

OP26 EVALUATION OF THE ROOT RESORPTION AND REPAIR IN CONTACT WITH MINISCREWS USING MICROCOMPUTED TOMOGRAPHY

Ozge Celik, Siddik Malkoc, Department of Orthodontics, Inonu University, Malatya, Turkey

AIMS: To determine the area and volume of the root surface resorption craters which contact directly with the miniscrews and learn about the repair after the resorption process using microcomputed tomography (μ CT).

SUBJECTS AND METHOD: Twenty one patients, ranging in age from 13.4 to 18.1 years at the start of treatment. The patients were treated with routine orthodontic fixed appliances with crowding of 8-10 mm, and treatment planning included two upper first premolar extractions. Two miniscrews (Medicon, Aarhus Screw) were placed between the first and second upper premolar root in each patient, and the first premolar roots were tipped into contact with the miniscrews using tipping springs (G&H, BT3 Beta Straight Lengths 14 \times 0.017 \times 0.025 inch) with a standardized force (150 g/f). The patients were divided three groups. In each group the teeth on the right side were selected as the controls. In all segments, miniscrews were placed for contact damage with the root surface. After one month, the right teeth were extracted and on the left sides the miniscrews were removed. Following removal of the miniscrews on the left side, the teeth were extracted at 4, 8 and 12 weeks and then when the expected repair process had been completed. The extracted samples were scanned with μ CT (SkyScan 1172) using a 9 micron slice width. Statistical analyses were performed using Kruskal Wallis one-way ANOVA and Bonferroni's adjusted Mann-Whitney U , and Wilcoxon signed rank tests.

RESULTS: Evaluation at 4 and 8 weeks showed that the control group (right side) had fewer, and smaller root resorption craters, and the study group (left side) had more and larger root resorption craters than the control group ($P < 0.05$). On the other hand no significant differences were observed in root resorption crater numbers or volume between the control and study groups at 12 weeks ($P > 0.05$). In addition, generally resorption craters localized apically and in the middle third, and on the disto-buccal root surfaces ($P < 0.05$).

CONCLUSION: Root resorption continued within 4 weeks even after removal of miniscrews. However; the root repair process had apparently started at 12 weeks. Clinicians should avoid contacting with root surface when using miniscrews.