

Comparison of Apexification With Mineral Trioxide Aggregate and Calcium Hydroxide

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Abstract

Purpose: The aim of this study was to compare mineral trioxide aggregate (MTA) with calcium hydroxide [Ca(OH)₂] clinically and radiographically as materials used to induce root-end closure in necrotic permanent teeth with immature apices (apexification).

Methods: Fifteen children, each with at least 2 necrotic permanent teeth requiring root-end closure (apexification), were selected for this study. All selected teeth were evenly divided into 2 test groups. In group 1, the conventional calcium hydroxide apexification (control) was performed, whereas in group 2, the MTA apexification (experimental) was done. The children were recalled for clinical and radiographic evaluations after 3, 6, and 12 months.

Results: The follow-up evaluations revealed failure due to persistent periradicular inflammation and tenderness to percussion detected at 6 and 12 months postoperative evaluation in only 2 teeth treated with Ca(OH)₂. The remaining 13 teeth appeared to be clinically and radiographically successful 12 months postoperatively. None of the MTA-treated teeth showed any clinical or radiographic pathology.

Conclusions: Mineral trioxide aggregate showed clinical and radiographic success as a material used to induce root-end closure and is a suitable replacement for calcium hydroxide for the apexification procedure. (Pediatr Dent 2006;28:248-253)

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