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CASE REPORT

REATTACHMENT OF FRACTURE FRAGMENT IN MAXILLARY ANTERIOR TEETH - A CASE REPORT

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ABSTRACT

Fracture of anterior teeth is most common dental injury in children and young adult. There are different treatment options to manage the fractured teeth but reattachment is the most conservative and esthetic approach. The restoration of natural teeth color, form and alignment in these patients create a positive social and emotional response in such patients. In this case report a 12 years old female patient with fractured anterior tooth was reported. Reattachment of fracture fragment was done after completing endodontic treatment.

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INTRODUCTION

Anterior teeth fractures are commonly seen in children and adolescence. Fracture mainly occurs due to falls and contact sports (Dietschi, 2000). Upper anterior teeth mainly central incisors are frequently affected due to position of teeth in March (Andreasen, 2007). Various treatment modalities have been practiced in past to restore the fractured anterior teeth including composites, esthetic crown, laminates or the reattachment of fractured fragment. Among which reattachment of fractured tooth fragment is considered one of the most biologic, conservative and esthetic approach provided fractured tooth fragment is retained. Reattachment of fractured tooth provides the best esthetic results because natural tooth shape, surface texture, contours, occlusal alignment and color are maintained. Additionally, this treatment procedure provides positive psychological and social response from the patient. Tennery (1988) first reported the reattachment of a fractured fragment using acid-etch technique (Tennery, 1979). Subsequently, Starkey (1979) and Simonsen (1982) reported success with similar cases. The combination of composite restoration with acid-etch technique results minimum tooth preparation during reattachment of fracture part. Reattachment techniques have several advantages over restorations obtained with composite resin systems, e.g- better and long-lasting esthetics, immediate results, improved function, a positive psychosocial response, faster and less complicated procedures (Luiz Narciso Baratieri, 1990).

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CASE REPORT

A12 years old girl reported to pedodontic department with a chief complain of pain and fracture of upper anterior tooth after collision with tubewell. No contributory medical history was present. Clinical and radiographic examination (Fig.1) revealed fracture in maxillary right incisor. Fracture part was loosely attached. Fracture line involved enamel, dentin and pulp (Ellis Class 3) of the teeth (Fig. 2). After giving local anaesthesia, fracture portion was removed (Fig.3). Fracture portion was first kept in 5% sodium hypochlorite for 1 minute to remove pulp tissue and then it was kept in normal saline until it was reattached (Fig. 4). After removing complete pulp (Fig. 5), first working length determination (Fig.6) and then biomechanical preparation was done. Finally obturation was done (Fig. 7). The fracture fragment was well adapted during 'tried in' (Fig. 8). The fragment and tooth portion was minimally prepared for better attachment and esthetics. The fracture fragments and tooth were etched with 37% phosphoric acid for 15 seconds. After thoroughly rinsing and drying primer was applied and proper curing was done. Fracture part was properly placed and attached to the tooth with the help of dual cure resin cement (Fig. 9, 10). Polishing and finishing was done.

Fig.1. Fracture maxillary right central incisor

Fig. 2. Fracture line involve enamel dentin and pulp

Fig. 3. After removing fracture fragment

Fig. 4. Fracture fragment in normal saline

Fig. 5. Complete pulp removed

Fig. 6. Working length determination

Fig. 7. Obturation

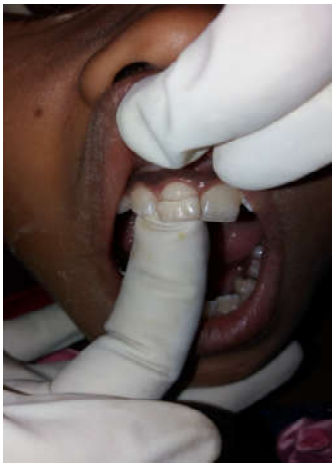

Fig. 8. try in

Fig. 9. After reattachment

Fig. 10. After reattachment

Proper instructions were given to patient and parent. Follow up after one week, one month and three months were done.

DISCUSSION

Traumatic dental injuries in anterior teeth most commonly occurs in children and adolescence due to fall, sports injury and accident. Uncomplicated crown fractures occur more than 50% cases and complicated crown fractures occur 2 to 13% of all dental injury (Baratieri, 1998). Trauma with associated of anterior tooth fracture causes emotional disturbance to the young patient. Reattachment of fracture part and preservation of natural teeth help in development of positive emotional and social response. The fracture teeth are managed by different treatment modalities e.g. stainless steel crowns, basket crowns, pin-retained resin, orthodontic bands, porcelain bonded crown, and composite resin with acid etch adhesive techniques and jacket crown. Conventional composite resin restoration may result in poor color match, ideal contours and incisal translucency. In addition, composite resin has poor abrasion resistance in comparison to enamel (Badami, 1995). Prosthodontic restorations in younger patients may have difficulties such as large pulp, progressive eruption and gingival margin instability. So, when an intact fragment is available which fits well to the fractured tooth, fragment reattachment may be most conservative and esthetic treatment option (Manoj Mahadeo Ramugade, 2013). The treatment options for complicated crown and/or root fractures depends upon several factors like, the tooth developmental stage, time lapsed between occurrence of an accident and treatment started as well as concomitant periodontal injury.

Success of reattachment will depend on how dehydrated the tooth fragment is, because the longer it remains dehydrated, lesser will be the fracture strength of the tooth; however fracture strength can be reinstated by hydrating the fragment (Parik, 1995). If biological width is not appropriate, treatment options for reattachment of tooth fragment differ and they include crown lengthening and tooth extrusion followed by fragment reattachment or reconstruction.

Conclusion

As reattachment of tooth is a simple, fast, inexpensive and esthetically predictable technique it should always be the treatment option of choice when the fragment is presented in a good condition, even if a perfect adaptation is not observable. Our present conservative treatment approach would not only restore the esthetic and function of the fractured teeth but also enhance the positive psychosocial response.

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