

## REATTACHMENT OF BROKEN TOOTH FRAGMENT IN PRIMARY TEETH- A REPORT OF TWO CASES

<sup>1</sup>Himanshu Kapoor      <sup>1</sup> Senior lecturer  
<sup>2</sup>Nikhil Srivastava      <sup>2</sup> Principal and Head  
<sup>3</sup>Prerna Panthri      <sup>3</sup> Post graduate student

<sup>1-3</sup> Department of Paediatric and Preventive dentistry, Subharti Dental college, Meerut- 250002, India.

**ABSTRACT:** Dental trauma is one of the common injuries encountered in young children. Management of such a trauma pose a big challenge to clinicians worldwide when one is dealing with the anterior teeth as apart from the function, esthetics too are to be taken into account. Consequently, proper diagnosis, treatment planning and follow-up are critical to assure a favorable outcome. Presented here is a report of 2 cases in which fractured segments were reattached using resin cement

**KEYWORDS:** Reattachment, pure resin cement, primary teeth

### INTRODUCTION

Dental trauma has been reported with a high frequency in preschoolers, school age children and young adults, comprising of about 5% of all injuries for which people seek treatment.<sup>1,2</sup> Out of all the dental injuries in primary teeth, luxation injuries are most common whereas crown fractures- simple or compound are more commonly reported for the permanent dentition<sup>1,3,4</sup>. In preschoolers, head and facial non oral injuries make up as much 40 % of all somatic injuries.<sup>2,5,6</sup> In the age group 0-6 years, oral injuries are ranked as second most common injury making up a total of 18 % of all somatic injuries.<sup>2,5,6</sup>

Coronal fractures of the anterior teeth are a common form of dental trauma that mainly affects young children and adolescents. The majority of dental injuries involve the anterior teeth, especially the maxillary incisors, because of its position in the arch.<sup>7</sup>

Current treatment options like composite build up or extraction of teeth with compound fracture, pose a big challenge to paediatric dentist, as one has to offer psychological comfort too to the patient and the family. Reattachment of the tooth fragment, in such situations has emerged as a great treatment alternative.

This clinical report describes reattachment of tooth fragment of primary maxillary central incisor in two children less than 5 years of age old with extensive fracture involving pulp following trauma.

### Case report 1

A 3<sup>1/2</sup> year old female child reported to the Department Of Paedodontics and Preventive Dentistry, Subharti Dental College, Meerut, with the chief complaint of broken

and malformed front tooth with a history of trauma 2 months back.

Clinical examination, revealed vertical split in the tooth number 61, separating the labial and the lingual fragments by a large pulp polyp (**Fig. 1**). Further examination revealed that the tooth was tender to percussion while occlusion was normal. The tooth as a whole exhibited no mobility. However the palatal fragment was mobile. IOPA radiograph revealed the two fractured segments overlying each other in relation to the primary central incisor with clear evidence of pulp involvement. Periapical area showed rarefaction suggestive of inflammatory changes. Routine haematological investigations were done and results were normal.

Various treatment modalities were discussed but finally reattachment was chosen as the preferred method. Preparation of the site was done by cleaning the site with 2% povidone iodine followed by local anaesthesia administration. The fractured fragment, that turned out to be the palatal fragment, was carefully removed taking care not to cause any damage to either the fragment or the remaining tooth (**Fig. 2**). Rubber dam was placed to isolate the fractured tooth to ensure moisture control. The fractured fragment was stored in normal saline. Extirpation of the pulp polyp and pulpectomy was performed and canal obturated with calcium hydroxide (Metapex) (**Fig. 3**). Beveling of the ends was done<sup>8</sup> and fit and adaptation of the fragment was assessed. The two segments were then secured in their position using a pure resin cement. Finishing and polishing was done. The occlusion was carefully checked and adjusted. The repaired area could hardly be differentiated and the esthetical result was excellent (**Fig. 4**).

CASE-1



Fig.1.Split tooth fragments



Fig.2.Fragments removed



Fig.3.Extirpation of pulp poly and obturation



Fig.4. Post Operative result

The patient was given instructions to avoid exerting heavy functions on this tooth and to follow routine home care oral hygiene measures. A 6 month recall showed satisfactory results.

