Reattachment of fractured tooth fragment- a case report

Sanmay Parakh*, Basawaraj Biradar** , Aparna Palekar***, Sai Kalyan**

Abstract

The fracture of anterior teeth are very commonly seen in children and young adolescents which commonly results from falls and contact sports. Traditionally a number of techniques have been applied for the treatment of fractured anterior teeth of which reattachment of fractured tooth fragments provides a positive psychological response, restores function and is a relatively simple procedure.

This article discusses a case of 22 year old female patient with fractured left lateral incisor. Reattachment of fractured fragment was done after endodontic treatment followed by post placement with bonding system and dual cure composite resin cement.

Keywords: *Fracture, Reattachment, Dual cure resin cement.*

Introduction

The Fracture of anterior teeth are very commonly seen in children and young adolescents. Most commonly results from falls and contact sports [1,2]. The maxillary central incisors are most commonly injured because of their position in the arch [3,4].This leads to esthetic, functional, phonetic problems and social and psychological wellbeing of a patient. It requires quick functional and esthetic repair. Treatment planning for a crown fracture depends on the level and position of tooth fracture, availability of tooth fragments type of occlusion and prognosis [5].

Traditionally a number of techniques have been applied for the treatment of fractured anterior teeth such as using the tooth fragment as a temporary or permanent crown, orthodontic and surgical extrusion or a crown lengthening followed by definitive crown, extraction followed by implant, direct composite restorations and post core supported restorations [6].

The Reattachment of tooth fragment can be possible when the intact tooth fragment is available and this technique is a good alternative to conventional approach with minimal violation of biologic width [7,8]. If the fracture is uncomplicated (i.e., only involving enamel & dentin) and the pulpal health is uncompromised, it can be restored with composite resin.

*I Year MDS, **Reader, ***HOD,

Corresponding Author :
Dr. Sanmay Parakh (I Year MDS)
Department of Conservative Dentistry & Endodontics
Rural Dental College, Pravara Medical Trust, LONI,
Taluka: Rahata, Dist: Ahemadnagar, Maharashtra – 413736
E-mail: sanmayparakh@gmail.com
Phone: +919404204242

This article discusses the management of crown fracture of anterior tooth which was successfully treated using conservative manner by reattachment.

Case Report

A 22 year old female patient reported to the department of Conservative Dentistry & Endodontics with the chief complaint of pain and fractured tooth in upper front tooth region after a fall from stairs 8 days earlier. The medical history of patient was non-contributory. The Clinical and radiographic examination revealed oblique fracture of maxillary left lateral incisor involving enamel, dentin and pulp (Fig 1 & 2).

Fig 1:- Pre operative IOPA

Fig 2:-Pre operative photograph

The Fracture line was oblique running labial to palatal in an apical direction going subgingivally with associated pulp exposure. The Fractured tooth fragment was recovered from the patient. The Patient was in pain due to pulp exposure. The Surrounding intraoral soft tissues were normal with no mobility of anterior teeth. The fractured fragment of crowns was checked for fit. The Root integrity was assessed with periapical radiographs.

After discussing various treatment options with patient, reattachment option was taken into consideration after confirming that the fragment was in good condition. The patient's informed consent was obtained before the treatment.

The treatment plan was decided as follows:

The Access opening, debridement of the canal followed by calcium hydroxide intracanal dressing for 2 weeks. On recall visit obturation, post space preparation, cementation of post followed by reattachment of fractured fragment to be done.

The fractured fragments were kept in normal saline during the entire period before reattachment. As the fragment was fractured subgingivally from palatal aspect, raising the palatal flap was decided to ensure proper attachment of the fragment.

The Patient's complete blood investigation were done. The Obturation was done followed by post space preparation till # 3 Peeso Reamers (Mani, Japan) and appropriate-size fibre post (Fiber Lux, Coltene) was cemented using dual-cure composite resin cement (Luxacore Z- Dual Automix DMG America). After anaesthetising, palatal envelope flap was raised by giving crevicular incision from # 21 to # 23 and reflecting using periosteal elevator. (Fig 3)

Fig 3: Flap reflection

A hole was drilled into the fractured segment to receive the part of post.(Fig 4)

Fig 4: Fiber Post (Coltene) and Tooth Fragment

Total etch (Palfique Bond, Tokuyama) was applied to the fragment and the remaining tooth structure using micro applicator tip (Oro) and the fragment was cemented using dual-cure composite resin cement (Luxacore Z- Dual Automix DMG America). The flap was stabilized by giving 2 black braided silk sutures (Fig 5). A good periapical radiograph was taken to ensure the proper cementation of post as well as fragment (Fig 6).The Occlusion was checked and postoperative instructions were given to the patient. The Patient was recalled after 3 months and 6 months for follow up and healing was found satisfactory.

Fig 5: Post operative photograph

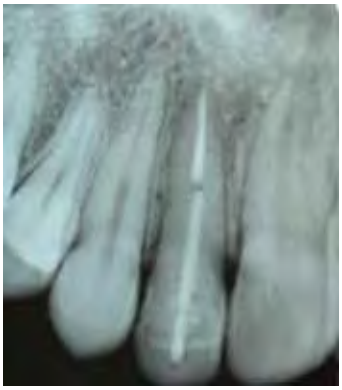

Fig 6: Post operative IOPA

Discussion

Protection of mechanical, functional and esthetics is most important factors in restoring traumatized anterior teeth. If fractured fragment is available intact, the reattachment has to be the most desired treatment. As it provides good esthetics and is very cost effective treatment alternative rather than restoring it prosthetically.

Due to advancement in adhesive dentistry, the process of fragment reattachment has become more easier and reliable.

This technique offers many advantages such as maintenance of original enamel and dentin, along with minimal chair time and no laboratory procedures. There are different types of post materials available into the dental practice such as carbon fiber, quartz, and glass fiber.

With the recent advancement in the dental materials such as resin-based adhesive with tooth-coloredfiber post servers good elastic modulus, esthetics and bonding between post and cement.

This report signifies that fractured anterior tooth can successfully be treated by using a fiber-supported post system with dual curing resin. Isolation was achieved using cotton rolls, cheek retractor and high vacuum suction as the rubber dam application was not possible in this case.

The most important aspect of this treatment is keeping the fragment hydrated. We preferred normal saline to prevent dehydration of the fragment till the completion of treatment.

Conclusion

The presented case demonstrates that conservative approach in restoring fractured anterior tooth is a simple, economical, effective alternative to restore the estheticand function of teeth.Other restorative procedures should be considered like crown fabrication in case of failure.

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