ЎЗБЕКИСТОН РЕСПУБЛИКАСИ СОҒЛИҚНИ САҚЛАШ ВАЗИРЛИГИ

ТОШКЕНТ ДАВЛАТ СТОМАТОЛОГИЯ ИНСТИТУТИ

ГОСПИТАЛЬ ОРТОПЕДИК СТОМАТОЛОГИЯ КАФЕДРАСИ
ФАКУЛЬТЕТ ОРТОПЕДИК СТОМАТОЛОГИЯ КАФЕДРАСИ
ПРОПЕДЕВТИКА ОРТОПЕДИК СТОМАТОЛОГИЯ КАФЕДРАСИ
ОРТОДОНТИЯ ВА ТИШЛАРНИ ПРОТЕЗЛАШ КАФЕДРАСИ

«ОРТОПЕДИК СТОМАТОЛОГИЯ ВА ОРТОДОНТИЯНИНГ ДОЛЗАРБ МАСАЛАЛАРИ» НОМЛИ ҲАЛҚАРО ИЛМИЙ-АМАЛИЙ КОНФЕРЕНЦИЯНИНГ

МАТЕРАЛЛАР ТЎПЛАМИ

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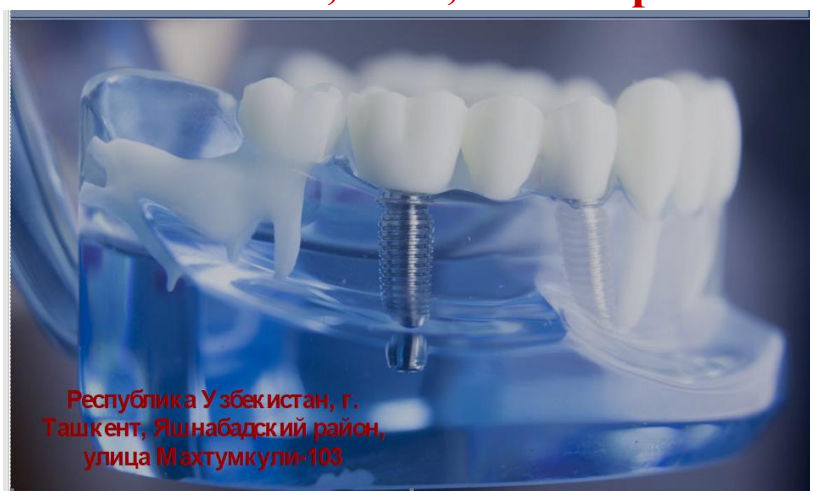

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IMPACT OF LASER PATTERNED MICROCOAGULATION ON PERIIMPLANT MUCOSA PHENOTYPE

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Key words: diode laser; nonablative laser treatment; tissue graft; keratinized gingiva; dental implant.

Abstract: The majority of practitioners recommend achieving at least 2 mm keratinized mucosa width (KMW) in peri-implant zone. Previous studies report on the possibility of using diode lasers for increasing KMW. The study was aimed to evaluate the effect of laser patterned microcoagulation (LPM) on periimplant mucosa phenotype. The LPM was performed on 22 patients with a total of 48 sites of insufficient KMW using DIOMAX® 1550 nm diode laser. The values were obtained at initial examination and two weeks after each LPM session. Measurements demonstrated a gradual increase of KMW and GTH under the effect of LPM sessions ($p<0.05$). LPM could be applied to achieve sufficient KMW and GTH values without additional soft tissue augmentation.

The aim of the study. The current research aimed to study the dynamics of peri-implant KMW, mucosal thickness after LPM sessions.

Materials and methods. Clinical trial was conducted at the Department of Maxillofacial Surgery of the Tashkent State Dental Institute clinic. The inclusion criteria were as follows: 1) KMW less than 2 mm around dental implants; 2) presence of 1-3 implants installed 3 months earlier in the posterior maxilla/mandible; 3) signed informed consent. The exclusion criteria were as follows: 1) age under 18 and over 70 years; 2) complete edentulousness; 3) scars and strands of peri-implant mucosa; 4) poor oral hygiene; 5) previous mucogingival flap surgery on the same site, 6) acute inflammation of peri-implant zone. The exclusion criteria also included pregnancy, lactation, decompensated chronic diseases, cancer, hemostasis disorders, inflammatory and autoimmune diseases, viral hepatitis, AIDS, and tuberculosis.

