

Case Report

Fracture Reattachment - A Case Report

Shilpi Gupta¹, Meenu Dhiman¹, Moksha Mehta¹

¹Department of Conservative Dentistry and Endodontics, Post Graduate Institute of Dental Sciences, Rohtak, Haryana, India.

²Department of Periodontics and Implantology, Government Dental College, Amritsar, Punjab, India.

Corresponding Author: Meenu Dhiman

Received: 14/10/2015

Revised: 30/10/2015

Accepted: 30/10/2015

ABSTRACT

In young patients uncomplicated crown fractures are frequent dental injuries. The immediate fragment reattachment is the choice of treatment for uncomplicated anterior crown fracture as it is a very conservative treatment, rehabilitates function and aesthetics in a short time by preserving dental tissues. The aim of this article is to present a case report and explain the clinical procedures for the immediate fragment reattachment.

Keywords: Trauma, Fracture, Conservative, Reattachment.

INTRODUCTION

The most common dental traumatic injury in children and adolescents is coronal fracture of maxillary incisors. ⁽¹⁾ This result in functional, esthetic, and phonetic impairments. ⁽²⁾ Different treatment modalities to restore the fractured teeth include veneer crowns, laminate veneers, or composite resin restorations ⁽³⁾ but these are time-consuming, costly, and not conservative. ⁽⁴⁾

In 1964 Chosack and Eidelman ⁽⁵⁾ described the restoration of fractured teeth using the dental fragment and adhesive restorative materials. When the fragment is available reattachment is a very good alternative for managing coronal tooth fractures. ⁽⁶⁾ The anatomic form, color, and surface texture are maintained ⁽¹⁾ which provides good and long-lasting esthetics. It also offers a cost-effective, conservative restorative option with less chair time. ⁽⁷⁾

This article reports a coronal tooth fracture that was successfully treated using tooth fragment reattachment.

CASE REPORT

A 21-year-old male patient was referred to PGIDS, Rohtak, India. He sustained an uncomplicated crown fracture to the maxillary central incisors due to sports injury [Fig.1 (a)]. Patient came to us after 24 hours with the fractured segment wrapped in a napkin. Due to this there was slight discoloration of the fractured segment.

After careful history taking and clinical examination, it was decided to reattach the fractured segment using adhesive restorative materials. Fractured fragment and the tooth fitted well against each other.

Fractured segment was placed in physiological saline [Fig. 1 (b)]. Slight beveling of the fractured tooth surface and fractured segment was done [Fig.1 (c,d)].

The operating field was isolated with cotton rolls and mylar strips [Fig.2. (a)]. Fractured surface of tooth and fractured segment were treated with 37% phosphoric acid gel for 30 seconds [Fig.2. (b, c)] followed by delicate rinsing. The adhesive system was then placed on the etched surface [Fig.2. (d, e)]. The fractured segment was then accurately placed on the

tooth, [Fig.3. (a)] and photopolymerized for 40 s. Diamond burs, polishing disks (3M ESPE) and diamond polishing paste were used to polish and finish the margins [Fig.3. (b)].

After 1 year, the tooth remained clinically asymptomatic and exhibited good esthetics, good periodontal health, and normal function [Fig.3. (b)].



Figure 1. (a) An intraoral photograph at the initial visit. Note the fracture in the left maxillary incisor involving enamel and dentin. (b) Fragment placed in physiological saline before restoration. (c, d) Beveling of fractured surface of tooth and fragment.

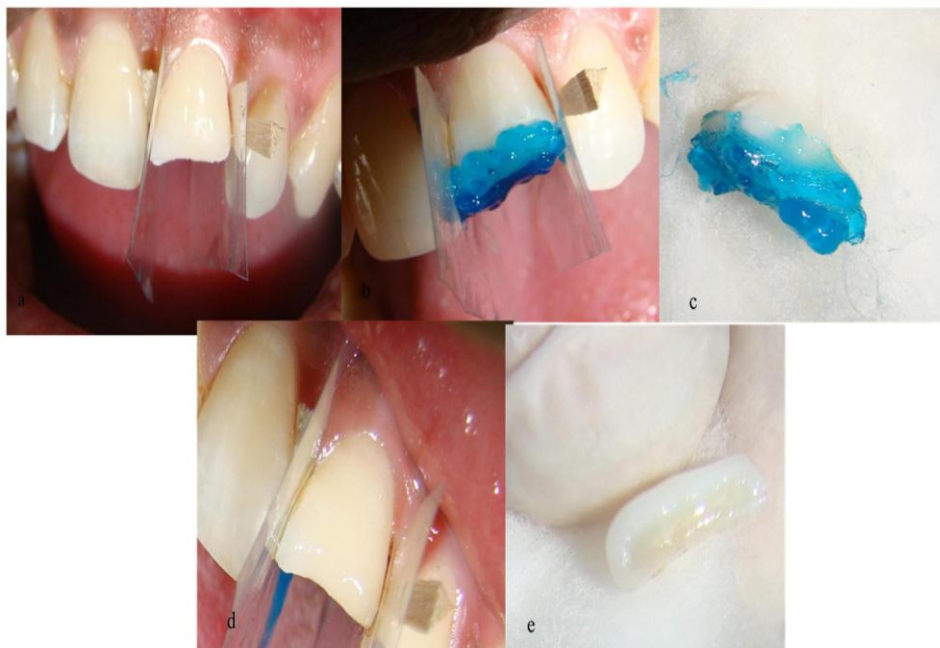


Figure 2. (a) Isolation achieved using mylar strips and wooden wedges. (b, c) 37 % phosphoric acid used for etching. (d, e) Bonding agent applied.



