

Multidisciplinary approach to the management of traumatic crown fracture-a case report

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Abstract:

Crown fracture of maxillary anterior teeth are frequently encountered in clinical practice. The psychological impact it can have in patients life cannot be less emphasized. The treatment modalities previously were more radical. Now the treatment planning has been revolutionized to a more conservative approach. Immediate reattachment has been one of these modalities undertaken since it gives patient immediate result and improves patients confidence.

Key words:

Crown fracture, dual cure resin, reattachment

Introduction

Crown root fractures have been documented to account for up to 92% of all traumatic injuries to the permanent dentition.¹ Traumatic injuries to the teeth and supporting structures are one of the few areas in dentistry that should be considered emergency requiring quick functional and esthetic repair.² One of the options for managing coronal tooth fractures, especially when there is minimal violation of the biological width, is the reattachment of the dental fragment when it is available.¹ Reattachment of a fragment to the fractured tooth can provide good and long lasting esthetics because the original anatomic form, color, and surface texture are maintained.³

The following case report describes a case of fragment reattachment of crown following trauma to the maxillary central incisors

Case report

A 30 year male patient reported to the department of conservative and endodontics people's dental college and hospital had tooth trauma 1 hour earlier. Patient did not have a significant medical history. Examination revealed that both the upper central incisor had horizontal fracture involving enamel dentin and the pulp. Fractured portion of

the teeth were still intact. There was mobility of the injured teeth and surrounding tissues were healthy. Further periodontal assessment showed the coronal tooth fragment to be still attached by a fragile soft tissue.

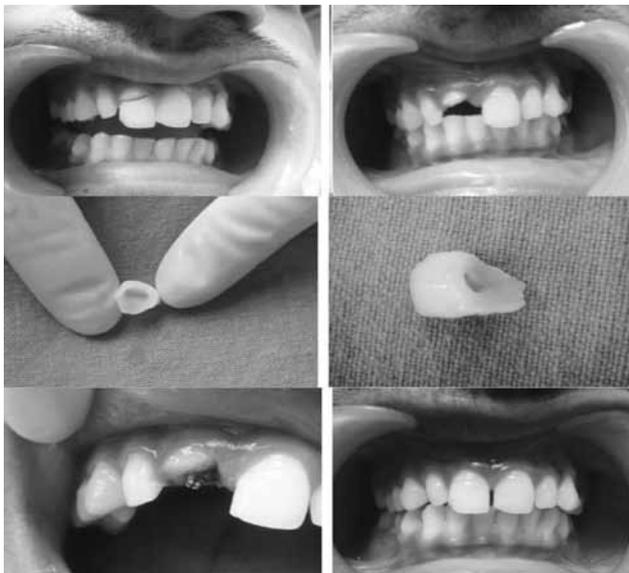
The treatment plan was designed according to the patient need, considering the periodontal status. The teeth could be reattached with conventional post retention. Lignocain infiltration on buccal and palatal were administered. The coronal segment were detached and stored in saline in order to prevent dehydration.

Single visit root canal treatment was carried out and obturated with lateral condensation technique. The palatal flap was reflected surgically to expose the palatal margins

Gutta percha was removed. Prefabricated parallel post serrated post (Mani) was selected. Post was cemented with glass ionomer cement. (Fuji I GC.). A retentive box using no 4 round bur was prepared in the coronal segment to accommodate the head of the post. The fractured crown segment and tooth was etched (Prime and Bond, Dentsply) for 10 seconds. Primer was applied on the surface of the tooth structure (enamel and dentin) with a disposable brush and left in place

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for 30 secs. Calibr (Dentsply) paste was mixed and applied around the post and the retention box of the fragment and the fragment was reattached to the tooth. Excess paste along the margins was removed using No 12 BP blade and light cured QHT (Dentsply) curing light for 20 seconds. Excess cement adhered to the tooth surface was removed by polishing.



Figures: pre treatment, fractured portion removed, preparation of retention box, Fractured coronal segment (facial view), post placement, Post operative,

Discussion

Reattachment of intact coronal fragment is an economical and less time consuming procedure. The use of tooth fragment is to maintain the originality of form, function, esthetics and compliance, which is the aim of restorative treatment² One of the factors influencing extent and feasibility of such repairs is the resources of the patient. In the country like Nepal, this factor has to be considered while designing the treatment plan.

The technique described in these case reports are reasonably simple, while restoring function and esthetics with conservative approach.⁵

The factors influencing the extent and feasibility of such repairs include the site of fracture, size of fractured remnants, periodontal status, pulpal involvements, maturity of root formation, biological width invasion, occlusion, time¹. The psychological trauma caused to the individual due loss of aesthetics can be managed by this procedure successfully.

A prefabricated post was used as it is economical

and increases the retention and distributes the forces along the root.⁴

The key for achieving success in adhesive dentistry is to have dry and clean working field. The measures taken for root canal therapy were sufficient and efficient for effective bonding. Single visit root canal therapy here is plausible explanation for this protocol. In addition to light curing, dual cure have advantage of cold cure; it polymerizes composite in absence of light. Hence, polymerization can be expected to be complete. Bond strength and aesthetics of calibra (Dentsply) are the advantages other than a dual core composite In this case caliber was used It is a dual curing (chemical and light cure) resin. The advantage of this system are bond strength, aesthetics, complete curing.

Conclusion

A successful outcome of re-attachment of fractured coronal fragment has been reported. The moderate outcome in 4 years follow-up of these cases suggest that reattachment of crown fracture of incisor with the use of serrated post can be a viable, economic and functionally stable treatment option. Reattachment of the intact fractured segment can be considered as an ultraconservative method for aesthetic rehabilitation

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