

# Management of fractured front teeth following accidental trauma

[Health & Medicine](#), [Mental Health](#)



Aesthetics is a very common and highly concerning aspect of modern world. Facial aesthetics comes 1st from that and we cannot ignore dental aesthetics of the face. Well aligned anterior teeth give pleasing smile, self-confidence, as well as the good function.

Dental trauma can be accompanied with injuries to facial hard tissues and soft tissues. Fracture to anterior teeth and lip trauma are more common facial traumatic injuries in all ages. Dental professional involve in management of patient immediately after the admission to emergency unit and then comprehensive management of the patient until the patient obtain an aesthetical improved and functionally acceptable teeth and occlusion.

Patient with dental trauma might have other injuries that could be more serious. They might have hit their head, lost consciousness, have injured the soft tissues of the face or might have broken their jaw. They should be referred to relevant specialist for their opinion & early management. In emergency care unit initially focus on more important life threatening injuries and it is often becomes impossible to provide appropriate treatment that may allow the affected front teeth to be saved. The preservation of intact permanent teeth is extremely important to the future life or personality of the affected person.

## **Case Report**

A 26 year old lactating mother was referred to Restorative Dentistry Unit, General Hospital Kandy from Oral and Maxillofacial surgery unit of the same hospital after initial management of accidental trauma. She was having pain and tenderness on broken upper anterior teeth, through and through

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laceration with swollen upper lip following accidentally fallen in bathroom at her home. At first she came to emergency unit Kandy and laceration sutured by OMF team and send to OMF ward for further management. Then she was referred to Restorative Dentistry Unit – Kandy for further management of traumatized teeth. She was fallen in bathroom, upper front teeth hitting on floor tile and broken. Instead of traumatic injury she does not have any significant medical condition or any allergies to drugs or food. She is a lactating mother and having six months old infant and four children.

## **Treatment**

In first day intra oral periapical radiographs were taken after taking of written informed consent and started the treatment (Fig- 3 & 4). Exposed dentine in the fractured teeth was covered with light cure glass ionomer cement. (Fig-1 and 2) Then rigid light cure composite splint done on upper canine to canine and with lower two centrals and right side lateral and canine. Patient was given analgesics and antibiotics for short period to relieved pain and prevent getting infection.

Then patient getting down after two weeks' time and vitality test was done by using electric pulp tester. Result as flows- All teeth were given vital sing at two weeks' time. Pulpal hemorrhage observed as reddish color in1tooth. According to trauma guide upper splint removal done and polishing were done. Fig- 6Then after four weeks time patient reviewed and intra oral periapical radiograph taken and vitality test was done. Test result as flows- All teeth were given vital sing at four weeks time. Reduced pulp redness observed. Lower anterior segment splint removal was done. Mobility of the

teeth did not observe. Fractured all upper teeth light cure composite build up were done. Fig-7 & 8 because patient did not brought the fracture pieces.

Full Mouth Scaling and polishing was done due to stain of the lower teeth. She has missing two teeth in region. Upper and lower partial denture was made and deliver while ongoing treatment. After 8 weeks time patient recalled and radiographs were taken and vitality test was done with electric pulp tester.

Within the period of monitor all teeth were given vital respond to electric pulp tester. Next review appointment was given after 6 months time.

## **Discussion**

Anterior teeth fracture is a common injury of the orofacial region in which appropriate emergency treatment is important. When children and young adults suffer an anterior teeth fracture, the challenge is to save the tooth in this aesthetically important area & minimize subsequent damage. Lack of proper treatment or wrong treatment can be lead to a lifelong suffering. The preservation of intact permanent front teeth, which unlike deciduous teeth will not be naturally fall off, are extremely important for future psychological aspect of the affected person. Loss of front teeth in adult (especially female) is unfavorably affected in both psychologically and socially.

These problems include both exclusion by others because of visible fracture or absent front teeth, which can lead to social deprivation and a feeling of embarrassment when laughing. There are many teeth fracture causes of anterior dental trauma. At the age of 1 and 2 years, it is mainly caused due

to simple falls on floor when learning to walk. At preschool age, between 2 and 6 years, many such cases are happened due to fall on ground, resulting lack of attention when engaging in physical activities. The highest incidence of anterior teeth fracture occurs between seven and twelve years of age. In young adults causes for dental trauma are sporting injuries, road traffic accidents, physical fights (assault) and accidental fall.

