

Adhesion of Fibroblasts Cells on Dentine Cut Surfaces by Er:YAG Laser Treated or not by Nd:YAG Laser

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Apicoectomy procedure in endodontic therapy failure with all possible resources done is an alternative treatment aiming the tooth maintenance. **Purpose:** The purpose of this study was to evaluate the human periodontal ligament fibroblasts adhesion on extracted human teeth surfaces after apicoectomy by different methods. **Material and Methods:** Twelve samples divided in three groups, 3 for morphologic characteristics and 9 for adhesion were analyzed. In group I the samples were cut by a high speed Zekrya bur; in group II the Er:YAG laser, was used in a non contact mode using 140 mJ, 10 Hz and energy density of 45 J/cm². The group III samples went through the same procedure as group II and afterwards they were irradiated with Nd:YAG laser in a contact mode at 100 mJ, 15 Hz, 1.5 W and 125 J/cm². The FL3 cells lineage established from human periodontal ligament was used for the adhesion cells experiment. The same amount of cells was grouped on all the samples in a concentration of 2 x 10³ cells for each fragment. Twelve images from each group were taken and a square-grating matrix was placed on each one in order to guide the adhered cells counting on the surfaces. **Results:** The SEM images showed fibroblast cells adhesion on the samples from all the groups. **Conclusion:** The statistical analysis showed a significant higher fibroblast cells adhesion on group II when compared with group I but no statistical significant difference could be observed between groups II and III.