



Research Paper

Fragment Reattachment of Maxillary Anterior Tooth- A Case Report

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ABSTRACT: Dental trauma often results in fracture of the tooth. Reattaching the fractured fragment is one among the treatment modalities in the management of fractured tooth. The procedure is simple and relatively inexpensive. However, understanding the limitations of the procedure is essential. Also, patient cooperation is essential for long term success of the treatment. The case report highlights the management of fractured maxillary anterior tooth in a elderly patient.

KEYWORDS: Adhesive Dentistry, Crown Lengthening, Dental Trauma, Glass Fiber Post, Reattachment.

Received 12 Sep., 2024; Revised 25 Sep., 2024; Accepted 27 Sep., 2024 © The author(s) 2024.

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I. INTRODUCTION

Maxillary anterior teeth fracture is the most common consequences of traumatic injuries, mainly due to the position in the dental arch. The most common dental traumatic injuries can be ascribed to fall from height, sports, and road traffic accidents. While dental injuries usually affect only a single tooth; certain trauma such as automobile accidents and sports injuries may involve multiple tooth injuries [1].

Factors which influence the management of coronal tooth fractures are extent of fracture (biological width, endodontic involvement, alveolar bone fracture), pattern of fracture and restorability of fractured tooth, secondary trauma injuries, presence/absence of fractured tooth fragment and its condition for use, occlusion, aesthetics, finances, and prognosis [2].

Reattachment should be considered as the treatment option, provided the availability of fractured tooth fragment and chances of biologic width violation is no or minimal. Reattachment procedure provides good and enduring aesthetics and it maintains the true anatomic form, colour, and texture of tooth. The simple procedure while restoring the function, provides a positive psychological response[3]. However, patient cooperation and understanding of the limitations of the treatment is of utmost importance for good prognosis.[3]

II. CASE REPORT

A 62-year-old male was referred to the Department of Conservative Dentistry and Endodontics, due to fall. The clinical examination and radiographic evaluation revealed a complicated horizontal fracture of crown of maxillary right central incisor 11 that extended sub gingivally in the mesiolabial aspect. The fractured segment was secured in place by means of the gingival attachment. Periapical radiograph revealed an intact periodontal ligament space, complete root formation, and no root fracture. Medical history was non-contributory.

Single visit root canal treatment (RCT) on 11 followed by reattachment of fragment with fibre post reinforcement was planned. Local anaesthesia was administered (Lidocaine 2% with 1 : 80,000 epinephrine) and atraumatic removal of the fractured segment in relation to 11 was done. The fragment was disinfected with 2% chlorhexidine solution and kept in isotonic saline solution. Laser gingivectomy was performed to visualize the fracture line, followed by isolation of the tooth with rubber dam. RCT was completed on 11, working length was 14.5mm, master apical file was 50k file. Step back technique was used for shaping and cleaning and the canal was irrigated with 3% sodium hypochlorite, saline and 17% EDTA. Obturation was done using lateral condensation method and post space preparation was performed using Peeso reamers. Aesthetic post Size #1(Diameter 1.1 mm) (Angelus, REFORPOST, Londrina, Brazil) was selected.

Post space was subjected to 37% phosphoric acid etching for 15 seconds and rinsed thoroughly with water. Excess water was removed with a cotton pellet and paper point from the canal. The post was silanized and allowed to air dry after which non-rinse conditioner(ParaBond Non-Rinse Conditioner, Coltene Whaledent, USA) was applied on the post and prepared surface, excess conditioner was removed using paper point, followed by applying the chemical curing adhesives (ParaBond A and ParaBond B, Coltene Whaledent, USA) on the post and prepared surface for 30sec in scrubbing motion. The adhesive was air thinned. The post was then bonded with dual cure resin cement (ParaCore® (Coltene Whaledent, USA)) with coronal 2 mm of post extending into the chamber. Using resin cement the tooth fragment was reattached to the tooth. During the periodic review, it was observed that the endodontic treatment remained clinically acceptable through each visit. The clinical and radiographic evaluation at 6 months follow-up remain acceptable.

