

بررسی تغییرات طول ریشه دندانهای ثنایای بالا در دوران ریتنشن ارتودنسی

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** متخصص ارتودنسی

Title: Changes in root lengths of maxillary incisors during orthodontic retention period

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Background and Aim: External apical root resorption is a common iatrogenic consequence of orthodontic treatment. Much controversy exists in the literature about changes in root lengths at post treatment periods. Although many practitioners believe that resorption becomes stable after active treatment, quantitative data are scarce. The purpose of this study was to determine quantitative changes in root lengths of maxillary incisors during fixed orthodontic post treatment period, and to assess if it is influenced by gender and factors related to active treatment.

Materials and Methods: This was a case cross over study, performed on 80 patients (52 females and 28 males) aged between 13 and 22 years. At debonding stage and beginning of retention phase of fixed orthodontic treatment, Hawley type retainer was fabricated for maxillary arch. Periapical radiographs of maxillary incisors using standard parallel technique were obtained immediately after debonding, and 3 and 7 months later. Crown and root lengths of maxillary incisors were measured using computer program. Changes in root lengths were calculated considering correction factors. Also associations between some factors and the change in root lengths during post treatment periods were assessed. These included gender, type of treatment plan (non extraction/extraction), technique (standard edgewise/straight-wire edgewise) and duration of active treatment (less than 2 years/2 years and more). T-test and 4-way ANOVA were used for statistical analysis with $P < 0.05$ as the limit of significance.

Results: No significant relation was found between apical root resorption of maxillary central incisors and time elapsed after treatment. Significant relation was observed between apical root resorption of maxillary lateral incisors and the length of post treatment period. No significant relation was found between root length changes of maxillary incisors during post treatment period and gender, type of treatment plan, technique, and the length of active treatment period ($P > 0.05$).

Conclusion: Considering the general process of root length reduction in maxillary lateral incisors during post treatment period, establishment of preventive measures is emphasized.

Key Words: Root resorption; Incisor; Orthodontic; Retention period; Follow-up.

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