

Comparison of ProTaper and Mtwo Retreatment Systems in the Removal of Resin-based Root Canal Obturation Materials During Retreatment

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The aim of this study was to compare the effectiveness of the Mtwo R (VDW, Munich, Germany) and ProTaper retreatment files (Dentsply-Maillefer, Ballaigues, Switzerland) in the removal of four different types of root canal fillings (Resilon/Epiphany, Epiphany/gutta percha, AH Plus/gutta percha, Kerr PCS/gutta percha) during retreatment. One hundred and sixty maxillary anterior teeth were instrumented and randomly divided into 8 groups of 20 teeth each (n=20) with regards to filling technique and instrument used. For all roots, the following data were recorded: procedural errors, time of retreatment, canal wall cleanliness. The canal wall cleanliness after the removal procedures was assessed by SEM. Neither system completely removed the root filling material. The amount of remaining filling material in coronal thirds was significantly lower in groups 1, 2, 3, 4 when compared with groups 5, 6, 7, 8 ($P < 0.05$). No statistical differences were observed between the middle and the apical thirds. When the working times are compared group 3 showed the best results. In conclusion, all instruments left remnants of filling material and debris on the root canal walls irrespective of the root filling material used. However, both the engine-driven Ni-Ti rotary systems proved to be safe and fast devices for the removal of endodontic filling material.

Key words: Epiphany, Mtwo, ProTaper, Resilon, retreatment