Case report 2

A 5 year old male reported with a chief complaint of broken front tooth with history of trauma 2 days back. (Fig. 5). On examination, the involved tooth, 51 was found to be tender on percussion, the occlusion, however was normal. IOPA radiograph revealed an oblique radiolucent line across the pulp suggesting of an oblique fracture. Periapical area showed no significant changes. Routine haematological investigations were done and results were normal.

After evaluating different treatment options, reattachment was chosen as the preferred method. Preparation of the site was done by cleaning the site with 2% povidone iodine followed by local anaesthesia administration. The fractured fragment (Fig. 6) was carefully removed taking care not to cause any damage to either the fragment or the remaining tooth (Fig. 7) .

Rubber dam was placed to isolate the fractured tooth to ensure moisture control. The fractured fragment was stored in normal saline. Pulpectomy was performed and obturation was done with calcium hydroxide (Metapex). Bevelling of the two ends was done.<sup>8</sup> There after the fit and adaptation of the fragment was assessed and the two segments were then secured in their position using a light cure pure resin cement. Finishing and polishing was done. The occlusion was carefully checked and adjusted. The repaired area could hardly be differentiated and the esthetical result was excellent (Fig. 8).

The patient was given instructions to avoid exerting heavy functions on this tooth and to follow routine home care oral hygiene measures. After 6 months of follow up, satisfactory results can be appreciated

Discussion

Trauma to anterior teeth is relatively common amongst young children and teenagers. In the age group 0–6 years, oral injuries are ranked as the second most common injury covering 18% of all somatic injuries.<sup>2,5,6</sup> Of the oral injuries, dental injuries are the most frequent,

followed by oral soft-tissue injuries. Luxation injuries affecting both multiple teeth and surrounding soft tissues are mainly reported in children 1–3 years of age and are typically as a result of falls.<sup>3,6,9-15</sup> Cases like these show high susceptibility of trauma to anterior maxillary teeth. Out of these, most common type of fracture includes enamel and dentin without pulp exposure (42.7%) as compared with fracture of enamel only (31.2%) and enamel and dentin involving pulp (4.6%).<sup>8</sup>

Earlier treatment options depended on the type of coronal fracture- either compound (involving pulp) or simple. Simple coronal fractures were often treated by either rounding off the sharp edges left after trauma or composite build up. While teeth with compound fracture, if feasible were treated with pulp therapy or worst doomed to extraction.

Biological restorations in such cases offer a great treatment alternative. Several case reports and data has been documented about the trauma to permanent maxillary anterior teeth in young children, however, reports on fracture to the primary maxillary anterior and its

rehabilitation with a biological restoration is very less. Though it has been reported that there is a success rate of 25% retention of fragments for 7 years according to a study by Andreason FM.<sup>16,17</sup>

The case report thus presents an effective alternative for the treatment of a fractured primary maxillary central incisor using the fractured fragment. The procedure while providing excellent esthetics, aims to restore function, gives patient a psychological comfort of restoring his teeth with his own fragment and is an economical alternative.<sup>18</sup>

This idea of preservation of natural tooth structure enforces a positive emotional and social response in the patient. Also, tooth fragment reattachment allows restoration of tooth with minimal sacrifice of the remaining tooth structure thus a more conservative approach. In addition, this technique is less time consuming and provides a more predictable long term wear than when direct composite is used.

In the present case, pure resin was chosen as the material of choice for luting the broken tooth fragment.

CASE-2



Fig.5.Split tooth fragments



Fig.6.Fragments carefully removed



Fig.7.After removal of the broken fragment from the tooth



Fig.8. Post Operative result with excellent esthetics

**CONCLUSION**

The reattachment of a tooth fragment offers a viable treatment option that restores function and esthetics with a very conservative approach. It should be considered while treating patients with coronal fractures of the anterior teeth, especially younger patients, but its success and prognosis is dependent upon careful procedure selection and patient cooperation

