Physical properties of root cementum: Part 22. Root resorption after the application of light and heavy extrusive orthodontic forces: A microcomputed tomography study

Introduction: Extrusive tooth movement has been overlooked in the literature on root resorption. The aims of this study were to quantify the effects of light and heavy controlled extrusive forces on root resorption and to localize the sites of prevalence in premolars.

Methods: Ten patients (7 girls, 3 boys) who required bilateral maxillary first premolar extractions as part of their orthodontic treatment participated in this study. The total sample consisted of 20 maxillary first premolars. Light (25 g) or heavy (225 g) forces were applied to the right or left first premolar for 28 days. After the experimental period, the teeth were extracted without root damage and analyzed with microcomputed tomography. Each specimen was studied in 3 dimensions, and specially designed software was used to measure the volume of each crater. Wilcoxon signed rank tests were used for the statistical analysis.

Results: There was a significant difference in the total root resorption caused by light and heavy forces ($P = 0.037$). The discrepancy between the light and heavy groups was not significant for the cervical, middle, and apical regions separately. Only the distal surfaces were significantly different between the light and heavy forces ($P = 0.008$).

Conclusions: Greater root resorption was observed after heavy extrusive forces when compared with light forces. The distal surfaces of the tooth root were significantly more affected than other root surfaces and might be influenced by root morphology and initial angulation of the tooth. There was no significant difference in the cervical, middle, and apical thirds in relation to root resorption after light or heavy extrusive forces.

One-phase vs 2-phase treatment for developing Class III malocclusion: A comparison of identical twins

Despite the known influence of early treatment on the facial appearance of growing patients with skeletal Class III malocclusion, few comparative reports on the long-term effects of different treatment regimens (1-phase vs 2-phase treatment) have been published. Uncertainty remains regarding the effects of early intervention on jaw growth and its effectiveness and efficiency in the long term. In this case report, we compared the effects of early orthodontic intervention as the first phase of a 2-phase treatment vs 1-phase fixed appliance treatment in identical twins over a period of 11 years. Facial and dental changes were recorded, and cephalometric superimpositions were made at 4 time points. In spite of the different treatment approaches, both patients showed identical dentofacial characteristics in the retention phase. Through this case report, we intended to clarify the benefits of undergoing 1-phase treatment against 2-phase treatment protocols for treating growing skeletal Class III patients.

Relapse of a maxillary median diastema: Closure and permanent retention

The purpose of this article was to describe the closure of a maxillary median diastema of a 26-year-old woman that had been corrected before during orthodontic treatment but reopened after dental trauma in a car accident. A clear esthetic device made from a tray like those used for home bleaching was used, providing a comfortable, nearly undetectable, and efficient solution. A permanent fixed retainer was bonded again to the maxillary central incisors to prevent relapse.