It is very important to give first aid for the dentoalveolar trauma in young patients. This concerns the detail history of data on how the trauma occurred on the one hand, and this should also include monitoring for evidence of domestic violence and information from the medical history regarding current immunization status (tetanus) and signs of concussion (amnesia or autonomic symptoms) on the other.

Patient should examine for injuries in stomstognathic system and checking particularly for any signs of direct or indirect fractures to the jawbones. Teeth should be examined for displacement, abnormal mobility, and sensitivity (using cold spray and a cotton wool ball). The alveolar bone (process) should also be palpated to search for mobility, irregularities or discontinuities. Radiographs must always be taken during initial diagnosis, in order to rule out fractures. It may be simple periapical x- ray, stranded occlusal view, panoramic view or detail view of crone beam computer tomography.

Currently various techniques and materials have been suggested to manage the tooth fractures. For example, stainless steel crowns, porcelain crowns,

pin or post retained resin build up, composite resin build up. All techniques are least conservative and time consuming. However, in today's era, immediate replacement of lost structures is demanded and practiced. One of such treatment options where immediate results are obtained is the reattachment of fractured teeth segment. Reattachment procedure using acid etch technique was reported by Tennery. Subsequently, Starkey and Simonsen had also documented such cases. Reattachment of dental fragment has become possible due to the improvement of adhesive technique and restorative materials. With the current concepts of dentine hybridization, reattachment procedures have better prognosis with promising long term results. The advantages of reattachment procedure are as follows

- Better esthetic as shade match and translucency will be perfect
- Incisal edge will wear at a rate similar to that of the adjacent teeth
- Replacement of fractured portion may take less time
- A positive emotional and social response from the patient for preservation of natural tooth structure
- Natural tooth contour and contacts with adjacent are maintained
- It is an economical technique.

The treatment for coronal tooth fracture depends on various factors such as extent of fracture (biological width involvement, endodontic involvement, alveolar bone fracture), pattern of fracture and restorability of fractured tooth (associated root fracture), soft tissue trauma status, occlusion, esthetic and more importantly presence/absence of fracture tooth fragment and its

condition for use (fit between fragment and the remaining tooth structure) and prognosis. In this case patient fail to bring the fractured tooth pieces, have done the rebuilding of the crown with composite resin.

The reattachment procedures should be considered in simpler cases of coronal tooth fracture, where the biological width is not involved and the fractured segments are available and preserved as naturally as possible, whereas complex cases, meticulous planning and careful execution of the treatment planning should be done. Reattachment procedure restores the incisal function and surface anatomy perfectly and is probably less traumatic, simple, and low cost method. Moreover, it provides superior esthetics, positive emotional and social response from the patient as his own natural tooth structures are preserved.

The main reasons for the loss of reattached tooth fragments are the fresh trauma to the same region causing debonding of the reattached tooth parts due to excessive forces acting in the same region. To avoid such failures, stress is given upon the fracture strength of the restored teeth, and this strength is in turn depends on the bond strength of composite to tooth structure. To increase the fracture strength of reattached tooth fragment, the simple reattachment can be supported by using additional retentive preparations such as bevel, chamfer, over contour, or internal dentinal groove. Reis et al have shown that a simple reattachment with no further preparation of the fragment or tooth was able to restore only 37. 1% of the intact tooth's fracture resistance, whereas a buccal chamfer recovered 60. 6% of that fracture resistance; bonding with an over contour and placement

of an internal groove nearly restored the intact tooth fracture strength, recovering 97.2% and 90.5% of it, respectively. In cases of complicated fractures, when endodontic therapy is required, the space provided by the pulp chamber can be utilized for inner reinforcement, by doing that avoiding further preparation of the fractured tooth. However, the pulpless teeth lose its natural translucency and color with time, and the esthetics can be reduced in a longer run. The use of the glass fiber post is a favorable option for the retention of the fractured segment.

The fractured segments should be stored as naturally as possible to maintain the naturality of the fractured segments. Improper storage of fractured fragments can leads to their dehydration. Therefore, to prevent such a loss, it is recommended that the fragment is kept in a medium such as normal saline. But some studies say even though the fractured segment that was reattached was dehydrated, the fragment recovered its original color and translucency without any marked change. Accurate and careful bonding procedures are necessary through the course of treatment and can have a favorable long term tooth prognosis.