Republic of Iraq
Ministry of Higher Education
and Scientific Research
University of Baghdad
College of Dentistry

The Effect of Enamel Protective Agent on Shear and Tensile Bond Strength of Orthodontic Stainless Steel Brackets by Using Different Adhesive Agents

(*In vitro* study)

A thesis
Submitted to the council of the college of dentistry
University of Baghdad in partial fulfillment of the requirements for the master degree of science in Orthodontics

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2017 A.D. 1438 A.H.

Abstract

White spot lesions, which are decalcified enamel surface, are wide spread and familiar side effect of fixed orthodontic treatment.

The components and the bonding materials of the fixed appliance enhance the retention of biofilm and promote the formation of white spot lesions and this will mar the result of successfully finished case.

The present study was carried out to evaluate the impact of enamel protective agent (Clinpro white varnish) on shear and tensile bond strength of Denturaum orthodontic stainless steel brackets by using 3M Unitek and Ormco as orthodontic adhesive agents.

Sixty-four extracted human upper first premolar teeth were selected and randomly divided into two groups with 32 teeth each, representing the shear and tensile bond strength testing groups. Then according to the type of bonding adhesive and the addition of Clinpro before bonding (3M, Clinpro + 3M, Ormco, Clinpro + Ormco) each group was subdivided into four equal subgroups each with 8 teeth.

The brackets were debonded after passing twenty-four hours of bonding procedure, where the samples kept at 37˚C, by using the universal testing machine (Tinius-Olsen) to record the shear and tensile bond strength value.

After debonding procedure, each tooth surface was examined for the adhesive remnant and the Adhesive Remnant Index (ARI) were registered.

The result of this study revealed that using 3M Unitek orthodontic bonding agent subgroup showed the highest shear and tensile bond strength values, while (Clinpro + Ormco) subgroup showed the lowest shear and tensile bond strength values.

In conclusion, using Clinpro white varnish before bonding can be successfully used with 3M Unitek orthodontic bonding agent.