**Apically Extruded Sealers: Fate and Influence on Treatment Outcome**

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**Aim**
- To evaluate cases of unintentional overfillings after using different sealers for the fate of the extruded material and its influence on endodontic treatment outcome.

**Materials & Methods**
- 105 teeth treated exhibiting sealer overfillings with follow-up ranging from of 1, 2, and >4 yrs. were included in this study.
  - Teeth exhibited PAR at the time of treatment. (75 teeth)
  - Teeth with normal apical tissues. at the time of treatment (30 teeth).
- All teeth were treated by single operator and had no overextended gutta-percha points.
- The root canals were filled with laterally compacted gutta-percha and a sealer.
- Different sealers were randomly used and included:
  1. ZO-E sealers (Pulp Canal Sealer (PCS), PCS with Extended Working Time (EWT), Tubli-Seal)
  2. Resin-based sealer AH Plus
  3. Calcium hydroxide–based sealer (Apexit).
  4. Endomethasone
- After completion of the endodontic treatment, an appropriate restoration was placed.

**Results**
- **At the 1-year follow-up:**
  - 3 cases from the Tubli-Seal group were examined, and in all of them the extruded material had completely disappeared.
  - Complete sealer removal was observed for (43%) and (36%) of the cases filled with PCS and PCS EWT.
  - The only statistically significant differences were observed when comparing Tubli-Seal with AH Plus, Apexit, and Endomethasone.
- **At the 2-year recall:** The no. of cases in which the extruded sealer had disappeared increased for all groups, except for AH Plus and Apexit.
- **At the >4-year evaluation:**
  - Similar findings to the 2-year recall,
  - Except for Tubli-Seal, no sealer showed 100% disappearance.
  - In most cases of the Endomethasone, PCS, and PCS EWT groups, the extruded material was no longer present.
  - Only in a few cases from the AH Plus and Apexit groups was the material completely removed.
  - 79% of the teeth with PAR at the time of treatment had healed in comparison with 100% of the teeth with no apical periodontitis.

**Conclusion**
- Not all extruded sealers were predictably removed from the periradicular tissues.
- Treatment outcome was not significantly affected by the type of extruded sealer.
- A significantly better outcome was observed for teeth with no lesion in comparison with teeth with apical periodontitis.

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