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Continuous vs. discontinuous force application and root resorption

Ahu Acar, DDS, PhD;^a Ülkü Canyürek, DDS;^b Mustafa Kocaaga, DDS;^c Nejat Erverdi, DDS, PhD^d

^aAhu Acar, Marmara Üniversitesi Dis Hekimligi Fakültesi, Ortodonti A.B.D. Büyükçiftlik Sok. No:6, 80200 Nisantasi Istanbul, Turkey. Ahu Acar, assistant professor, Department of Orthodontics, Faculty of Dentistry, Marmara University. E-mail: ahuacar@hotmail.com

^bÜlkü Canyürek, postgraduate student, Department of Orthodontics, Faculty of Dentistry, Marmara University.

^cMustafa Kocaaga, postgraduate student, Department of Orthodontics, Faculty of Dentistry, Marmara University.

^dNejat Erverdi, professor and chairman, Department of Orthodontics, Faculty of Dentistry, Marmara University.

ABSTRACT

The aim of this study was to compare the effects on root resorption of continuous and discontinuous force application. The experimental material consisted of 22 first premolars that were to be extracted as part of orthodontic treatment. Prior to extraction, a 100 g tipping force was applied to the experimental teeth by means of elastics. One side was randomly selected to be the continuous force side, and the contralateral side became the discontinuous force side. Elastics were worn 24 hours per day on the continuous force side and 12 hours per day on the discontinuous side. The experimental procedure lasted 9 weeks. Composite electron micrographs of the buccal surface of each specimen were digitized and areas affected by resorption were determined. The degree of root blunting was assessed by visual scoring. Mean percentage of resorption-affected areas was smaller and apical blunting was less severe on the discontinuous force side. The results of this study show that the application of discontinuous force results in less root resorption than does the application of continuous force.

KEY WORDS: Continuous force, Discontinuous force, Root resorption.

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