A prospective, randomized, comparative clinical study of resin composite and glass ionomer cement for retrograde root filling.

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**OBJECTIVE:** To compare the clinical and radiographic treatment outcome of retrograde root filling with either dentin-bonded resin composite (Retroplast, RP) or glass ionomer cement (Chelon-Silver, CS). **STUDY DESIGN:** A prospective, randomized clinical study of 134 consecutive patients with indication of retrograde root filling of an incisor, canine, premolar, or first molar. Either RP or CS was chosen at random as retrograde filling material. Either material was applied onto the entire resection surface after prepared slightly concave. This preparation technique makes a sealing of the entire resection surface possible and prevents marginal contraction gaps during polymerization. A total of 122 patients were available for 1-year follow-up. RESULTS: After 1 year the proportion of successful cases was significantly higher in the RP group (73%) than in the CS group (31%) (p<0.001). Doubtful healing with a need for a longer observation period was seen in 17% of the RP cases and 19% of the CS cases. The proportion of failures in the RP group (10%) was significantly lower than that in the CS group (50%) (p<0.001). Most of the unsuccessful CS cases failed due to loosening of the retrograde filling. CONCLUSIONS: Dentin-bonded RP applied onto the entire, slightly concave resection surface is a predictable apical sealant characterized by a high success rate. In contrast, retrograde root filling with CS results in an unacceptably high failure rate due to insufficient bonding strength to the concave resection surface.

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