



▼ POST GRADUATES ABSTRACTS

PG - 72 : CURING OF ORTHODONTIC BRACKETS AT VARIOUS DISTANCES AND ITS INFLUENCE ON BOND STRENGTH

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Aim: The aim of this study is to evaluate the shear bond strength of stainless steel brackets and radiance plus ceramic brackets by curing it in various distances of 0mm, 5mm, 10mm using 3M ESPE light cure unit and also to evaluate the adhesive remnant index (ARI) scores to find the site of bond failure.

Material & Methodology: 120 premolars were procured. 60 stainless steel brackets and 60 radiance plus brackets were referred to as group A and group B respectively. Group A consisting of stainless steel bracket which were subdivided into group A1, group A2 and group A3 based on the light curing distance of 0mm, 5mm and 10mm, and similarly group B were subdivided into group B1, B2 and B3 based on the curing distances. The brackets were bonded to the tooth surface after etching the enamel with 37% of phosphoric acid (D-tech) and using Transbond XT adhesive. The brackets were bonded to the tooth surface. Curing was done using 3M ESPE ELIPAR light curing unit of 1200milliwatt/cm sq intensity. Debonding was done using Instron Universal Testing Machine to check for the shear bond strength (SBS). The debonded brackets were subjected to stereomicroscope of 20X magnification to check

the Adhesive Remnant Index (ARI) and the results obtained were tabulated and statistical analysis was done.

Results : The shear bond strength (MPa) for group A1, group A 2, group A3 were 23.06 ± 1.83 , 20.56 ± 2.13 , 14.09 ± 2.52 respectively and for group B1, B2, B3 were 31.38 ± 1.54 , 28.29 ± 1.36 , 24.46 ± 2.03 respectively. It was found that group B has superior bond strength compared with group A at all distances and it was statistically significant. According to the ARI evaluation, at 0mm distance the bond failure for both the groups were observed at bracket adhesive interface and at 5mm and 10mm distances the bond failure was observed at the enamel adhesive interface.

Conclusion: The shear bond strength (SBS) of radiance plus bracket was found superior than the stainless steel brackets, and the bond strength obtained at all three distances for both the brackets were clinically accepted. The ARI at 0mm exhibited bond at enamel adhesive interface for both brackets and at 5mm and 10mm, it exhibited bond at bracket adhesive interface.