

Endodontic therapy for an open apex- apexogenesis or apexification

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I. Introduction

When there is pulpal involvement of permanent teeth with incompletely formed roots, techniques for the induction of apical closure should be completed before endodontic therapy is begun. Apexification is a method of inducing a calcified barrier at the apex of a non-vital tooth with incomplete root formation. Apexogenesis refers to a vital pulp therapy procedure performed to encourage physiological development and formation of the root end. There are a few methods for apexification. These methods are 1) inducing apical closure by the formation of an apical stop 2) placing a biologically acceptable substrate in the apical portion of an apical stop thus forming an apical barrier.

The following cases present the root canal treatment of injured immature permanent teeth, one of which was submitted to apexogenesis with calcium hydroxide while the others were presented to apexification with calcium hydroxide or mineral trioxide aggregate (MTA).

II. Case presentation

< Case I >

1. Sex/Age: F/9
2. Chief Complaint: Crown fracture of #11
3. Past Dental History: N/S
4. Present Illness: cold(+), air(+)
5. Impression: Complicated crown fracture of #11
6. Tx plan: Endodontic therapy (Apexogenesis with calcium hydroxide) of #11

< Case II >

1. Sex/Age: M/12
2. Chief Complaint: Referred from Dept. of OMS for treatment of #45
3. Past Dental History: N/S
4. Present Illness: Buccal sinus tract in proximity of the apex of #45, P/R(+)
5. Impression: Chronic apical abscess
6. Tx plan: Endodontic therapy (Apexification with calcium hydroxide) of #45

< Case III >

1. Sex/Age: F/21
2. Chief Complaint: Discoloration of #11
3. Past Dental History: Resin filling of #11
4. Present Illness: No symptom, P/R(-), Mo(-)
5. Impression: Chronic apical periodontitis
6. Tx plan: Endodontic therapy (Apexification by MTA barrier) of #11

III. Conclusion

The use of calcium hydroxide for apexogenesis and apexification is successful in immature tooth with open apex. Placement of an apical barrier using MTA is a valid option for apexification, also.