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CASE REPORT

Management Of Acute Dental Trauma-Avulsion And Extrusive Luxation: A Case Report

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ABSTRACT

This report presents a case of extrusive luxation and the avulsion of the maxillary left incisors with concomitant uncomplicated crown fractures in a 20 year old boy. The slightly extruded and avulsed teeth were repositioned in the sockets and were splinted for 2 weeks. Endodontic therapy was performed. After a follow up of 3 years, no root resorption and ankylosis was seen. The present case report showed that under the limited time of 30 minutes, ankylosis and root resorption like affects can be avoided for luxated and avulsed teeth.

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Introduction

Extrusive luxation and avulsion of teeth is an uncommon type of dental injury in the permanent dentition and usually involves the maxillary teeth [4],[5],[6],[7],[8]. The shock and pain of the injury and the loss of a tooth which is needed for eating, speaking and smiling, often leads to emotional upheaval in the patients and their parents. The situation is compounded by the need for emergency treatment, to enhance the prognosis.

The longer the avulsed tooth is out of it's socket, the less likely it will remain in a healthy functional state after replantation.

The following instructions should be given to the parent or the patient as soon as the dentist has been informed of the accident and in preparation for an imminent visit:

1. Wash the tooth in running water without brushing or cleaning it and examine it to be certain that the tooth is intact.

2. The patient should rinse his/her mouth and replace the tooth in it's socket using gentle, steady, finger pressure. If the patient is cooperative, gently close the teeth together to force the tooth back into it's original position.

3. Take the patient to the dentist immediately.

So, the present case report enlightens the good prognosis of avulsed and extruded teeth under limited time with a follow up of 3 years. Management of an avulsed permanent tooth often presents a challenge.

Case Report

A 20 year old boy was referred to the emergency department of Surendra Dental College and Research Institute, Sriganganagar, after suffering trauma to his maxillary teeth. The accident happened near the dental college and so, within 10 minutes, the patient was reached to the dental hospital. The accident was pre-informed to the doctors in emergency duty at the dental hospital. Full instructions were given from the hospital to the caller at the accident site.

The past medical history was unremarkable and he was not taking any medication and had no allergies. Initial examination of the facial bones and TMJ were within normal limits. Intraoral examination revealed the extrusive luxation of the maxillary left central

incisor and the left lateral incisor was avulsed [Table/Fig 1]. It was in the patient's mouth. Lip and mucosal trauma was seen. The patient had spontaneous pain in the area of the maxillary incisors. The mandibular teeth revealed no signs of trauma.

Radiographs were taken, which showed that the root of the slightly extruded tooth was apically formed and the total avulsion of the maxillary left lateral incisor was confirmed [Table/Fig 2].

Repositioning of the maxillary incisors within the socket was planned immediately.

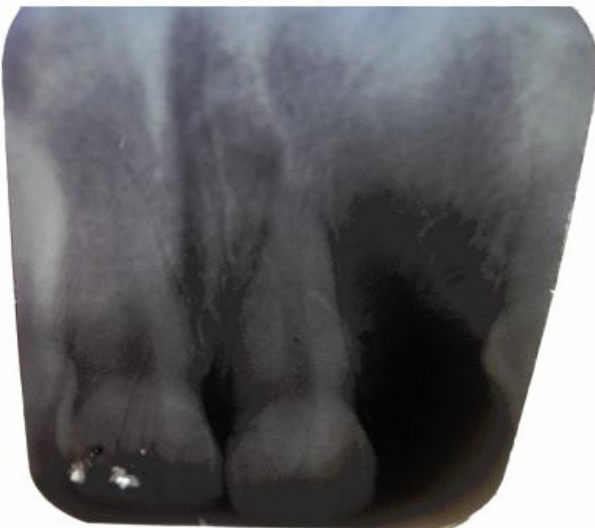
The left lateral incisor was rinsed in a physiological solution like saline for 2 minutes [Table/Fig 3]. The debris was removed without damaging the periodontal ligament. The tooth was placed back into the socket by holding the crown gently. The maxillary left central incisor was repositioned in the socket with a surgical forceps and it was disoccluded [Table/Fig 4]. Functional splinting was done for 2 weeks from the maxillary right canine to the left canine [Table/Fig 5]. The positioning of both the teeth was confirmed with the help of radiographs [Table/Fig 6].



