A Randomized Controlled Study of the Use of ProRoot Mineral Trioxide Aggregate and Endocem as Direct Pulp Capping Materials: 3-month versus 1-year Outcomes

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**Aim**
- To assess the long-term clinical outcome of direct pulp capping with ProRoot MTA and Endocem as pulp capping materials in relation to the follow-up period after direct pulp capping.

**Materials & Methods**
- 46 teeth (46 patients) were included in this study.
- **Inclusion Criteria**
  - Patients aged older than 19 years
  - Permanent teeth diagnosed with reversible pulpitis
  - Teeth exhibiting direct pulp exposure from trauma or dental caries
  - Carious lesions of various classes were removed and a direct pulp cap was performed with either: ProRoot MTA (23 teeth) or Endocem (23 teeth)
- Follow-up periods included 1, 2, 4 and 12-weeks, 6-months and 1-year.
- Treatment success was defined by:
  1. +Ve response to the pulp test
  2. No clinical or radiographic evidence of irreversible pulpitis or pulp necrosis
- Statistical analyses were performed to compare between the different treatment modalities, success at different time periods and determine factors affecting success.

**Results**
- 41 patients were recalled at 1-year post-op.
- at the 3-month follow-up the success rate was 93% and dropped to 85.3% at the 1-yr follow up
  - **ProRoot MTA** = 87%
  - **Endocem** = 83.3%
- No statistically significantly different in the success between both groups.
- 2/3 of the failed cases involved class V carious lesions.
- The cavity type was a statistically significant variable at both the 3-month and 1-yr follow-up periods.

**Conclusion**
- MTA and Endocem are both suitable materials for direct pulp capping.
- Class V cavities exhibited a reduced success rate compared to other cavity classes.
- At least 1-year follow-up period is required to assess the prognosis of pulp capping.

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