Treatment Outcome of Mineral Trioxide Aggregate: Repair of Root Perforations—Long-term Results

**Author:** Mente et al  
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**Aim**
- To determine the treatment outcome & potential predictors of root perforations managed by ortho-grade placement of MTA

**Materials & Methods**
- 64 teeth (64 patients) that underwent root perforation repair with MTA and followed up for at least 1 yr. were included in this study.
- **Exclusion**
  1. Patients with compromised immune status or pregnant patients at the time of follow-up.
  2. Patients with incomplete pretreatment or intra-treatment records.
- Follow-up examinations were performed at time intervals ranging from 12 to 107 months after treatment.
- Outcomes were assessed according to the following criteria:

**Healed teeth**
1. PAI score was #2
2. No radiolucency adjacent to the perforation site
3. No continuing root resorption,
4. No clinical signs or symptoms
5. No loss of function

**Diseased teeth**
1. PAI score was $3.
2. Radiolucency adjacent to the perforation site
3. Signs of continuing root resorption
4. Clinical signs or symptoms
5. Longitudinal fracture or loss of function

- Univariate analysis was performed to determine the outcome predictors.
- A logistic regression was subsequently conducted to investigate the relation between the outcome and outcome predictors, which were statistically significant in the univariate analysis.

**Results**

**Healed teeth** = 86% (55 teeth)  
**Diseased teeth** = 14% (9 teeth)
- Perforation itself or the repair with MTA does not appear to be the direct cause for failure in any of the unsuccessful cases (4 teeth were extracted, 3 had PAR & 1 tooth had clinical symptoms)
- The healed rate of initially treated teeth (88%) was greater than the re-treated teeth (83%)
- Teeth without pre-op PAR displayed a healed rate of 81% vs. 91% for teeth with pre-op PAR
- Univariate analysis showed that only 2 factors significantly affected the treatment outcome:
  1. Clinicians’ experience (+vely affect the outcome)
  2. Post placement (-vely affect the outcome)
- Multivariate analysis showed that none of the prognostic factors studied affected the outcome.

**Conclusion**
- Ortho-grade repair of root perforations by MTA is an appropriate treatment option in all areas of the root.

**Authors**
Johannes Mente, Meltem Leo, Dimos Panagidis, Daniel Saure & Thorsten Pfefferle