

Multiple Adult Traumatic Dental Injury in Lower Anterior Teeth: One Year Follow-up

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ABSTRACT

Traumatic dental injuries form a major number of patients reporting for emergency dental care. Simple household injuries to major road traffic accidents can lead to traumatic injuries of teeth in adults. Often, these injuries affect the social and psychological status of the patient. Managing dental trauma is never the same and it always presents a challenge to dentists due to varied presentations and results. This case report aims to highlight the importance of strictly following the guidelines under stringent infection control measures to achieve predictable success.

Keywords: Case report, Dental Trauma, Emergency treatment, Traumatic endodontology.

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INTRODUCTION

One of the frequent traumatic injuries in an adult is a traumatic dental injury. There is an average prevalence of 18% in permanent dentition, with higher prevalence being reported from the Americas and South-East Asian Regions (about 22% and 16%, respectively).^{1,2} Very few studies have focused on describing traumatic dental injuries in the adult population.^{3,4} Traumatic dental injury in an adult is different from dental injuries in children. The etiology, the type of impact on the adult tooth and bone, and the fracture pattern are different between adults and children. This, in turn, affects the healing pattern too. This case report aims to detail the management and one-year follow-up multiple traumatic injuries of lower anterior teeth.

CASE DESCRIPTION

A 30-year-old female patient reported to a dental emergency in primary care setup in Qatar after a fall in her house. She had been to a trauma emergency and was diagnosed with traumatic dental injury and labial laceration. The labial laceration was sutured in the emergency clinic and was referred to us for dental care. The Patient was psychologically in shock and tired.

She reported to our dental clinic 7 hours after the trauma complaining of pain in the lower anterior region and difficulty in closing her mouth. She also complained of excess salivation. On extraoral examination, mouth opening was normal, and mouth closure in occlusion was affected. Temporomandibular joint examination normal. There was tenderness on palpating the masseter. No palpable lymph nodes were noted in the submandibular, sublingual pre, and post auricular areas. The patient was given chlorhexidine mouthwash for disinfection. The intraoral area was gently debrided with wet gauze to clear off any debris/loose blood clots. Intraoral examination showed that there was a traumatic bite associated with elongated mobile 31 with incisal displacement, mild buccal movement of 32, and crown fracture of 41. All the teeth were tender to palpation. Percussion test and mobility tests were not performed as it was an obvious case of dental trauma. Pulp sensibility tests showed all lower anterior with positive

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results. Palpation of the labial and lingual alveolar processes did not give significant findings.

Local anesthesia (2% lidocaine hydrochloride with 1:80,000 adrenaline) was administered. Detailed examination of lips, labial mucosa, and alveolar process done. No obvious fracture of the alveolar process was noted. No abnormal mobility was noted in 41, 42, 43, 33, and 31, 32 were not tested for mobility as there was an obvious displacement. Intraoral periapical radiograph in two angles showed loss of enamel and dentine radiopacity in 41 involving pulp, enlarged PDL space in 31 (4 mm) and 32 (1 mm) (Fig. 1).

Diagnosis of complicated crown fracture 41, extrusion 31, and lateral luxation 32 noted. The patient and her husband presented and explained the dental injuries and possible treatment modalities and complications. Informed consent was obtained.

Teeth number 31 was gently inserted back into the socket. Pulp extirpation is done in 41. Lower anterior were stabilized by splinting with metal and flowable composite. The beveled tip of the (27 gauge, 0.40 × 35 mm) long injection needle was cut and the straight wire was used as splint material. Postoperative IOPA was made (Fig. 2), and diclofenac sodium 50 mg and 0.2% chlorhexidine mouth were prescribed. The patient was reinforced and advised soft diet.

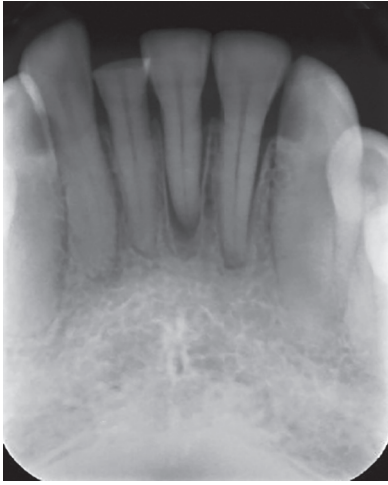


Fig. 1: Day 1 preoperative, shows extruded tooth 31, crown fracture 41, location 32



Fig. 3: Two week follow-up, shows endodontic treatment 41



Fig. 2: Day 1 postoperative, shows repositioned 31 and splint



Fig. 4: Four months review, no radiographic significance

The review was done the following day. Orthopantomograph showed no abnormal findings. The patient recalled after a week; endodontic treatment was completed in 41. The patient was reviewed after 2 weeks. Considering the severity of the displacement of 32, it was decided to keep the teeth stabilized for a month. Pulp sensibility test showed positive results in 43, 42, 31, 32, and 33. Patient was reviewed after 4 weeks, splint was removed. Grade one mobility was noted in 42, 41, 31, and 32. Pulp sensibility test showed positive results in 43, 31, 32, and 33. Delayed response in 31 (Fig. 3). A review after 3 months is shown in Fig. 4.

