

3263 Effect of Air-Abrasion on Micro-Leakage at the Acrylic/Metal Interface

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A frequent finding on older removable partial dentures (RPD) is stain at the acrylic/metal interface. A finding in a previous study indicated that air abrasion might be the most effective method of preventing micro-leakage rather than use of bonding agents. **Objectives:** Determine the effect of air abrasion on reducing microleakage with and without bonding agents. **Methods:** Fifteen Vitallium (Austenal/Dentsply, York, PA) identical chrome/cobalt frameworks with eight gridwork/finishline regions on each. The frameworks were polished as in routine RPD fabrication, thoroughly washed to remove any contaminants, then ½ the gridworks were etched with 50µ aluminum oxide rinsed and dried. Eight wax blocks of identical size were waxed to the frameworks, invested in a customary fashion and flasks boiled out. Two surfaces on each block were left etched (A), 2 were left untreated (C), 1 etched surface received GC Metal Primer II (GC America, Alsip, IL)(GCA), 1 non-abraded received GC Metal Primer II (GCN), 1 etched surface received C&B Metabond (Parkell, Farmingdale, NY)(C&BA), 1 non-abraded received C&B Metabond (C&BN). Frameworks were processed with Lucitone 199 (Dentsply, York PA) as per directions and finished in customary fashion. RPD frameworks were thermocycled between 4° and 70°C 2500 cycles-1 minute dwell times. Frameworks were then immersed in India ink for 24 hours, rinsed, dried, sectioned through the acrylic/metal interface, polished and photographed (6:1 magnification). Micro-leakage was rated by two examiners as 0=no leakage, 1=Slight, 2=Moderate, 3=Severe. Mean microleakage (±se) was calculated and ANOVA with Scheffe post hoc test was used to determine significant differences. **Results:** All air abraded frameworks A, GCA and C&BA had significantly less leakage than the non-abraded frameworks. Neither of the bonding agents GC or C&B reduced micro-leakage better than air abrasion alone. **Conclusions:** All metal gridwork should be air abraded prior to wax rim addition to reduce the acrylic/metal interface micro-leakage.

Seq #345 - Wear, Microleakage, Adaptation, Margin Evaluation

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