



**RESEARCH ARTICLE**

**ACCIDENTAL TEETH INJURIES AND ITS MANAGEMENT**

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**ABSTRACT**

Motor vehicle collisions (MVCs) may lead to oro-facial injuries like to teeth and other related oral structures. Swelling and cuts on skin gradually heal but traumatic dental injuries (TDIs) like teeth intrusions, avulsion of teeth, displacement of teeth, fracture of teeth or roots need dental intervention and dental planning. Proper diagnosis, treatment planning and follow-up are important to assure a favorable outcome.

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**INTRODUCTION**

Traumatic dental injuries are due to the physical impact on a tooth and its surrounding tissues, which may be direct or indirect. Trauma to the teeth may result either in injury of the pulp, with or without damage to the crown or root or in displacement of the tooth from its socket (Epstein JB, 2010).

**Classification of fracture of teeth by Ellis and davey (1970)**

It is a simplified classification, which groups many injuries and allows for subjective interpretation by including broad terms such as simple or extensive or extensive fractures.

- Class I** - Simple crown fracture with little or no dentin affected
- Class II** - Extensive crown fracture with considerable loss of dentin, but with the pulp not affected.
- Class III** - Extensive crown fracture with considerable loss of dentin and pulp exposure.
- Class IV** - A tooth devitalized by trauma with or without loss of tooth structure.
- Class V** - Tooth lost as a result of trauma.

- Class VI** - Root fracture with or without the loss of crown structure.
- Class VII** - Displacement of the tooth with neither root nor crown fracture
- Class VIII** - Complete crown fracture and its replacement.
- Class IX** - Traumatic injuries of primary teeth.

Definitive treatment protocols depends a great deal on what happens over the course of time once the initial treatment goals are completed. Depending on the nature of the injury and condition of the apex, a follow-up appointment with the patient is mandatory to allow for an assessment to determine whether or not calcium hydroxide therapy should be initiated. Long-term complication considerations include ankylosis, arrested alveolar process growth, and inflammatory root resorption. A frequent recall should be established to assess for these and other possibilities.

**Case report**

A 24 year medically fit healthy male patient reported to clinic with broken tooth and complaint of swelling, pain in upper right front tooth. On evaluating history for cause of broken tooth, he said before One week he meet with motor vehicle collision, tooth was broken and after that pain started in right

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upper teeth. On clinical examination 11 tooth presented with Ellis class III fracture (Figure 1), pin point pulp exposure and inflamed marginal gingival. The tooth was tender on palpation. On radiographic examination PDL widening was seen in relation to 11 (Figure 2). Pulp vitality test was done and tooth was found non vital.



Fig. 1.



Fig. 2.

### Preoperative clinical and radiographic views

Based on clinical and radiographic examination, patient was advised to undergo root canal treatment w.r.t 11 and then restoration w.r.t 11 and enameloplasty w.r.t 12. Intra canal calcium hydroxide dressing (calpex) was placed for two weeks (Figure 3). After two weeks, Patient was examined and was asymptomatic. Canal was found to be dry with paper points. Canal was coated with root canal sealer (rc sealer) and obturated with guttaperchapoints (Figure 4). Tooth was restored with PFM crown (Figure 5).



Fig. 3.



Fig. 4.



Fig. 5.

### Post operative clinical and radiographic views

#### Case report 2

A 34 years old lady medically fit, reported to clinic with swelling in upper lip and mild bruises on upper lip. During evaluation of dental history, patient revealed that she was hit by a motor cycle and fell off and injured her upper lips and teeth. Later she noticed that her front upper four teeth were

broken and there was profuse bleeding from that area. On regular clinical examination labial mucosa of upper lip was lacerated due to broken teeth and 12, 11, 21, 22 were broken and presented with grade II mobility (Figure 6). On radiographic examination there was pdl widening of all four teeth and pulp was exposed. Suturing was done on mucosal surface of upper lip to close the cut, and access opening was done in 12,11,21,22 and splinting was done for all four mobile teeth. Patient was given calcium hydroxide dressing (metapex) for 15 days. Patient was examined after 15 days and was asymptomatic. Splinting was removed and root canal treatment was completed w.r.t 11 21 12 22 (Figure 7) followed by crown cutting and final bridge cementation (Figure 8, 9). And patients returned to clinic for routine check up after 2 years (Figure 10).



Fig. 6.

### Pre operative view



Fig. 7.



Fig. 8.



Fig. 9.

### Post operative clinical and radiographic views

#### After 2 Year



Fig. 10.

## DISCUSSION

“The teeth are liable to be fractured by blows, which may be inflicted either by accidents, or from malicious intensions. The incisors of the upper jaw are the most exposed to these accidents” (Hovland, 1995). The incidence of traumatic injuries is increasing over the years. The face and the teeth being the most exposed parts of the body have a higher tendency to fracture. Trauma to the permanent anterior teeth is common finding incidences in the traumatic injuries are on the rise and form the third largest cause, for the mortality of the teeth (Andreasen, 1994). In the present article two cases reports were described. In case report 1, patient is having Elli’s class III fracture.

The primary aim for fractured crown with pulpal exposure is to maintain pulp vitality. For a tooth with fractured crown with pulpal exposures four kinds of treatment are recommended (Grossman, 2014)

- Direct pulp capping
- Partial pulpotomy
- Apexification /Regenerative endodontics
- Root canal treatment

So in the present case Root canal treatment was done followed as time of pulpal exposure was more and tooth was non vital. So access opening was done followed by calcium hydroxide dressing for disinfection of canal and then obturated with Gutta-Percha and tooth were restored with PFM crown. In case report 2, Mobility of teeth and Elli’s class III fracture was there. So semi rigid splinting with composite resin and orthodontic stainless steel wire was done to decrease the mobility of teeth.

As teeth were non vital, root canal therapy was initiated after disinfection of canal with calcium hydroxide and obturated with gutta-percha and restored with PFM crown.

## Conclusion

The importance of anterior permanent teeth regarding esthetics and function during speech cannot be over emphasized. Anterior permanent teeth have significant effect on the individual facial profile. Facial trauma that results in fractured, displaced or lost teeth can have significant negative functional, esthetic and psychological effect on individuals. So it is important to treat the teeth early and conservative manner.

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