

# Aesthetic Rehabilitation of a Severely Mutilated Primary Anterior Tooth

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#### Abstract

Technological advances in dental materials and the approach to their use need to be considered for treating mutilated primary teeth. The introduction of new system such as polyethylene fibres can be reinforced using composite resin and used as post. The approach toward treating these teeth has yielded convincing and best results. A three year old child reported to the department of Paedodontics and Preventive Dentistry with the chief complaint of severely destroyed upper anterior tooth due to trauma that occurred before one year.

After pulpectomy, the primary maxillary left central incisor was reinforced using polyethylene fibres as short post and restored using celluloid strip crown. It can be concluded that polyethylene fibres can be used as a short post in severely decayed/ fractured primary anterior teeth which has considerable advantages over other type of posts and would help in reestablishing function, shape and esthetics for the child.

**Keywords:** Primary anterior teeth, Polyethylene fibres, Post.

#### Introduction

Appearance precedes communication during a meet and as anterior teeth contributes towards establishment of overall aesthetics of face, its meticulous restoration becomes important. The primary anterior teeth can be grossly destroyed mainly due to early childhood caries and trauma. 30% of children with deciduous dentition experience dental injuries.<sup>1</sup> According to Prakash P and co workers 27.5% children experience early childhood caries.<sup>2</sup> Moreover, anterior teeth destruction may lead to development of parafunctional habits like tongue thrusting eventually leading to speech problems, psychologic problems, reduced incising efficiency, and loss of vertical dimension of occlusion.<sup>3</sup> To prevent development of malocclusion and psychological problems in future, restoration of severely damaged primary tooth is required till the eruption of succedaneous teeth.

A case report of severely mutilated anterior primary tooth restored with short post of polyethylene fibres hardened with flowable composite resin and celluloid crown is presented as a novel approach for aesthetic management of traumatized primary anterior teeth.

#### Case Presentation

A three year old male child reported to the department of Paedodontics and Preventive

Dentistry along with his parents, requesting to restore aesthetics of fractured upper front tooth due to a fall before one year. The patient fell flat on the face in the courtyard while playing. Bleeding from the gingiva and upper lip were noticed at that time but the patient did not seek any treatment as patient was relatively asymptomatic after that. On clinical examination it was found that the primary left central incisor was fractured at gingival level (Fig. 1). A diagnostic Intraoral Periapical Radiograph was taken which revealed intact complete root and no periapical pathology (Fig. 2).

A comprehensive treatment plan was made for the restoration of the tooth. The treatment was delivered in two visits. In the first visit, pulpectomy was completed in the tooth and was obturated using Metapex followed by temporary restoration with intermediate restorative material. In the second visit, intermediate restorative material was removed followed by removal of 3 mm of Metapex below cervical line. Polyethylene fibres of 12mm was dipped in flowable composite and was again folded to 6mm length of which 3mm was inserted in the canal space and 3mm in the coronal portion (Fig. 3). Light curing of Polyethylene fibres was done to harden and make it function like a short post. The crown part was restored by composite resin restoration with the help of celluloid strip crown (Fig. 4, 5).

#### Discussion

Intracanal post in endodontically treated tooth can provide a strong foundation for a definitive restoration.<sup>4</sup> In 1990, Judd et al.<sup>5</sup>, reported a 100% success rate for composite crowns utilizing short posts for retention. The use of polyethylene fibres (Ribbond, Inc., Seattle, WA, USA) which is available in different widths allows chemico-mechanical retention with the built-up core portion providing good aesthetics. The post was introduced inside the canals until the limit of the cervical third of the root to avoid the interference with the eruption of the underlying permanent tooth during the final stages of resorption of the primary roots as described by Rifkin in 1983.<sup>6</sup> Using fibre-reinforced posts, the final restoration of the primary crown can be performed using a range of materials and techniques which include: a resin-veneered stainless steel crown; natural teeth; a composite resin prefabricated crown; a porcelain crown; a metal ceramic crown; celluloid crown forms; and composite resin using both direct and indirect techniques.<sup>7-15</sup> In this case, the polyethylene fibre hardened with flowable composite is used as short post followed by restoration with celluloid crown and composite was performed in the patient's mouth. The merits of using such a post is that, it can be molded according to the shape of root canal in which it is to be inserted



providing a wider framework that acts as a retentive post.

