

## Case Report

# Management of Traumatized Immature Vital Tooth: A Case Report

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### ABSTRACT

Trauma to front tooth is one of the disturbing conditions for children and parents. The treatment strategies used to treat the immature young dentition are important for the long-term prognosis of teeth and should aim at preserving pulp vitality to secure tooth maturation and root development. This article describes a case of trauma to upper front tooth with open apex. The patient was treated with vital pulp therapy with mineral trioxide aggregate to induce apexogenesis.

**KEYWORDS:** *Apexogenesis, traumatized immature tooth, vital pulp therapy*

## INTRODUCTION

Trauma to front tooth is one of the distressing conditions for children and parents. Various factors should be considered in treating immature young permanent tooth. Among the various factors, the most important are age of the patient and root end completion. Traumatic injuries of immature teeth cause physical, psychological, and esthetic considerations.<sup>[1]</sup>

The immature young permanent tooth should be treated with strategies that are important for the long-term prognosis of teeth. The treatment strategies should try to preserve the pulp vitality to secure continued root development.<sup>[2]</sup> The term apexogenesis is used to describe vital pulp therapies performed to allow the continuation of the root end.<sup>[3]</sup>

Mineral trioxide aggregate (MTA), the newer material, gold standard for vital pulp therapies, provides long-term seal, acceptable biocompatibility, and dentinal bridge formation.<sup>[4]</sup>

## CASE REPORT

A 9-year-old male patient reported with the chief complaint of trauma to upper front tooth 1 day before. Clinical examination revealed Ellis class III fracture in 11 [Figure 1]. Radiographic examination in relation to 11 revealed an open apex [Figure 2]. There was no periapical pathology in relation to 11. Considering the age of the patient and open apex, it was decided to perform apexogenesis in 11 through vital pulp therapy.

Cvek's pulpotomy was performed and MTA was placed [Figures 3 and 4]. The tooth was sealed coronally with zinc oxide eugenol paste. After 3 days, the coronal seal was performed with glass ionomer cement. When the patient was reviewed after 1 week, there were no signs of inflammation. Then the patient was followed up at 3 months, 6 months, and 1 year. There were no signs of inflammation and mobility clinically. Radiographs at 3 months, 6 months, and 1 year revealed continued root end development [Figures 5–7]. After 1 year, the tooth was restored esthetically [Figure 8].

## DISCUSSION

Traumatic injuries to young permanent teeth are common and affect most of the children. Mostly the traumatic incidents occur before root formation is complete.<sup>[5]</sup> Trauma to immature tooth causes termination of dentin formation and root end development. Due to this, the root canal remains large with thin walls and wide apex. In such cases, attempts to induce continued root end development (apexogenesis) or closure at current level (apexification) are the treatment options left. Apexogenesis performed within 24 h has positive outcome.<sup>[1]</sup> In this case considering the age of the patient, an open apex vital pulp therapy was performed to induce apexogenesis.

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