spread in dentistry and oral surgery. The aim of this study is to evaluate if LLLT may be a potential tool in the management of postoperative discomfort after complex third molars extraction.

Methods: Helsinki Declaration and local ethics committee approval. Healthy volunteer with complex III molars were enrolled. Complex means teeth totally/partially impacted or whose root anatomy requires odontotomy.

T0: collection of the maximum opening with digital caliber as trismus indicator, the presence of edema according to the method of Amin MM (1983) by measuring the distance between the cutaneous pogonion-tragus, and commissure-tragus, the disto-buccal and disto-lingual/palatal probing value of II molar.

T1 after 48h: the previous parameters + VAS scale.

T2 after 7 days: same T1 parameters.

After the surgical extraction, test sites were treated with laser (Medency Triplo) with an average power of 0.10W, red light with wavelenght 635 nm, for 60 seconds with moving technique

The data was subjected to Two-Way mixed ANOVA.

Results: eleven healthy patients were enrolled, seven female and four male. Twelve third molars were considered, six test and six controls.

PARAMETERS	CTR	TEST
Tg-Pg' T1	0.23	0.44
Tg-Comm T1	0.24	-0.27
Tg-Pg' T2	-0.42	0.48
Tg-Comm T2	-0.41	-0.1
PPD T1	0.47	0.38
PPD T2	0.28	0.19
Trismus T1	-3.21	-8.43
Trismus T2	2.48	0.89
VAS T2	-2.35	-3.17

Conclusions: the differences between the averages in different observation times is more reliable than the observation of the difference within the single test and controls since it evaluates the parameter variation in the same population, reducing the differences due to sampling. LLLT is a non-invasive and rapid method. Its use seems to improve pain and edema reduction, but not trismus. LLLT can act on reducing postoperative pain and edema following third molar surgery, whereas trismus remains not significantly changed. Further investigation and sample size increase are required.