Various materials are available that can be used as posts. Composite posts have low strength-to-load ratios and are indicated for the reinforcement of enlarged canals, as it occurs in immature teeth and in the primary dentition<sup>16</sup> on which core build up can be done. Different resin materials and techniques have been used for reinforcing large root canals. Mechanically retained orthodontic wire forms a concrete foundation for a direct composite resin restoration.<sup>17</sup> The sturdy property of the metal was put to use in one of the case reports to its best by utilizing preformed cast metal post in the aspect of resistance, but the increased expense and additional laboratory stage took a toll over its usage.<sup>6</sup> Though it has been proved that metal post increases the durability,<sup>18</sup> an opaque resin is required to mask the post which may affect the aesthetic aspect of the restoration. Considering the resorption during the natural exfoliation and eruption of the succedaneous tooth, metal post might prove to be an interruption. The use of metal posts in primary teeth could pose additional problems during the course of natural exfoliation. Moreover any traumatic injury to the tooth after placing a cast metal post may irreparably damage the tooth requiring extraction. The solution for this problem can be the usage of biological posts made from extracted primary teeth which also is better aesthetically.<sup>19</sup> The need for a tooth bank, cultural beliefs and parental and child agreement by the donors and recipients of tooth fragments makes it less feasible.<sup>20</sup>

**Conclusion**

It can be concluded that polyethylene fibres hardened with flowable composite resin, when used as a short post in severely mutilated primary anterior tooth due to trauma, would help in re-establishing its

function, shape and aesthetics without hampering the normal exfoliation of the tooth and eruption of the succedaneous tooth and at the same time it has advantages of better retention and cost over other type of posts.

**References**

1. Forsberg CM, Tedestam G. Traumatic injuries to teeth in Swedish children living in an urban area. *Swed Dent J*. 1990;14(3):115-22.
2. Prashanth Prakash, Priya Subramaniam, B.H.Durgesh, Sapna Konde. Prevalence of early childhood caries and associated risk factors in preschool children of urban Bangalore, India: A cross-sectional study. *Eur J Dent*. 2012 April; 6(2): 141152.
3. Davis LG, Ashworth PD, Spriggs LS. Psychological effects of aesthetic dental treatment, *J Dent* 1998;26: 547-554.
4. Grosso FC. Primary anterior strip crowns: a new technique for severely decayed anterior primary teeth. *Journal of Pedodontics* 1987; 11 : 375-384.
5. Judd PL, Kenny DJ, Johnston DH, Yacobi R. Composite resin short-post technique for primary anterior teeth. *Journal of the American Dental Association* 1990; 120 : 553-555.
6. Rifkin A. Composite post-crowns in anterior teeth. *Journal of the Dental Association of South Africa* 1983; 38 : 225-227.
7. Restoration using posts with macroretentive elements. *Quintessence International* 1999; 30 : 432-436
7. Croll TP. Primary incisor restoration using resin veneered stainless steel crowns. *Journal of Dentistry for Children* 1998; 65 : 89-95.
8. Restoration of severely mutilated primary anterior teeth. *Journal of Clinical Pediatric Dentistry* 2004; 28 : 187-192.
8. Mandroli PS. Biologic restoration of primary anterior teeth: A case report. *Journal of the Indian Society of Pedodontics and Preventive*. *Journal of the Dental Association of South Africa* 1983; 38 : 225-227.
9. Garlisi NW. Clinical evaluations Artglass. *Dental Advisor* 1999; 16 : 11-15.
9. Updyke J, Sneed WD. Placement of a preformed. JA. Clinical evaluation of dental reinforcement by means of metallic posts with macro-retentions. [Abstract 137.] *Journal of Dental Research* 1996; 75 : 10-95.
10. Updyke J, Sneed WD. Placement of a preformed indirect resin composite shell crown: a case report. *Pediatric Dentistry* 2001; 23 : 243-244.
10. Reabilitação oral anterior alternativas de tratamento em odontopediatria. *Jornal Brasileiro de Odontopediatria e Odontologia do Bebê* 2001; 4 : 216-220.
11. Aron VO. Porcelain veneers for primary incisors: a case report. *Quintessence International* 1995; 26 : 455-457.
11. Imparato JC, Correa MS. Biologic restoration of primary anterior teeth. *Quintessence International* 2000; 31 : 405-411.
12. Citron CI. Esthetics in pediatric dentistry. *New York State Dental Journal* 1999; 61 : 30-33.
12. Stainless steel crowns. *Journal of Dentistry for Children* 1998; 65 : 89-95.
13. Carranza F, Garcia-Godoy F. Esthetic restoration of primary incisors. *American Journal of Dentistry* 1999; 12 : 55-58.
13. Teeth: a case report. *Journal of the Indian Society of Pedodontics and Preventive Dentistry* 2003; 21 : 95-97.
14. Rocha RO, das Neves LT, Marotti NR, Wanderley MT, Correa MS. Intracanal reinforcement fiber in pediatric dentistry: a case report. *Quintessence International* 2004; 35: 263-268.
14. Advisor 1999; 16 : 11.15 Updyke J, Sneed WD. Placement of a preformed indirect resin composite shell crown: a case report. *Pediatric Dentistry* 2001; 23 : 243-244.
15. Ellis RK, Donly KJ, Wild TW. Indirect composite resin crowns as an esthetic approach to treating ectodermal dysplasia: a case report. *Quintessence International* 1992; 23 : 727-729.
15. Indirect resin composite shell crown: a case report. *Pediatric Dentistry* 2001; 23 : 243-244.
16. Wanderley MT, Ferreira SLM, Rodrigues CRMD, Rodrigues Filho LE. Primary anterior tooth restoration using posts with macroretentive elements. *Quintessence International* 1999; 30 : 432436.
16. A case report. *Quintessence International* 1995; 26 : 455-457.
17. Mortada A, King NM. Simplified technique for the restoration of severely mutilated primary anterior teeth. *Journal of Clinical Pediatric Dentistry* 2004; 28 : 187-192.
17. State Dental Journal 1999; 61 : 30-33.
18. Rodrigues Filho LE, Bianchi J, Santos JFF, Oliveira JA. Clinical evaluation of dental reinforcement by means of metallic posts with macro-retentions. [Abstract 137.] *Journal of Dental Research* 1996; 75 : 1095
18. Primary incisors. *American Journal of Dentistry* 1999; 12 : 5558.
19. Santos-Pinto L, Giro EMA, Motisuki C, Bordin MM. Reabilitação oral anterior alternativas de tratamento em odontopediatria. *Jornal Brasileiro de Odontopediatria e Odontologia do Bebê* 2001; 4 : 216-220.
19. Correa MS. Intracanal reinforcement fiber in pediatric dentistry: a case report. *Quintessence International* 2004; 35: 263268.
20. Ramires-Romito ACD, Wanderley MT, Oliveira MD, Imparato JC, Correa MS. Biologic restoration of primary anterior teeth. *Quintessence International* 2000; 31 : 405-411.
20. Resin crowns as an esthetic approach to treating ectodermal dysplasia: a case report. *Quintessence International* 1992; 23 : 727729.



