

Abstract

Aim: The aim of the bachelor thesis was to summarize the knowledge about orthodontics and dental caries in orthodontic patients. Furthermore, it observes the degree of deterioration of the biological factor of the dentition after 2 to 3 years of orthodontic treatment in the form of increased caries formation or newly made fillings.

Introduction: With the placement of fixed orthodontic appliances, retention sites for plaque accumulation in the oral cavity increase. Its regular and correct removal is therefore an important factor both for the prevention of damage to the hard and soft tissues of the oral cavity and for the quality outcome of orthodontic therapy. We repeatedly observe that patients who are very well motivated and maintain adequate oral hygiene at the beginning of orthodontic treatment show a decline in motivation over time and the oral condition deteriorates. Patients in whom orthodontic treatment must be interrupted or discontinued due to caries or severe gingivitis are no exception.

Methods: OPG images of orthodontic patients with an interval of 2 to 3 years were evaluated. The cohort consisted of 50 patients from the Department of Orthodontics and Cleft Defects of the Dental Clinic of the University Hospital Královské Vinohrady born between 2006 and 2012. Subsequently, all newly formed carious lesions and newly fabricated restorations were recorded in dental crosses.

Results: In 19 patients of the cohort (38%) the change occurred after 3 years of treatment. Temporary teeth were affected more often. Specifically, 42 of 231 temporary teeth (18%) were found to be affected. Of the 1000 permanent teeth, 57 (6%) were affected. Exactly half of the patients in the cohort had only one filling in the dentition. In one of them one carious lesion was found instead of a filling. In 12 patients (24%), 2 new restorations were found, in 6 patients (12%), 3 new restorations were found on OPG images, and in the remaining 7 patients (14%), 4 or more restorations were evaluated. Dental changes were noted in 52% of the girls. However, it should be mentioned that more significant changes on a per-patient basis were found in boys.

Conclusion: In the present study, increased caries formation in orthodontic patients was observed mainly on temporary and permanent molars. Therefore, it cannot be said with certainty whether this is due to the utilized appliance. In the frontal region, chalky lesions

would be highly likely to be noted around bonded locks, but these were not the focus of this study as they are not assessable on OPG images and clinical examination of individual patients was not possible due to the ongoing Covid-19 pandemic.

Key words: orthodontic treatment, orthodontic appliance, dental caries, prevention of dental caries