**References**

1. Andreasen JO, Andreasen FM, Andersson L. Textbook and Color Atlas of Traumatic Injuries to the Teeth. 4th ed. Oxford, England, Wiley-Blackwell: 2007.
2. Petersson EE, Andersson L, Sorensen S. Traumatic oral vs non-oral injuries. Swed Dent J 1997; 211-2):55-68
3. Flores MT. Traumatic injuries in the primary dentition. Dent Traumatol 2002; 18(6):287-98. 5.
4. Kramer PF, Zembruski C, Ferreira SH, Fedens CA. Traumatic dental injuries in Brazilian preschool children. Dent Traumatol 2003; 19(6):299-303 <http://dx.doi.org/10.1046/j.1600-9657.2003.00203.x>
5. Glendor U, Andersson L. Public health aspects of oral diseases and disorders; dental trauma. In: Pine C, Harris R, editors. Community oral health. London: Quintessence 2007; p.203–14.
6. Glendor U, Halling A, Andersson L, Eilert-Petersson E. Incidence of traumatic tooth injuries in children and adolescents in the county of Vastmanland, Sweden. Swed Dent J 1996;20:15–28.
7. Glendor U. Epidemiology of traumatic dental injuries – A 12 year review of the literature. Dent Traumatol 2008; 24: 603–11. <http://dx.doi.org/10.1111/j.1600-9657.2008.00696.x>
8. Bhargava M, Pandit IK, Srivastava N, Gugnani N, Gupta M. An evaluation of various materials and tooth preparation designs used for reattachment of fractured incisors. Dental Traumatology 2010; 26: 409–12 <http://dx.doi.org/10.1111/j.1600-9657.2010.00913.x>
9. Andreasen JO, Ravn JJ. Epidemiology of traumatic dental injuries to primary and permanent teeth in a Danish population sample. Int J Oral Surg 1972;1:235–9. [http://dx.doi.org/10.1016/S0300-9785\(72\)80042-5](http://dx.doi.org/10.1016/S0300-9785(72)80042-5)
10. Cunha RF, Pugliesi DM, de Mello Vieira AE. Oral trauma in Brazilian patients aged 0–3 years. Dent Traumatol 2001;17:210–2. <http://dx.doi.org/10.1034/j.1600-9657.2001.170504.x>
11. Borum MK, Andreasen JO. Therapeutic and economic implications of traumatic dental injuries in Denmark: an estimate based on 7549 patients treated at a major trauma centre. Int J Paediatr Dent 2001;11:249–58. <http://dx.doi.org/10.1046/j.1365-263X.2001.00277.x>
12. Fried I, Erickson P, Schwartz S, Keenan K. Subluxation injuries of maxillary primary anterior teeth: epidemiology and prognosis of 207 traumatized teeth. Pediatr Dent 1996;18:145–51.
13. Llarena del Rosario ME, Acosta Alfaro VM, Garcia-Godoy F. Traumatic injuries to primary teeth in Mexico City children. Endod Dent Traumatol 1992;8:213–4. <http://dx.doi.org/10.1111/j.1600-9657.1992.tb00245.x>
14. Bastone EB, Freer TJ, McNamara JR. Epidemiology of dental trauma: a review of the literature. Aust Dent J 2000;45:2–9. <http://dx.doi.org/10.1111/j.1834-7819.2000.tb00234.x>
15. McTigue DJ. Diagnosis and management of dental injuries in children. Pediatr Clin North Am 2000;47:1067–84. [http://dx.doi.org/10.1016/S0031-3955\(05\)70258-3](http://dx.doi.org/10.1016/S0031-3955(05)70258-3)
16. Andreasen F.M, Rindum J.L, Munksgaard E.C, Andreasen J.O. Bonding of enamel –dentine crown fractures with GLUMA and resin. Endod Dent Traumatol 1986;2:277-80. <http://dx.doi.org/10.1111/j.1600-9657.1986.tb00162.x>
17. Andreasen FM, Noren JG, Andreasen JO, Engelhardt S, Lindh-Stromberg U. Long-term survival of fragment bonding in the treatment of fractured crowns: A multicenter clinical study. Quintessence Int 1995;26:669-81.
18. Georgia VM, Patricia ID, Carlos Augusto De OF, Andre VR. Reattachment of anterior teeth fragments: A conservative approach. J Esthet Restor Dent 2008; 20:5-6 <http://dx.doi.org/10.1111/j.1708-8240.2008.00142.x>

**Corresponding Author****Dr.Himanshu kapoor**

Senior Lecturer,  
Department of paediatric and preventive  
Dentistry,  
Subharti Dental college , Meerut- 250002,  
India  
Phone no: +919634909996  
Email : [drhimanshupedo@gmail.com](mailto:drhimanshupedo@gmail.com)