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CASE REPORT

Reattachment of Crown Fragment in Anterior-Fractured Tooth: An Esthetic Approach

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Abstract

The immediate fragment reattachment is a very conservative treatment. It allows the resto- ration of the original dental anatomy thus rehabilitating function and aesthetics in a short time by preserving dental tissues. A fracture reattachment posse is challenging conservative and economically viable procedure within the compass of a single visit. (2019, Vol. 03; Issue 01: Page 20 - 23)

Key words: Fragment Reattachment, Tooth Fracture.

Introduction

Coronal fractures of the anterior teeth are a common form of dental trauma that mainly affects children and adolescents. Crown fracture present almost 92% of all traumatic injuries of the permanent teeth. The anterior incisors are most often af- fected (80% central incisors and 16 % lat- eral incisors) because the anterior position of the maxilla and tooth protrusion. Aes- thetic and functional rehabilitation of crown fractures is one of the greatest chal- lenges for the dentist. When the coronal fragment is available and completely re- covered intact, the reattachment of the original tooth fragment appears to be the most conservative approach. Fragment bonding is an alternative approach that is becoming more attractive given the tech- nology of new dentin bonding agents (1, 2). The repositioning of a fractured crown fragment using a bonding fragment tech- nique offers several advantages, including the reestablishment of function, aesthet- ics, shape, shine and surface texture, in addition to the original contour and align- ment of the teeth.

This case report describes the reattach- ment of fractured crown fragments of maxillary central incisor utilizing a ultra conservative preparation technique with 4 month follow-up.

Case report

A 14-year-old male patient was referred to dental clinic, reporting a dental trauma of the maxillary right central incisor. Dental history revealed that the trauma was the result of a fall. The patient reported no treatment until that moment and the crown fragment was perfectly intact and stored in water.

The intraoral and radiographic examina- tion showed that the injury caused a non-complicated crown fracture in the incisal third of the tooth, with no pulp exposure. Clinical examination evidenced a fracture involving the enamel/dentin aspect with no symptoms (Fig 1).

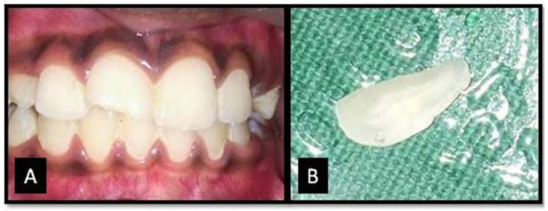

Fig 1: A- Intraoral view, B- Fracture frac- ment.

The crown fragment analysis showed a perfect margin adaptation of the fragment to the tooth remnant from palatal surface although a small fragment at labial sur- face was missing (Fig 2A). After dental prophylaxis and cleaning the fragment with 2% chlorhexidine, the frag- ment was hold with a gutta-percha stick for handling purposes. The operative field was isolated with polytetrafluorethylen strip mainly on adjacent teeth. The crown fragment and the tooth remnant were acid etched for 30 s with 35% phosphoric acid gel, rinsed for 30 s and dried with air spray (Fig 2B).

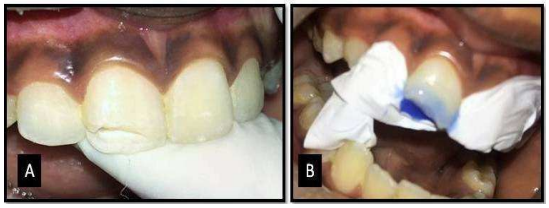

Fig 2: A- Crown fragment analysis showed a perfect margin adaptation of the fragment to the tooth remnant, B- Tooth remnant were acid etched for 30 s with 35% phosphoric acid gel.

Then, a conventional total etch adhesive system (Te-Econm plus bond, Ivoclar) was applied on both tooth and fragment and light-cured for 40 sec (Fig 3). MultiCore Flow (Dual cure composite resin) (Fig 4) was then applied on the tooth as well as fractured fragment and approximated.

Fig 3: Conventional total etch adhesive system

Fig 4: Flowable composit

It was then light cured again for 40 sec bu- cally as well as palatally. The missing frag- ment part was replaced with composite resin (Z350 3M). Excess adhesive was re- moved and final polishing was performed. Even after 4 months the adhesive proce- dure, good esthetic appearance and func- tion were observed and a frontal smile view shows an imperceptible reattach- ment (Fig 5). Radiographic examination revealed the periodontal health and a nor- mal aspect of the apex and osseous struc- tures (Fig 6).

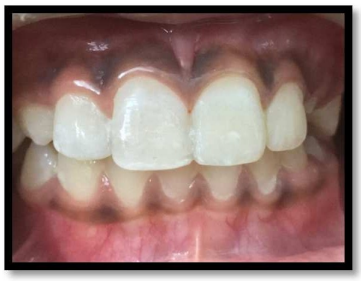

Fig 5: Intraoral view after 4 months

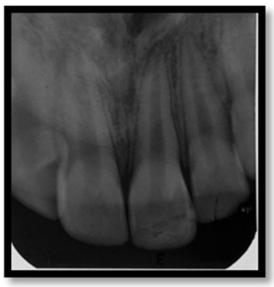

Fig 6: Radiograph showing no pathology after 4 months

Discussion

Reattachment of the fragment to its origi- nal position is considered an excellent ap- proach for the management of a corono- radicular fracture (3-6).

The application of dental adhesives capa- ble of reattaching a fragment to the re- maining tooth structure appears to offer a number of advantages compared with the conventional methods for restoring frac- tured teeth (7). Another great benefit to the adhesive fragment reattachment tech- nique is that it reduces the necessity of re- storative procedures used to fill the tooth with composite resin. In the case of un- successful treatment, the composite resin restoration as an alternative can be placed in a region where the structure was pre- served (8).

In the present case, the location and as- pect of the fracture (non-complicated crown fracture) and the presence of a bal- anced occlusion may have favored the clinical success. Limitations in the bond- ing fragment technique are attributed to detachment of the remaining dental frag- ment; the fragment does not recover its original color or also bonding of the re- maining the fragment at the incorrect po- sition. Periodic radiographic evaluation is important (1). The planning of the present treatment enabled clinical success with direct adhesive fragment reattachment; however, further clinical descriptions are necessary in order to evaluate the out- comes of reattachment over the long-term. This case report shows how a simple frag- ment reattachment, performed without any additional preparation, can be real- ized by using resin. The upper incisors area at very aesthetic zone and it is often related to trauma. However, the applica- tion of new generation materials ensures long term and aesthetic results in the area; but using cosmetic resin doesn't al- ways fulfill the critical needs.

Conclusion

The present case report shows that the re- attachment of the fractured crown frag- ment using the bonding technique offers several advantages including the reestab- lishment of function and aesthetics. The reattachment of the fractured crown frag- ment using the bonding technique demon- strated the satisfactory resolution of this clinical case.

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