Sealing ability of Hybrid Root SEAL (MetaSEAL) in conjunction with ...

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OBJECTIVE: The objective of this study was to evaluate the apical sealing ability of Hybrid Root SEAL (MetaSEAL) in conjunction with different obturation techniques.
1. **Hybrid Root SEAL (MetaSEAL)** creates hybrid layers in radicular dentin only when EDTA is used as the final rinse.

PURPOSE: To test if the hybrid layer formation by Hybrid Root SEAL (Sun Medical Co.), a 4-META-containing auto-adhesive self-etching root canal sealer, is affected by the sequence of irrigants employed for removing canal wall smear layers during root canal treatment.

METHODS: Single-rooted teeth were shaped and irrigated with EDTA as initial rinse/NaOCl as active final rinse (Group 1) or NaOCl as initial rinse/EDTA as active final rinse (Group 2). All canals were obturated with Hybrid Root SEAL using a single-cone technique. Root canals derived from the coronal, middle and apical thirds of the roots were processed for transmission electron microscopy after removing the gutta-percha, leaving the sealer intact. Additional filled canals from the two groups were evaluated for fluid leakage.

RESULT: Hybrid layer was absent in Group 1 and was present only when a collagen matrix was produced by EDTA demineralization (Group 2). Significantly more leakage (4.63 +/- 1.94 microl/min -1 vs. 1.50 +/- 0.42 microl/min -1, P < 0.05) was observed in the absence of dentin hybridization.

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Publications and oral/poster presentations at academic/scientific meetings regarding Hybrid Root SEAL are listed in the reverse chronological order.

- Chemical surface analyses of a 4-META-containing methacrylate resin-based sealer
- Effect of calcium hydroxide on bondability of adhesive sealers
- Effect of aging on bondability of a 4-META-containing methacrylate-based sealer
- Influence of powder/liquid ratio on bondability of a methacrylate-based sealer
- Push-out testing and SEM evaluation of adhesive root canal sealers
- SEM evaluation of roots obturated with adhesive root canal sealers
- Interface analysis of an adhesive sealer and root canal dentin
- Evaluation by SEM observation of newly root canal sealer
- Evaluation by SEM observation of root canal sealer
- Evaluation of MTBS of newly root canal sealer