

UNIVERSITI TEKNOLOGI MARA

**AN IMAGE ANALYSIS OF ADHESIVE
REMNANT INDEX BETWEEN
CERAMIC AND METAL BRACKETS :
A CLINICAL STUDY**

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ABSTRACT

The debonding characteristics of the brackets can be determined from Adhesive Remnant Index (ARI) score. To date, there is a lack of clinical studies to evaluate the debonding characteristics between metal and ceramic brackets. This research aims to compare the ARI scores between metal and ceramic brackets and to compare the mean percentage of the adhesive remnant on the bracket base. The data were obtained from patients who required debonding of fixed orthodontic appliances. The patients were allocated into conventional metal brackets, self-ligating metal brackets, and self-ligating ceramic brackets. All brackets were mechanically debonded using recommended pliers. After debonding, ARI score was recorded based on the image analysis measurement of the photograph. All debonded brackets were evaluated under a stereomicroscope, and the percentage of the adhesive remnant on the bracket base was calculated using image analysis. The data were analysed using SPSS version 24.0 and the level of statistical significance was set at $p < 0.05$. 64 brackets in each group were evaluated in this study. There was a statistically significant difference between the three types of brackets in the ARI assessment on the tooth surface. The result was consistent with the image analysis of the mean percentage of adhesive remnant on the bracket base. The result showed a statistically significant difference between self-ligating metal brackets and other types of brackets. In conclusion, the self-ligating metal brackets had the most tooth surface adhesive remnant and the least adhesive remnant on the bracket base.

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