

Apexification with Mineral Trioxide Aggregate

Kyungtae Park, Wonkyung Yang, Hyunjung Ko, Miri Kim

Department of Conservative Dentistry, Asan Medical Center, Seoul, Korea

I. Introduction

Teeth with incomplete root formation suffering pulp necrosis require special attention and treatment. In such cases, the canals remain large with thin and fragile walls, and the apex architectures remain divergent. These features make instrumentation of the canal difficult and hinder the formation of an adequate apical stop. Then, to allow the condensation of the root filling material and to promote an apical seal, it is imperative to create an artificial apical barrier or induce the closure of the apical foramen with calcified tissue. This process is known as apexification. Mineral Trioxide Aggregate (MTA) has been proposed as a potential material to create an apical plug at the end of the root-canal system. The following clinical cases describe the use of apical plugs of MTA for apical closure of immature necrotic permanent teeth.

II. Case Presentation

1. Sex/age : 11/M
2. Chief Complaint (C.C) : toothache on #21
3. Past Dental History (PDH) : N/S
4. Present Illness (P.I) : #21 periradicular radiolucency with incomplete root formation
5. Impression : #21 pulp necrosis with chronic apical periodontitis
6. Tx Plan : #21 apexification & root canal treatment

III. Conclusion

The present clinical cases confirm that MTA acts as an apical barriers and can be considered to be a very effective material to support regeneration of apical tissue in infected teeth with open apices. Both clinical and radiographic follow-ups showed healing of apical periodontitis and new hard tissue formation in the apical area of the affected teeth.