

EFFECT OF DENTINAL SMEAR LAYER ON THE BOND STRENGTH OF DIFFERENT RESTORATIVE MATERIALS

A.Y. Achour

Ibrahim EI-Gayar

Mostafa Abdel-Mohsen

A microthin gelatinous smear layer cover the dentinal walls after every cut of the cavity preparation regardless of the instruments used, there was a great confliction between many investigators, one observed that the smear layer increased the bond strength between dentin surface and composite, also the smear layer considered as a defense mechanism to prevent the ingress of bacteria into the dentinal tubules. However, another investigators, proved that. if the smear layer is allowed to remain, it acts as an intermediate barrier between the restoration and the tooth surface.

In this study evaluation of the effect of smear layer was done on the bond strength between dentin surfaces and ketac-fil and also between dentin surfaces and composite.

Sound extracted teeth were selected for this study and divided into two groups.

Group I:

The smear layer remained and the dentin surfaces was rinsed with deionized water. This group was subdivided into two subgroups:

-Subgroup A:

Ketac-Fil applied directly on dentin surfaces.

-Subgroup B:

Dentin bonding agent and composite applied on dentin surfaces.

Group II:

The smear layer was eliminated by treating the dentin surface with 50% citric acid. Also, this group was subdivided into two subgroups:

-Subgroup C:

Ketac-Fil applied directly on dentin surfaces.

-Subgroup D:

Dentin bonding agent and composite applied on dentin surfaces. Statistical analysis of the results of this study showed that, there was significant increase in the bond strength when the smear layer was eliminated by 50% citric acid. Also, there was significant decrease in bond strength when the smear layer was remained on dentin surfaces.

So, from this findings, it is much better to remove the smear layer from dentin surface before application of the glass ionomer and composite resin.