

laser treated surfaces showed a reduction of dentine tubular diameter with partial or total closure of the dentine tubules. For the control group, it was observed bigger amounts smear layer and open dentine tubular. The results obtained indicated that the Er:YAG laser can contribute to the HSDC treatment.

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#### **A COMPARATIVE STUDY OF THE EFFECT OF LOW LASER RADIATION ON MAST CELLS IN INFLAMMATORY FIBROUS HYPERPLASIA COLORED AND NOT COLORED BY THE TOLUIDINE BLUE**

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This study shows a comparative analysis of the effects of the laser radiation in low intensity on the mast cell degranulation in inflammatory fibrous hyperplasia when they are colored or not by the toluidine blue. Eight patients with inflammatory fibrous hyperplasia caused by prosthesis badly adapted were selected for this investigation. Ethical approval was granted by the State University of Londrina, Research Bioethics Committee. The dye was used in order to increase the absorption of the laser light by the tissue. The injure was divided in three equal parts, and each part received a different kind of treatment. One of them was removed to be the control, the second part was laser treated ( $\lambda = 670 \text{ nm}$ ;  $P = 15 \text{ mW}$ ;  $D = 8 \text{ J/cm}^2$ ) and then immediately removed and the last one, after being superficially colored, was laser treated and then immediately removed. The order of the stages was randomly changed, then the time between the stages would not interfere in the statistical analysis of the mast cell degranulation rates. It was found that the mast cell degranulation rates were 49% for the control group, 87% for the laser group and 88% for the colored/laser group. There was no significant statistical differences between the group laser treated and the one colored/laser treated. However, there was a significant difference between the control and the treated group ( $P \leq 0,01$ ).

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#### **MARGINAL MICROLEAKAGE EVALUATION IN CLASS V COMPOSITE RESTORATIONS OF DECIDUOUS TEETH PREPARED CONVENTIONALLY AND USING Er:YAG LASER**

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The purpose of this study was to evaluate marginal microleakage in class V restorations of deciduous teeth prepared using Er:YAG

laser and comparison to the ones observed when conventionally prepared. Twenty eight complete deciduous teeth were divided into four groups Group 1 (G1) prepared with high speed drill + composite resin; Group 2 (G2) prepared with high speed drill + glass ionomer cement; Group 3 (G3) prepared using Er:YAG laser ( $\lambda = 2.94 \mu\text{m}$ ), 300 mJ, 3 Hz, handpiece 2051, energy density  $86 \text{ mJ/cm}^2$  + composite resin; Group 4 (G4) prepared using Er:YAG laser ( $\lambda = 2.94 \mu\text{m}$ ), 300 mJ, 3 Hz, handpiece 2051, energy density  $86 \text{ J/cm}^2$  + glass ionomer cement. After the preparation and restoration the specimens were stored at  $37^\circ\text{C}$  for 24 hours, thermally stressed, immersed in 50% aqueous solution of silver nitrate for 24 hours while kept in the dark. The specimens were rinsed in water, soaked in photodeveloping solution and exposed to fluorescent light for 6 hours. After this process the samples were sectioned and observed by stereomicroscopy. For comparison the groups were divided into occlusive and cervical microleakage. For the occlusive microleakage the statistical significance was 5% among the groups and the average comparison showed higher microleakage for G1 ( $M = 35.1$ ) than for G2 ( $M = 24.0$ ) as well as compared to G3 ( $M = 22.3$ ). The other groups didn't present statistical differences among them. For the cervical microleakage the Kruskal-Wallis test didn't present any statistical difference. Comparing the occlusive and cervical microleakage data, for every group, using the Wilcoxon test, no statistical differences were observed. Concluding, this study showed the Er:YAG laser to be effective for class V restorations and to result in a smaller microleakage degree using the composite resin. These results indicate the viability of the Er:YAG laser for conservative restorations of deciduous teeth.

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#### **BONE REPAIR OF THE PERIAPICAL LESIONS TREATED OR NOT WITH LOW INTENSITY LASER ( $\lambda = 904 \text{ nm}$ )**

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The purpose of this study was to evaluate the influence of low intensity laser on the bone repair over periapical lesions of dental elements. Fifteen patients with a total of eighteen periapical lesions were selected and divided into two groups. Ethical approval was granted by the University of São Paulo, Dentistry School's Research Ethics Committee. Lesions of the control group were submitted to endodontic treatment and/or periapical surgery and the lesions of the experimental laser group, were submitted to the same procedures of the first group but also irradiated by low intensity laser. It was used a 904 nm wavelength laser GaAs, employing 11 MW of power delivered by a fiber optic system, irradiation continuous and contact mode, using a fluency of  $9 \text{ J/cm}^2$ . The mentioned treatment was repeated for 10 sessions with intervals of 72 hours between each session. Bone repair was evaluated through lesion measurements, which were accessed from the x ray pictures using a time and then, were also statistically analyzed. Results showed a significant difference between lased and control groups ( $p < 0,10$ ), emphasizing that for the laser group presented a significant reduction of the lesions area, confirmed by X-ray.