The patient recalled in 6 months. Teeth 31 showed a negative response in a cold test. Endodontic treatment was completed in 31. Radiograph, sensibility test, and mobility test repeated (Fig. 5). Mixed periapical radiolucency and opacity were noted around 32. As the tooth was positively responding to cold, no treatment was initiated. One-year recall is done. Porcelain fused metal (PFM) bridge noted in 41 and 31. Radiograph, Sensibility test, and mobility test were repeated with no significant findings (Fig. 6).

Treatment protocols were followed from the recommended guidelines of the American Association of Endodontists for the treatment of Traumatic Dental Injuries.⁵

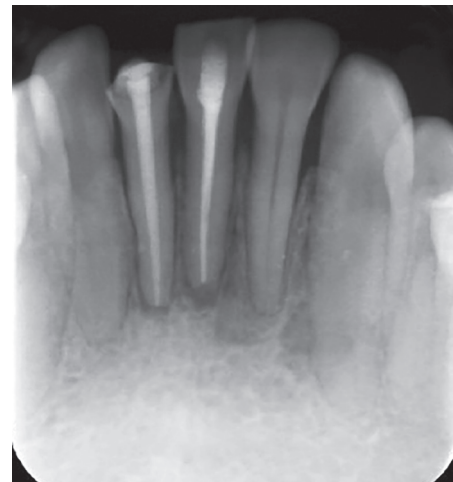


Fig. 5: Six months review, endodontic treatment 31, mixed radiolucent opaque are 32

DISCUSSION

Though the oral region forms a minor percentage of our total body area, maxillofacial injuries add up to about 5% of all body injuries.⁶

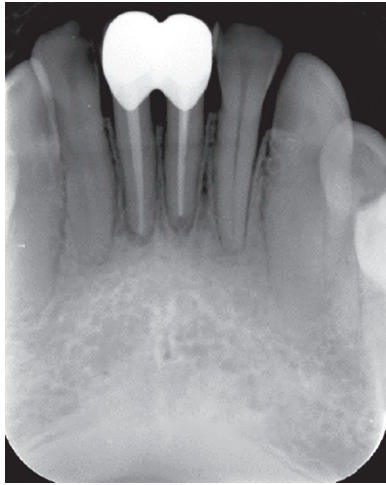


Fig. 6: One year review, teeth with PFM crown

Approximately, one-fifth of the injuries occur in adolescents and adults affecting permanent teeth. Luxation injuries as a group are the most common of all dental injuries with a reported incidence of 30–44%.⁷

Management of traumatic dental injury varies with each individual and it always is a challenge for the endodontist. The decision on the treatment plan is based on the presenting symptoms at each visit. The duration of the treatment frankly lasts lifetime as complications such as ankylosis/resorption can occur many years after the actual trauma. This signifies the importance of recall visits. A temporary loss of sensibility (negative pulp sensibility) is a frequent finding during follow up, especially after luxation injuries.⁸

Thus, in this case, even though I expected the extruded tooth to become nonvital, I waited until the tooth was showing consistent negative results under the cold test. Similarly, all the other lower interiors will need to be reviewed after a year for pulp status.

Healing following luxation can be favorable or unfavourable.^{8,9} Favorable healing after a luxation injury occurs if the initial physical damage to the root surface and the resultant inflammatory response to the damaged external root surface are covered with cementum. An unfavorable response occurs when there is a direct attachment to the bone with the root ultimately being replaced by

bone or root resorption happens without any hard tissue formation leading to loss of teeth. Till one year, the healing in the extruded and laterally luxated teeth was favorable. Future recall visits are needed to check the long-term prognosis of the traumatized teeth.

This case report highlights that if the trauma is reported early with the patient's good immune status in the absence of systemic diseases. If all the guidelines are followed with stringent infection control protocols, we can achieve dependable and predictable success. Review visits are of utmost importance as we can identify possible complications at the earliest.

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