Figure 3. (a) Immediate postoperative (b) After 1 year

DISCUSSION

To restore a fractured anterior tooth, reattachment of a fractured tooth segment is one of the best techniques. ⁽⁸⁾ This case report describes a conservative approach of reattachment. Predictable esthetic outcomes can be obtained with the variety of materials available today ^(9, 10) This offers numerous advantages like better esthetics because of better shade match and translucency, ⁽¹¹⁾ incisal edge will wear at a rate similar to that of the adjacent teeth ⁽¹²⁾ less time consuming, ⁽¹³⁾ positive emotional and social response of patient owing to preservation of the natural tooth structure. ⁽¹⁴⁾

Adequate hydration while the fragment is outside the mouth is important to maintain the original esthetic appearance and vitality. ⁽¹⁵⁾ However, fragments are not always kept hydrated after an accident until the moment of restoration. ⁽¹⁶⁾ The patient also should pay special attention to hygiene and dental care to avoid excessive pressure on teeth. Line of resin composite exposed to the oral environment may become visible over time owing to discoloration of the adhesive and composite used for the reattachment. ⁽¹⁷⁾ Polishing was performed using diamond burs and sanding disks of different granulations when the resin exposed to the oral environment was discolored.

Adhesive systems provide high bond strength between the fragment and the traumatized tooth. ⁽¹⁸⁾ To improve the

retention and hide the finishing line beveling of the enamel margins of tooth and fragment is also indicated. ⁽¹⁹⁾ In our case also beveling was done to increase retention and esthetics.

CONCLUSION

Therefore, it can be concluded that the reattachment is a very conservative technique that restores esthetic and function.

REFERENCES

1. Reis A, Loguercio AD, Kraul A, Matson E. Reattachment of fractured teeth: a review of literature regarding techniques and materials. *Oper Dent* 2004; 29:226–33.
2. Oz IA, Haytac, MC, Toroglu MS. Multidisciplinary approach to the rehabilitation of a crown-root fracture with original fragment for immediate esthetics: a case report with 4-year follow-up. *Dent Traumatol* 2006; 22:48–52.
3. Gorecka V, Suliborski S, Biskupski T. Direct pulp capping with a dentin adhesive resin system in children's permanent teeth after traumatic injuries: case reports. *Quintessence Int* 2000; 31:241–8.
4. Bruschi-Alonso RC, Alonso RC, Correr GM, Alves MC, Lewgoy HR, Sinhoreti MA et al. Reattachment of anterior fractured teeth: effect of materials and techniques on impact strength. *Dent Traumatol* 2010; 26:315–22.

5. Chosack A, Eidelman E. Rehabilitation of a fractured incisor using the patient's natural crown: case report. *J Dent Child* 1964; 31:19–21.
6. Farik B, Munksgaard EC, Andreasen JO, Kreiborg S. Fractured teeth bonded with dentin adhesives with and without unfilled resin. *Dent Traumatol* 2002; 18:66–9.
7. Maia EA, Baratieri LN, de Andrada MA, Monteiro S Jr, de Araujo EM Jr. Tooth fragment reattachment: fundamentals of the technique and two case reports. *Quintessence Int* 2003; 34:99–107.
8. Goenka P, Marwah N, Dutta S. Biological approach for management of anterior tooth trauma: triple case report. *J Indian Soc Pedod Prev Dent* 2010; 3:223–9.
9. Macedo GV, Diaz PI, De O Fernandes CA, Ritter AV. Reattachment of anterior teeth fragments: a conservative approach. *J Esthet Restor Dent* 2008; 20:5–18.
10. Bruschi-Alonso RC, Bruschi-Alonso RC, Correr GM, Alves MC, Lewgoy HR, Sinhoretta AC et al. Reattachment of anterior fractured teeth: effect of materials and techniques on impact strength. *Dental Traumatol* 2010; 26:315–22.
11. Zuhail K, Semra OE, Huseyin K. Traumatic injuries of the permanent incisors in children in southern Turkey: a retrospective study. *Dent Traumatol* 2005; 21:20–5.
12. Busato AL, Loguercio AD, Barbosa AN, Sanseverino Mdo C, Macedo RP, Baldissera RA. Biological restorations using tooth fragments. *Am J Dent* 1998; 11:46–9.
13. Macedo GV, Ritter AV. Essentials of rebonding tooth fragments for the best functional and esthetic outcomes. *Pediatr Dent* 2009; 3:110–6.
14. Patni P, Jain D, Goel G. A holistic approach to management of fractured teeth fragments: a case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010; 109:e70–4.
15. Baratieri LN, Monteiro S Jr, Andrada MAC. The “sandwich” technique as a base for reattachment of dental fragments. *Quintessence Int* 1991; 22:81–5.
16. Capp CI, Roda MI, Tamaki R, Castanho GM, Camargo MA, de Cara AA. Reattachment of rehydrated dental fragment using two techniques. *Dent Traumatol* 2009; 25:95–9.
17. Stellini E, Stomaci D, Stomaci M, Pe'trone N, Favero L. Fracture strength of tooth fragment reattachments with postpone bevel and overcontour reconstruction. *Dent Traumatol* 2008; 24:283–8.
18. Demarco FF, Fay RM, Pinzon LM, Powers JM. Fracture resistance of reattached coronal fragments – influence of different adhesive materials and bevel preparation. *Dent Traumatol* 2004; 20:157–63.
19. Walker M. Fractured-tooth fragment reattachment. *Gen Dent* 1996;44:434–6.

How to cite this article: Gupta S, Dhiman M, Mehta M. Fracture reattachment - a case report. *Int J Health Sci Res.* 2015; 5(11):385-388.