The LPM was performed using DIOMAX® (KLS MartinGroup, Tuttlingen, Germany) 1550 nm diode laser with the power parameters of 20 W, 1 Hz, 120 ms pulse. Under application anesthesia, micro coagulation columns were created along the mucogingival junction (MGJ) and further spread to the free gingiva with a filling factor of 30%. The treatment consisted of four LPM sessions with a two-week interval. Pain intensity was controlled during LPM. Patients were instructed to report any undesirable effects after the LPM session. Local hyperemia, signs of inflammation, and edema were evaluated during examinations.

KMW was measured in millimeters from the central point (CP) in the implant projection to the MGJ using a calibrated periodontal probe. MGJ was identified using a roll-test [1]. GTH was assessed using transgingival probing with a K-file #10 fitted with a rubber stopper. Under application anesthesia, the #10 file was inserted into the attached gingiva perpendicularly until the alveolar bone. Then the stopper was moved and fixed on the gingiva. The interval between the stopper and

the tip of the file was measured with a digital caliper (with a 0.01 mm sensitivity). KMW and GTH were measured before each LPM session and two weeks after the last one.

Results. A total of 22 patients with 48 insufficient KMW sites were included in the study. Patients were 42-60 years old, with a mean age of 51.3±4.7 years. Most patients showed painless LPM and intervals between sessions. Only 2 patients felt mild pain during LPM. According to control examinations, treatment generally passed without any sign of inflammation and scar formation. KMW and GTH increased gradually after each LPM session. A total gain was 1.08±0.16 (95.6%) and 0.36±0.06 mm (33%), respectively. It should be noted that KMW at 11 sites was >2 mm after the 3rd LPM session. Finally, KMW was more than 2 mm at all studied sites with an average value of 2.21±0.17 mm. The lowest value of KMW was registered on two adjacent mandibular sites (4.4%) of the same patient – 2.01 and 2.03 mm, respectively. Adequate KMW (> 2 mm) became an indication for the healing abutment installation. The final average GTH was 1.36±0.21 mm. The lowest value was registered on two maxillary sites – 0.88 and 0.96 mm, respectively. The GTH of the other sites was more than 1 mm.

Discussion. The procedure of LPM is based on creating isolated columns of micro-thermal wounds surrounded by normal tissue. Viable tissue around necrotic zones induces faster re-epithelialization of injured tissue by stimulating neocollagenesis and elastic tissue formation [2, 3]. The process of collagen remodeling and synthesis leads to tissue thickening. Keratinocytes migrate from the surrounding viable tissue and replace thermally destroyed tissue within the first 24 hours after LPM. Histologically the process of tissue healing occurs without signs of dyskeratosis and spongiosis in the epithelium, as well as signs of scarring in the connective tissue. The precise mechanism of healing still needs to be studied [4]. In our study, the process passed without signs of inflammation and scar formation. Therefore, LPM can provide an excellent esthetic result without additional trauma and complications related to tissue augmentation surgery [5, 6].

Conclusion. LPM provides an increase in KMW and GTH. Consequently, the use of LPM has a positive effect on peri-implant health and long-term treatment results. The method can be used before healing abutment installation in cases of two-stage implant placement. The effect of gingiva thickening can expand the scope of LPM application in dentistry.

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BIOACTIVE COATING AND STERILITY: ANALYZING THE IMPLANT.UZ DENTAL IMPLANT

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Key words: infection; aseptic conditions; dental materials.

Infection control procedures have become an integral part of modern dentistry and have had a huge impact on all clinical practice. There is not much current research on infection control procedures aimed at reducing the number of microbes on dental materials consisting of powder and liquid. There is also little research data on the radiation method of sterilization, which more often leads to satisfactory results.

The purpose of the study was to find the best dosage for sterilization of the domestic dental implant Implant.Uz with a bioactive coating. During the course of the study, special attention was paid to preventing the sealing of packaged test materials from breaking. After introducing the strains into Eppendorf tubes, all experimental procedures were carried out in an anaerobic chamber, which guaranteed an optimal environment for the growth of the three bacterial species mentioned above. The task was set to study the effectiveness of the procedure for radiation sterilization of dental material, consisting of powder and liquid, extracted from the original packaging, for the presence of bacteria..

Sterility studies were carried out in the management of the Tashkent Center for Sanitary and Epidemiological Welfare and the State Health Service under the Ministry of Health of the Republic of Uzbekistan. The sterility of finished medicinal products was tested by direct culture or membrane filtration method using liquid thioglycollate (mercaptoacetic) medium for the isolation of bacteria and liquid Sabouraud medium for the detection of fungi.

Determination of the number of bacteria

The sterility test is carried out under aseptic conditions, in boxes, preferably under a sterile laminar air flow, wearing sterile antistatic clothing. 2 hours before the