

**The Influence of Different Root Canal
Medicaments on the Tensile Bond Strength of
Composite Resin to Coronal Dentin by using 7th
generation bonding agent**

(In vitro Study)

**A Thesis
Submitted to the
Council of the College of Dentistry at the University
Of Baghdad
In Partial Fulfillment of the Requirements for the
Degree of Master of Science in
Conservative Dentistry**

By

Mohammad Akram Al- Ubaidi

Supervised by

Prof. Dr. Inas I. Al-Rawi

Abstract

This in vitro study conducted to evaluate the effect of some root canal medicaments on the tensile bond strength of composite resin (Cavex shade A2) to coronal dentin by the use of 7th generation adhesive system (Gluma Bond) and to study the type of bond failure whether it is adhesive, cohesive or mixed type of failure.

Sixty human sound maxillary first premolar teeth recently extracted for orthodontic purpose were selected and embedded in cubic acrylic block, teeth were ground to obtain flat superficial dentin surface with 600 grit silicon carbide paper, then the sample randomly divided into six groups as follow.

Group (1): Dentin surface irrigated with distilled water for 60 sec, this group served as a control group.

Group (2): Dentin surface irrigated with 2% Sodium hypochlorite for 60 seconds.

Group (3): Dentin surface irrigated with 2% chlorhexidine digluconate for 60 seconds.

Group (4): Dentin surface pretreated by formocresol solution for 3 days

Group (5): Dentin surface pretreated by camphorated paramonochlorophenol for 3 days.

Group (6): Dentin surface was irrigated with 2ml 17% ethylenediaminetetraacetic acid slowly and left for 60 sec followed by irrigation with 2% Sodium hypochlorite for 60 seconds.

Sample were thermocycled for 200 cycles between $(55) \pm 2$ °C and 5 ± 2 °C then tested for tensile bond strength by Instron testing machine the mode of failure whether adhesive, mixed or cohesive were examined using Hematoxylin stain and examined by stereo microscope (X 40, Hamilton).

ANOVA test and least significant difference (LSD) test were used to analyze the results and to show the difference between groups. Results expressed highly statistically significant difference in tensile bond strength value among all groups; with the highest mean tensile bond strength was in chlorhexidine digluconate group

followed by the ethylenediaminetetraacetic acid with Sodium hypochlorite group. The lowest mean tensile bond strength seen in sodium hypochlorite group. The remaining three groups which is distilled water, camphorated paramonochlorophenol and formocresol groups showed no significant difference ($p>0.05$) among them. For the failure modes the distilled water, Sodium hypochlorite, formocresol solution & camphorated paramonochlorophenol groups mostly showed adhesive failure while chlorhexidine digluconate & Sodium hypochlorite with ethylenediaminetetraacetic acid mostly showed mixed type of failure.

From the results of this study, it is clear that the endodontic medicaments used during endodontic treatment have significant effect on tensile bond strength value of composite to coronal dentin and on the type of failure.