Fig. 1

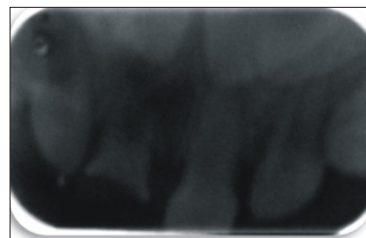


Fig. 2

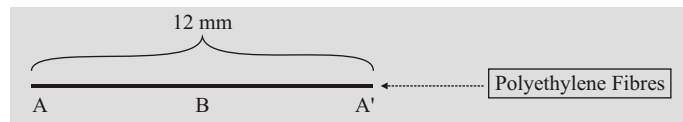


Fig. 3a: Full Length Polyethylene Fibres

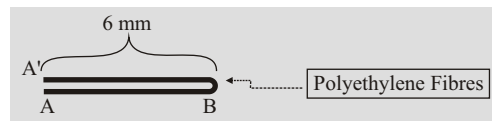


Fig. 3b: Polyethylene Fibres Folded into Half

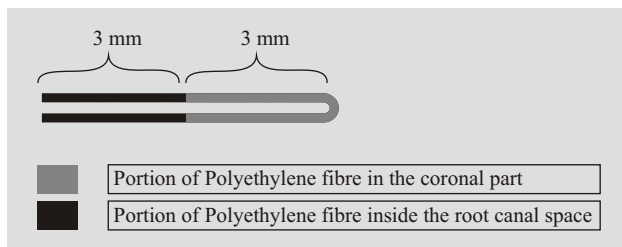


Fig. 3c



Fig. 4



Fig. 5