(Table/Fig 1) Pre-operative picture



(Table/Fig 3) Tooth in physiologic solution



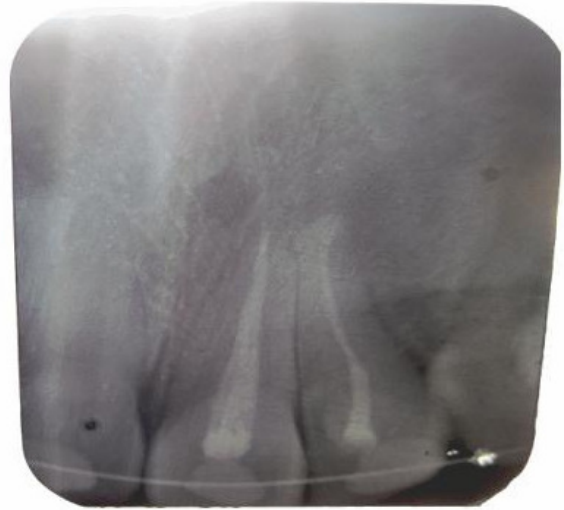
(Table/Fig 2) Pre-operative radiograph



(Table/Fig 4) Teeth repositioned in the socket



(Table/Fig 5) Functional splinting



(Table/Fig 7) Post endodontic radiograph

After two weeks, both the teeth were found to be stabilized and the splint was removed [Table/Fig 8].



(Table/Fig 6) Confirmation radiograph after splinting

Antitetanus toxoid (ATT) was given prophylactically, as it would provide immunity against tetanus. Antibiotics were prescribed for 7 days and the patient was encouraged to maintain good oral hygiene. Endodontic therapy of both the teeth was planned and was done [Table/Fig 7].



(Table/Fig 8) Post operative picture

The patient was kept under follow – up for 3 years. Of No signs of root resorption were seen radiographically during the follow up period [Table/Fig 9].



(Table/Fig 9) 3Years follow-up radiograph

Discussion

Dentoalveolar traumas are relatively frequent accidents and dramatic episodes can occur. The incidence of trauma involving permanent teeth is reported to be between 7% and 19% and typically affects teeth in the maxillary anterior segment [3].

The overall seriousness of the traumatic injury to the anterior teeth also focused on the aesthetic implications of the injury, because one of the greatest concerns of the patient was the immediate appearance of his traumatized teeth.

The emergency treatment and the clinical decisions must be made at the time of injury. Furthermore, there is need for long term follow up because of the high incidence of complications. The correct application of restorative techniques immediately after the trauma should improve short and long term outcomes.

Current efforts in the trauma literature of avulsion injury focuses on the following areas: Dry extra oral time, storage of the avulsed tooth, treatment of the periodontal ligaments, touching the cementum surface, splint treatment for prolonged time and treatment of the pulp canal to reduce the risk of inflammatory resorption. Treatment of the avulsed tooth's root surface may also increase the probability of successful replantation. Toxins are usually not present initially in a great enough concentration to elicit an inflammatory response and hence, the necrotic pulp is not of immediate concern.

The current guidelines advice that avulsed teeth require a functional splint for 7–10 days, so as to allow for the functional or physiological movement of the root. A functional splint retains the tooth in the socket, but is flexible enough to allow functional stimulation of the peridontium. The results of recent studies have challenged the current guidelines for the management of avulsed teeth, with evidence that the type of splint and the duration of the splinting period are not significant variables in pulpal or periodontal healing [9].

Immediate surgical repositioning of the luxated tooth has been associated [10] with a high incidence of ankylosis, pulp necrosis and especially marginal bone loss [2]. According to Ebeleseder et al [6], an advantage of the surgical technique is that it may be easily performed; more over, it returns the adjacent tissues to the original anatomic situation to allow repair and further allows fast and adequate endodontic access. The disadvantages of the surgical procedure would be more dependent on the professional's care and skill than on the procedure itself [5].

According to Andreasen, [2] root resorption is less likely if the root canal of the reimplanted tooth is not filled prior to reimplantation, than if the pulp is left in the canal or is extirpated and the endodontic treatment is done.

The aesthetic and functional result was deemed satisfactory from the points of view of both the professional and the patient during the 3 years follow-up period. No signs of root resorption were seen radiographically. Clinical follow-up for this type of case is the most important and should be performed periodically.

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