Amalgam Margin Repair (9/06)


The decision process involving treatment for a complex amalgam restoration with minor discrepancies is often perplexing. The purpose of this longitudinal clinical study was to assess the longevity of clinically-diagnosed, defective amalgam restorations that had been repaired, sealed, or refurbished as compared to total restoration replacement. Forty-five patients with 113 defective amalgam restorations participated in the study. The restorations were assigned to five treatment groups: 1) Repair (n=20); 2) Sealing of defective margins with sealant (n=23); 3) Refurbishing (n=23); 4) Total replacement (n=23); and 5) No treatment (n=24). Before treatment, the restorations were evaluated using a modified Ryge criterion for color, marginal adaptation, anatomic form, surface roughness, marginal staining, bulk discoloration, contact, secondary caries, postoperative sensitivity, and luster. The respective restorations were reevaluated immediately after treatment as well as at one and two years. At the end of two years, the outcome of the no-treatment, refurbishing, and sealant groups were not significantly different. These groups were significantly more likely to receive a downgraded modified Ryge criteria rating for marginal quality and anatomical form compared to the repair or replacement group. The repair and the replacement groups remained statistically similar and provided equal restoration longevity. The results of this clinical study led the authors to conclude that an amalgam restoration with less-than-ideal marginal integrity or anatomical form may subsequently require treatment intervention to prevent further deterioration of the restoration-tooth complex. Either repair or replacement offered the most predictable results, with repair being the most conservative option.

DECS Comment: Even though it has been indicated that the presence of amalgam marginal defects is insufficient to determine the presence of secondary caries, dentists still largely elect to replace amalgams even though caries cannot be ascertained. As restoration replacement will cause the removal of additional sound tooth structure, this study provides some clinical evidence that amalgam marginal repair provides equal restoration longevity as total replacement.

References