The Effect of Fluoride Varnish in Preventing Enamel Demineralization around and under Orthodontic Bracket

by

Wadih Nasser Abo Hamdan

Thesis

Submitted In Partial Fulfillment of the Requirements for the Degree of Master of Science in Orthodontics

Department of Developmental Sciences, Division of Orthodontics
Faculty of Dentistry

Supervised by

Dr. Ahmed Abdul Moneim El Sayed
Professor of Orthodontics
Department of Developmental Sciences
Faculty of Dentistry, Beirut Arab University

Dr. Sherine Badr Youness Badr
Associate Professor of Paediatric Dentistry
Department of Developmental Sciences
Director, Division of Pediatric Dentistry
Faculty of Dentistry, Beirut Arab University

2017
The Effect of Fluoride Varnish in Preventing Enamel Demineralization around and under Orthodontic Bracket

Aim: The aim of this study was to evaluate in vitro the effectiveness of fluoride Vanish in preventing enamel demineralization around and under orthodontic brackets, using a laser fluorescence monitoring device on a group of human extracted teeth with bonded brackets.

Methods: Orthodontic brackets were bonded to 32 extracted premolars. Buccal surfaces of teeth were divided into two halves mesial and distal. Fluoride vanish (3M Unitek, Monrovia, CA, USA) was applied only on the distal half while the mesial one served as control half. Teeth were subjected to two demineralization cycles in standard demineralization solution. Enamel demineralization was measured on both varnished and non-varnished halves at baseline, after first, second demineralization cycles and under the brackets after debonding using laser fluorescence device Diagnodent-pen. Data were analyzed using Friedman test followed by Wilcoxon test. Differences were considered statistically significant at p<0.001.

Results: Statistically significant differences were observed between the varnished and non-varnished halves after the first and second demineralization cycles at p < 0.001. No significant difference was found between baseline and under the brackets readings in both halves.

Conclusion: Fluoride varnish application is effective in preventing enamel demineralization around orthodontic brackets. Fluoride varnish has insignificant effect on enamel mineral content under orthodontic brackets.

Keywords: Demineralization, Diagnodent-pen, Fluoride varnish application, Orthodontic bracket.