

Esthetic rehabilitation using natural teeth –Case reports

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Abstract:

Trauma to anterior teeth is a relatively common phenomenon, which requires immediate attention not only due to loss of dentition but also due to psychological reason the use of natural tooth fragment can provide a better and long lasting esthetics, improved function and a positive psychological response .

Keywords: Coronal fracture, dental trauma, fragment reattachment, resin composite, light transmitting post.

Introduction:

One feature common to all patients presenting with acute dental trauma is the fact that they come to us unexpectedly. Managing this unforeseen situation is a challenge to every dental practitioner. A trauma with accompanying fracture of anterior teeth is a tragic experience for any patient who requires immediate attention, not only because of damage to dentition but also because of the psychological effect. A number of techniques include stainless steel crowns, basket crowns, orthodontic bands, pin retained resin, and porcelain bonded crown and composite resin ¹.

Tannery was the first to report the re-attachment of a fractured fragment using acid etch technique². Subsequently Starkey and Simonsen have reported similar cases ³.

The introduction of composite in combination with the use of acid etch technique to bond composite to enamel made restoration possible for the fractured anterior teeth with little or no additional tooth preparation ^{5,6} . However it has the

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disadvantage of poor abrasion resistance in comparison to enamel^{7,8} Water absorption and staining of the composite are further drawbacks. The advantage of using the natural tooth fragment over all other material may include

- Better esthetic as color matching and translucency will be perfect.
- Preservation of tooth morphology, physiochemical characteristics (including incisal wear, thermal and hygroscopic expansion) similar to that of the adjacent teeth⁸.
- Structurally conservative.
- Fewer traumas to periodontium and less violation of biological width.
- Economically acceptable.
- Better patient acceptance.
- Immediate esthetics, so no psychological trauma to the patient.
- It allows anterior occlusal guidance to be maintained.

The purpose of this article is to discuss various possible use of natural tooth in order to maintain esthetic integrity of dentition.

Case Report-1

A 28 year old male patient reported to Department of Conservative Dentistry And Endodontic with fractured upper front teeth due to a road traffic accident. On clinical and radiographic examination it is diagnosed as complicated crown fracture without any periapical pathosis (fig 1), fracture portion of the tooth was intact (fig 2), patient medical history was noncontributory. After administering local anesthesia, remaining pulp tissue in the root portion was extirpated using barbed broaches. The fracture fragment was cleaned: pulp tissue remnant was removed and stored in saline. Root canal treatment was completed. Post space preparation was done subsequently and light transmitting post was cemented (fig 3). A retention box was prepared in coronal tooth fragment. Both fractured crown and root fragment were acid etched, adhesive was applied and later bonded using dual cure composite resin (fig 4). The tooth was polished with polishing discs. Occlusion was checked and post operative instruction to the patient was given to avoid loading of anterior teeth



Fig 1 : Complicated crown fracture of Maxillary lateral incisor



Fig 2: Tooth Fragment



Fig 3: Post cementation



Fig 4 : Post operative labial view



Fig 5: Post operative palatal view

Case Report-2

A Case Of Endodontic Splinting

A 19 year old male patient reported to our department with complaint of pain, sensitivity and fracture of upper front tooth due to a bike accident. Clinical and radiographic

examination revealed that it was a complicated crown –root fracture in relation to right central incisor, treatment plan included: Endodontic treatment of related to intra radicular rehabilitation using light transmitting pos followed by crown.



Radiograph 1 : Pre operative



Radiograph 2 : working length



Radiograph 3 : Obturation



Radiograph 4 : Endodontic Splinting using light transmitting post barrier followed by fragment reattachment using light transmitting post.

Case Report 3

In a similar case with root fracture of both incisor fracture MTA was used as apical



Radiograph 1 : Pre Operative



Radiograph 2 : Master cone



Radiograph 3 : After MTA placement



Radiograph 4 : Post operative

Reattachment Of Crown Fragment Case Report 4

A 12 year old girl reported to our department with fracture of upper right central incisor, She came with tooth fragment which she stored in saline. On clinical and pathological examination it is observed that it was a case of uncomplicated crown fracture. Fitting of

fragment was checked and observed that it was fitting property. Once fitting is verified reattachment is carried out in following steps. First etching of both tooth surface and fragment is carried out. After etching bonding agent is applied and cured on both. Later it is reattached using flowable composite



Fig1 :Pre operative



Fig 2: Tooth Fragment



Fig3: After Reattachment

Case Report 5

This is a similar case with maxillary right lateral fracture with fracture line in middle third.



Fig1:Uncomplicated crown fracture



Fig2:Toot fragment



Fig 3 : After Reattachment

Limitations

However use of natural tooth for different esthetic procedure has certain limitations and it can't be used for each and every case. These limitations are –

1. Prolonged dehydration of the fragment may present esthetic problem.
2. Inability of reattachment/reapproximation of fragment
3. Reattached tooth may loosen from the original tooth due to masticatory force involved
4. Reattachment may sometimes lead to visible demarcation.

Criteria For Case Selection

1. Fragment should be intact without any cracks
2. Favorable occlusion without any para functional habits
3. Property isolated field

4. Good oral hygiene
5. Periodic monitoring is required

Discussion

Epidemiological studies reveal that one out of two children sustains dental injury, most often between the ages of 8 and 12. Crown fracture is most frequent type of trauma generally resulting from accidents⁹. Sport activities or violence. In most dental trauma, a rapid and appropriate treatment can lessen its impact from both an oral health and aesthetic standpoint^{10,11}. Anterior crown fractures are a common form of injury that mainly affect children and adolescents. The position of maxillary incisors and their eruptive pattern carries a significant risk for trauma. In the pre-adhesive era, fractured teeth needed to be restored either with pin-retained inlays or cast restorations that sacrificed healthy tooth

structure and were a challenge for clinicians to match with adjacent teeth.

With the evolution of new adhesive systems offering excellent bonding to dentin, reattachment of dental fragments has shown to be a non – invasive treatment offering good result even when performed under challenging conditions. Durability of a tooth fragment reattached is not foreseeable although a few clinical studies have been shown this restoration to last up to 7 years^{12,13,14}.

Conclusion

The real merit of reattachment is the fact that all other restorative option such as direct adhesive restoration, veneer, crowns etc can still be instituted in event of reattachment failure. It provides a better and positive psychological response to the patient as it is an immediate restoration.

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