OP07 EFFECTS OF DIODE LASER-AIDED FIBEROTOMY AND LOW-LASER THERAPY ON RELAPSE OF ROTATED INCISORS

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AIM: To evaluate the effects of diode laser-aided fiberotomy and low-laser therapy on amount of relapse of rotated incisors.

MATERIALS AND METHOD: A total of 40 mandibular incisor teeth from 28 patients were included in the study. The incisor teeth were rotated between 20 to 50 degrees prior to orthodontic treatment. The teeth were fully derotated with fixed orthodontic appliances prior to laser and fiberotomy application. The samples were divided into four groups (n = 10), as follows: diode laser aided circumferential supracrestal fiberotomy (L-CSF), conventional fiberotomy (CSF), low-level laser therapy (LLLT) and control. The mandibular incisors were retained for four weeks before experimental applications. After the laser and fiberotomy applications the archwires were removed and the incisors were allowed to relapse for four weeks. Digital orthodontic study models were obtained before treatment, before the retention period and after the relapse period. Changes in the amount of rotation were measured on three-dimensional (3D) images. The Kruskal-Wallis *H* test was used to determine any significant differences in the initial angles of rotation and the degrees and percentages of relapse among the study groups. A Mann-Whitney *U* test was used to determine any significant differences in pocket depth, gingival recession and pain intensity between the conventional and laser-aided CSF groups.

RESULTS: CSF was 15.36 per cent in the LLLT and 33.78 per cent in the control groups. The amount of relapse in the laser aided CSF group was greater than in the conventional CSF and LLLT groups. Although the differences in amounts of relapse were statistically insignificant ($P > 0.05$), the laser aided CSF procedure caused significantly more gingival recessions compared to conventional CSF ($P < 0.05$).

CONCLUSIONS: LLLT irradiation every 2 days for 4 weeks caused less relapse of rotation of mandibular incisors when compared to conventional CSF. The laser aided CSF procedure should be used cautiously because of the significantly higher risk of gingival recessions.