Computed tomography assessment of three techniques for removal of filling material

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Abstract
In this study, computed tomography (CT) was used to assess three techniques for root canal filling removal. Seventy-five roots of extracted human lower incisors were filled with zinc oxide-eugenol sealer and gutta-percha and separated into three groups before gutta-percha removal (group 1, Gates Glidden burs + K-type hand instrumentation; group 2, K-type reciprocating instrumentation + NSK TEP E16R; group 3, ProTaper rotary instrumentation + NSK NAC E16R). Specimens were CT-scanned before and after filling removal. The mean rate of filling removal was 94.88%. Reciprocating instrumentation was the most effective and manual instrumentation associated with Gates Glidden burs was the least effective technique. Removal rate was significantly different for the three groups according to one-way anova (P = 0.049). The Tukey test showed a significant difference between groups 1 and 2 (P = 0.039) only. CT proved to be a reliable method for assessing root filling removal techniques.