Abstract

Radiographic evaluation of apical root resorption following fixed orthodontic treatment in Ardabil city in 2020

Introduction: Root resorption is the most common side effect of orthodontic treatment that can affect the effective results of treatment. Considering the effect of various factors in the occurrence of this complication and different and sometimes contradictory reports on the effect of this treatment on root resorption in previous researches and the lack of a similar study in Ardabil province and lack of knowledge about the current situation in this region, this study was conducted.

Materials and Methods: Standard panoramic radiographic images before and after treatment of 74 patients referred to orthodontists who had completed orthodontic treatment in 2021 were examined in terms of apical root resorption. Twenty-four teeth from each patient, including the first molar of one side to the first molar of the opposite side of both jaws, were examined.

Results: The mean age of patients was 15.8 ± 1.8 years and 58 patients (78.4%) were female and 16 patients (21.6%) were male. 63 patients (85.1%) had at least one apical root resorption. The highest frequency of apical root resorption was related to lateral incisors (50.0%), central incisors (43.2%), and canines (25.7%), respectively. Root resorption was grade 1 in 62 patients (98.4%) and grade 2 in 1 patient (1.6%). There was no significant relationship between apical root resorption and sex and age of patients. The risk of root resorption in upper ($P < 0.001$ and $OR = 3.17$) and lower ($P < 0.001$ and $OR = 2.43$) incisors was significantly higher than other teeth.

Conclusion: The incidence of apical root resorption following fixed orthodontic treatment was 85.1% and in most cases (98.4%) was mild. The highest risk of root resorption was related to maxillary incisors and then mandibular incisors. There was no statistically significant relationship between the incidence of root resorption with gender and age of patients, maxilla or mandible, and left or right side of the jaw.

Key words: Root resorption, Orthodontic treatment, Radiography.