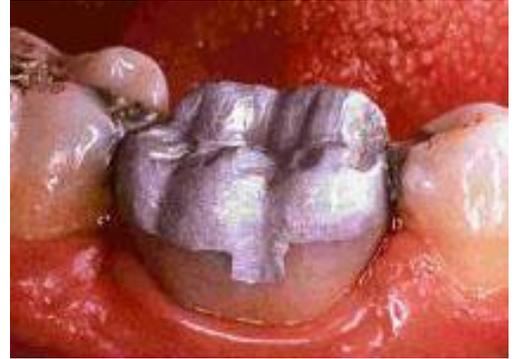


Repairing Endodontic Access Openings: A Possible Shortcoming? (1/03)

Fracture strength of amalgam crowns with repaired endodontic access. Hachmeister KA, Dunn WJ, Murchison DF, Larsen RB. Oper Dent 2002;27:254-258.

This *in vitro* study measured the fracture resistance of complex amalgam restorations which had repaired endodontic access openings to that of intact (i.e., non-repaired) complex amalgams in endodontically-treated teeth. The researchers were trying to determine if repairing an endodontic access opening in a molar weakens the complex amalgam restoration. Two groups of 30 extracted human molars were used in the test. Group 1 teeth had their crowns removed and received an endodontic access opening. They were then restored with amalgam (Dispersalloy, Dentsply/Caulk) using chamber retention and four TMS Regular pins (Coltene/Whaledent). Group 2 teeth were also decoronated but were restored with complex amalgam restorations using TMS pins. After storage, each of the Group 2 teeth received an endodontic access opening which was then repaired with amalgam. The teeth were loaded to failure in a testing machine. Group 1 specimens had a mean fracture strength of 2297.5 Newtons, while the Groups 2 teeth failed at 1586.1 Newtons. Statistical testing found a significant difference between the two groups. In addition, the authors reported that 73% of the Group 1 (unrepaired, intact) specimens failed catastrophically (i.e., through the pulp chamber) and were judged to be nonrestorable. However, of the Group 2 teeth, only 23% failed catastrophically. **The authors concluded that complex amalgam restorations that were subsequently accessed endodontically and then repaired with amalgam were significantly weaker than intact, unrepaired complex amalgams in endodontically-treated teeth.**



DIS Comment: This laboratory study evaluates a clinical situation commonly encountered in the federal dental services. Occasionally, a molar with a large existing amalgam restoration will require endodontic treatment, and the access is made through the restoration. Following endodontic treatment, the access opening is then usually repaired with amalgam. Does restoring the access opening with amalgam weaken the restoration? This study found that it does. As pointed out by the authors, readers need to remember that this is a laboratory study and that it may not correlate well to the clinical situation. Also, the mean fracture loads for the two groups were quite a bit greater than functional loads normally encountered clinically. It is interesting, however, to note that when failure occurred with the unrepaired restorations, the majority of the failures resulted in nonrestorable teeth. That was not the case with the repaired teeth. Despite the study's limitations, it does present some potentially-relevant information. As the researchers noted, the true test of this study's relevance will only be determined through clinical research.