

Conservative management of traumatic extrusive luxation of a maxillary central incisor: a case report

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Citation of this Article: Garima Garima, Tushar Kohli, Namrata Mehta, Deepti Sreen, Alpa Gupta, “Conservative management of traumatic extrusive luxation of a maxillary central incisor: a case report”, IJDSIR- October - 2020, Vol. – 3, Issue - 5, P. No. 221 – 224.

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Dental trauma is an important public health problem due to high prevalence and associated limitations. The external impact accounting for trauma may result in different injury types to teeth and supporting structures. This case report highlights the minimal approach taken to manage a traumatically extrusive luxation of a maxillary central incisor in a 17 year old patient using a non rigid composite splint.

Introduction

Children and young adults are more inclined to suffer from dental traumatic injuries where loss of a tooth can subsequently prove to have lifetime consequences. Dento-alveolar trauma occurs frequently and can result in tooth fracture and displacement along with alveolar bone crushing, and/or fracture with soft tissue injuries. (1)

Dental luxation, more common in primary dentition, is characterized by compromised periodontal ligament (PDL), cementum and pulp tissue, and can result in root resorption depending on the time of treatment and the severity of tissue damage. (1,2) In permanent teeth, dental luxation can be classified into subluxation, extrusive

luxation, lateral luxation, avulsion and intrusive luxation. (2,3)

Extrusive luxation is clinically characterized by an elongated tooth and excessive mobility and increased PDL space that may be observed radiographically (3). According to the International Association of Dental Traumatology guidelines for the management of fractures and luxation in permanent teeth, the recommended treatment is repositioning of the tooth as soon as possible and the use of splints, along with endodontic treatment if pulp sensibility testing confirms non vitality on follow up visits. (1, 4)

However, it is possible that the patient ignores the need for immediate treatment, and may postpone it, making it difficult to reposition the extruded tooth. The aim of the current case report is to highlight successful conservative management of an extruded maxillary central incisor in a 17 year old patient using a splint.

Case Report

A 17-year-old male patient reported to the Department of Conservative Dentistry and Endodontics at Manav Rachna Dental College, Faridabad, India with a chief complaint of

pain and mobility in the upper front tooth region and inability to chew food since a day. On questioning the patient gave a history of a trauma, a day back. Intraoral clinical examination revealed a mobile slightly extruded right maxillary central incisor. The tooth was extruded approximately 2mm in relation to the left maxillary central incisor and displaced slightly in the mesial-palatal direction. (Figure 1) The tooth was tender on percussion. The intraoral periapical radiograph revealed increased PDL space with the respect to the traumatically extruded tooth. (Figure 2) It was decided to reposition the tooth and splint it flexibly for 2 weeks according to the IADT guidelines. (1,5)

The tooth was repositioned manually with finger pressure of the operator (Figure 3) and spot etching and spot bonding was done followed by composite placement and curing for composite splint. (Figure 4) The patient was given post operative oral hygiene instructions immediately after placement of the splint and recalled after 2 weeks. (Figure 5)

After 2 weeks, the splint was removed and electric pulp testing revealed a delayed response. On the 4th week follow up visit, the reaction to electric pulp testing was quick, revealing intact vitality of the pulp tissue. (Figure 6)

The patient was subsequently called for regular follow ups and on the one year follow up visit, the radiograph revealed considerable healing at the apical region of the repositioned maxillary central incisor with no symptoms or discomfort reported by the patient. (Figure 7)

Discussion

Traumatic dental injuries of permanent teeth occur frequently in and young adults with crown fractures and luxations being the most commonly occurring injuries. Proper diagnosis, treatment planning and follow up are necessary for attaining a favorable outcome. (6)

The repositioning of the extruded tooth should be carried out quickly and with careful manual compression of the tooth in the socket. In the current case report, the patient reported a day later, however the manual repositioning was possible as the periapical blood clotting had not yet taken place, which would have interfered with the repositioning. (4,6)

Current evidence supports short-term, non-rigid splints for splinting of luxated teeth. While neither the specific type of splint nor the duration of splinting for luxated teeth are significantly related to healing outcomes, it is considered best practice to maintain the repositioned tooth in correct position, provide patient comfort and improved function. (7,8) Therefore it was decided to give a flexible and comfortable splint for 2 weeks.

Electric pulp testing was performed along with regular follow up visits to make a reliable and adequate pulpal diagnosis, in order to determine the need for root canal treatment.

According to the IADT guidelines for management of fractures and luxation traumatic injuries, a favourable treatment outcome for extrusive luxation injuries include no symptoms and positive response to pulp testing, along with signs of clinical and radiographic healing. (1, 9)

The current case represented a favourable healing outcome for the slightly extruded maxillary central incisor without endodontic treatment and maintained pulp vitality at the follow up visit, reinforcing the conservative approach to treat and manage the traumatic extrusive luxation.

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Figure



Figure 1: Preoperative Photograph



Figure 2: Preoperative Radiograph



Figure 3: immediately after manual repositioning of extruded tooth.

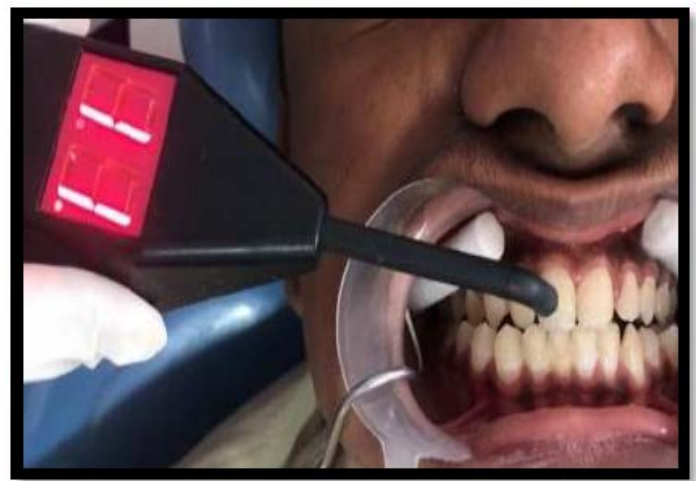


Figure 6 Electric pulp testing on 4th week follow up visit



Figure 4: Spot bonding for splint

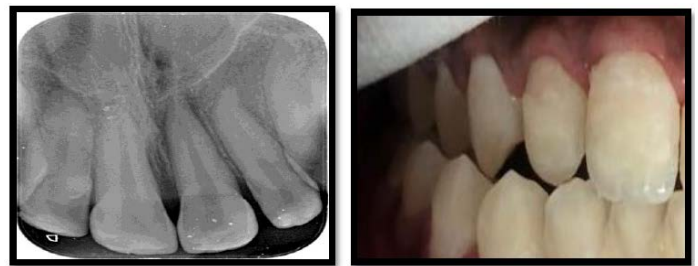


Figure 7: Post operative radiograph and photograph at 1 year follow up



Figure 5: Non rigid splint in place