III. CLINICAL PHOTOGRAPHS AND RADIOGRAPHS



Fig. 1 Initial splinting



Fig. 2 Laser gingivectomy



Fig. 3 Fragment approximation

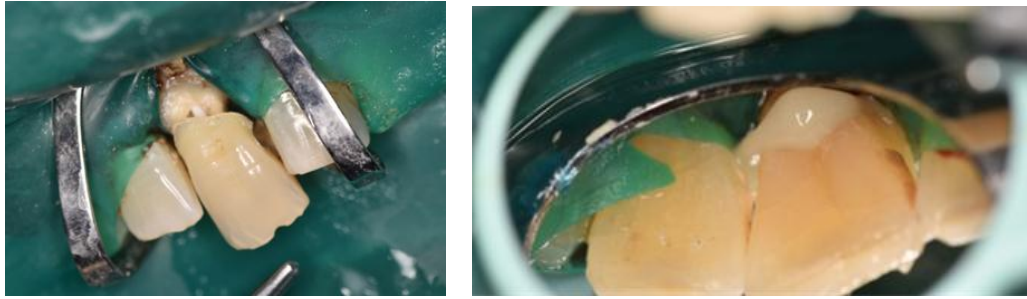


Fig. 4 Post cementation following root canal therapy



Fig.5 Immediate post-operative



Fig.6 One week and 3-months follow-up



Fig.7 6-months follow-up

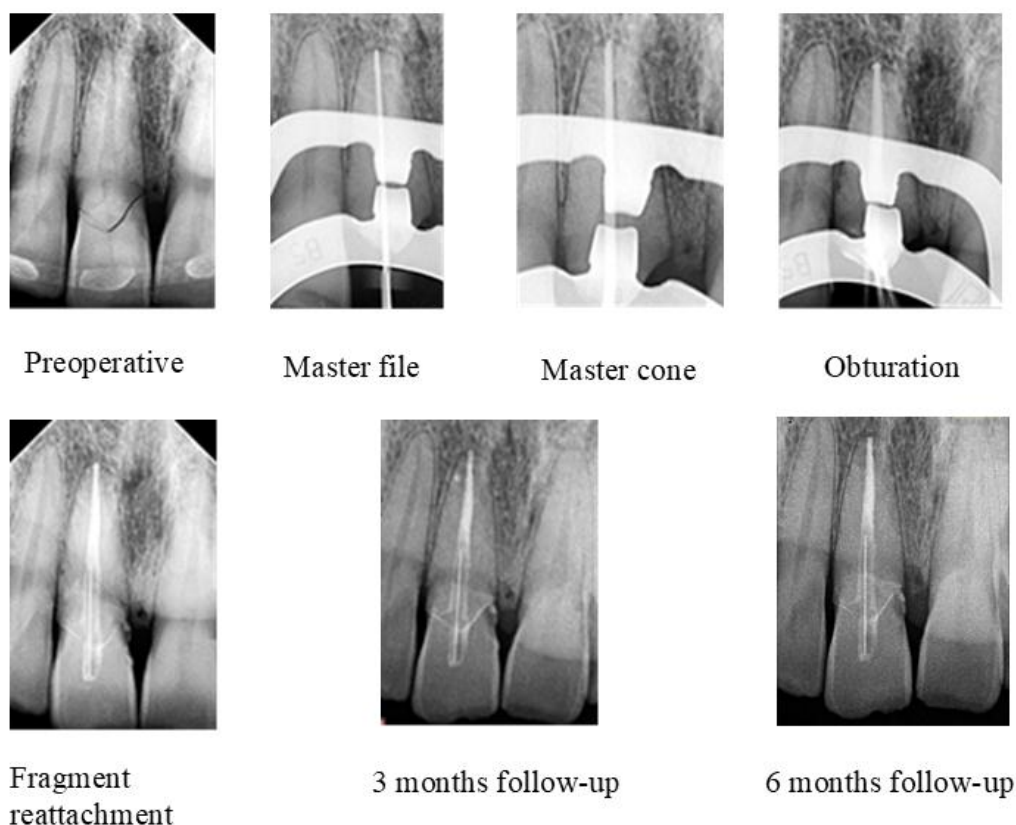


Fig.7 Radiographs

IV. DISCUSSION

The advancements made in the adhesive materials created a new clinical standpoint in the reconstruction of fractured teeth. It is possible to achieve excellent results with the reattachment of dislocated tooth fragment provided that the biological factors, materials, and techniques are logically assessed and managed [3].

Reattachment of the fragment should be considered the first choice of treatment. The advantage of this alternative treatment includes regaining colour and size of the original tooth, being worn away in similar proportion to adjacent tooth and giving positive psychological response to the patient and is also economical.[4] It provides an instant return to the natural appearance upon reattachment of the original tooth fragment.[5]

Treatment plan can be made after evaluation of the periodontal, endodontic, coronal, and occlusal status [6]. Other factors that might influence the choice of the technique include the need for endodontic therapy, extension of fracture, quality of fit between fragments, and the fracture pattern [3]. The direction of the fracture line is an important aspect in restorability, and it has a direct bearing on the prognosis of teeth [7].

The newer non-metallic posts are made of materials like ceramic or fiber-reinforced (carbon, quartz, or glass fibers in an epoxy matrix). Tooth-colored fiber posts possess several advantages, they include esthetics, bonding to tooth tissue, modulus of elasticity like that of dentin, and they exhibit fracture resistance. Using glass fiber post with composite core and adhesive techniques and materials, a multilayered structure with no inherent weak interlayer interfaces is formed which reinforces the teeth structure [3].

Unlike the supragingival fracture, subgingival fractures require orthodontic extrusion or crown lengthening may be required to gain access to the fractured site and for bonding fractured component. The prognosis of the reattached teeth depends on the adequate plaque control along with fitness, contour, and surface finishing of the subgingival restoration [3].

V. CONCLUSION

Reattachment of the fractured tooth fragment restores the form and function of the tooth. Also, the simple, but effective procedure reduces the economic burden on the geriatric patients. Proper history taking, meticulous treatment planning, motivated patient and good communication with patient are the keys for successful management of a fractured tooth in an elderly patient.

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