

Reattachment of fractured fragment of deciduous maxillary central incisor- A case report

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Abstract:

Fracture of anterior teeth by trauma is a common problem in children and teenagers due to their active and carefree lifestyle. Reattachment of fractured fragment to the remaining tooth can provide good and long lasting aesthetics since the tooth original anatomic form, color and surface texture are maintained. It also restores function, provides a positive psychological response and is a relatively simple procedure. Present case report describes reattachment of tooth fragment of deciduous maxillary central incisor in a 4year old boy with extensive fracture involving pulp following trauma.

Key words: Trauma, fracture fragment, reattachment.

Introduction:

Coronal fractures of the anterior teeth are a common form of dental trauma that mainly affects children and adolescents.^[1, 2] The majority of dental injuries involve the anterior teeth, especially the maxillary incisors, because of its position in the arch; where as the mandibular central incisors and the maxillary lateral incisors are less frequently involved. Several studies have been conducted by clinician across the world on injuries to anterior teeth and the average incidence reported in literature ranges from 4 to 46% with 11 to 30% in primary dentition and 6 to 29% in the permanent dentition.^[3] In the past fractured teeth were restored using acrylic resin or

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with complex ceramic restorations associated with metals.^[4] Now progressive improvements in the field of adhesive dentistry allow clinicians to reattach a broken tooth fragment to remaining tooth structure mechanically or chemically.^[5] This clinical report describes reattachment of tooth fragment of deciduous maxillary central incisor in a 4 year old with extensive fracture involving pulp following trauma.

Case report:

A 4 year old male child reported to the Department of Pedodontics and Preventive Dentistry, Sri Govind Tricentenary Dental College and Research Institute, Budhera, Gurgaon, with the complaint of an extra tooth in relationship to a fractured deciduous maxillary central incisor. History revealed trauma about 2-2 1/2 months back, medical history was non-contributory.

Intra-oral clinical examination initially appeared as though an accessory tooth, which appeared like a supernumerary tooth was present in relation to the left deciduous central incisor. But closer examination revealed an extensive fracture involving enamel, dentin and pulp. Tooth was sliced in a horizontal plane that extended subgingivally, thus appeared like an extra tooth to the parent (image1). The tooth exhibited no mobility. There was little injury associated with the soft tissue, but none with the alveolar bone.

Radiographic examination revealed that there was no associated root fracture and no resorption of root (image2).

Under local anesthesia the fractured fragment was carefully removed taking care not to cause any damage to either the fragment or the remaining tooth. The adaptation of the fragment was checked. The fractured fragment was stored in normal saline.

Rubber dam was placed to isolate the fractured tooth to ensure moisture control. Endodontic therapy was done for fractured tooth and obturated with Metapex (image 3). The entrance of root canal was sealed with a glass ionomer plug. The pulp

chamber dentin and enamel were etched with a 37% phosphoric acid gel, rinsed and coated with an ethanol based adhesive system. The adhesive was not light cured at this point. The fractured surface of the fragment was treated with 37% phosphoric acid gel for 30 seconds followed by delicate rinsing. The adhesive system was then applied to the etched surface. Composite resin was applied to the fragment and the tooth surface. The fractured segment was then accurately placed on the tooth. When the original position had been reestablished excess resin was removed and the area was light cured for 40 seconds, making sure that no displacement of the fragment occurred before resin polymerization was complete. Finishing and polishing was done. The occlusion was carefully checked and adjusted. The repaired area could hardly be differentiated and the esthetical result was excellent (image 4). The patient was given instructions to avoid exerting heavy function on this tooth and to follow regular home care procedures.

On the subsequent follow up visits at 1 and 2 months post operatively, the tooth has been found to be asymptomatic.

Discussion:

Trauma to anterior teeth is relatively common amongst young children and teenagers. This procedure provides optimal esthetics and is very economical. The fracture of a tooth may be most traumatic incident for a young patient, but it has been found that there is a positive emotional and social response from the patient to the preservation of natural tooth structure.^[6] The remarkable advancement of adhesive systems and resin composites has made reattachment of tooth fragments a procedure that is no longer a provisional restoration, but rather a restorative technique offering a favorable prognosis. However, this technique can be used only when the intact tooth fragment is available.^[7]

Reattachment of a tooth fragment should be the first choice to restoring fractured teeth when a usable fragment is available.^[8] Reattachment of fractured tooth fragments offers a viable restorative

option for the clinician because it restores tooth function and esthetics with the use of a very conservative and cost effective approach.^[9] This technique offers several advantages over

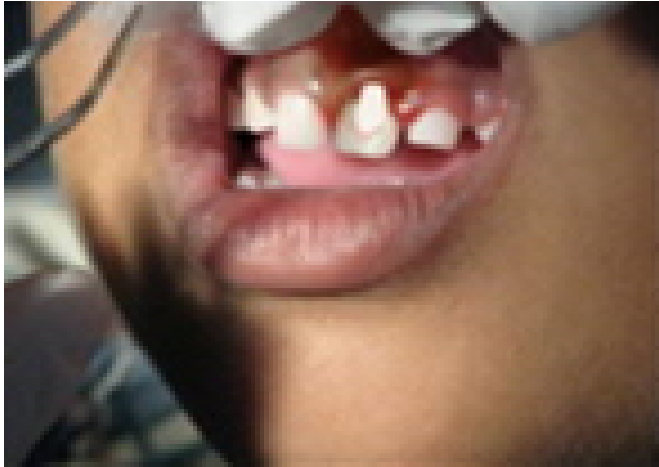


Fig 1- Pre-operative photograph



Fig 2- Pre-operative radiograph

conventional composite restorations. Reattachment of a fragment to the fractured tooth can provide good and long lasting esthetics as the tooth's original form, color and surface texture are maintained.^[10] It can restore function, results in a positive psychological response and is a reasonably cost effective and simple restorative option.^[11]

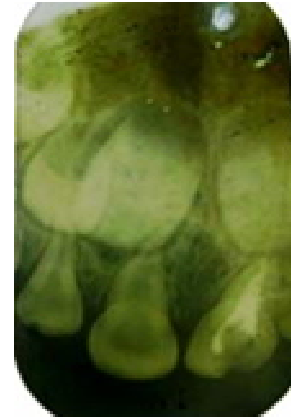


Fig 3-Post operative radiograph- obturated with metapex



Fig 4-Final result after tooth fragment reattachment

Also, tooth fragment reattachment allows restoration of tooth with minimal sacrifice of the remaining tooth structure thus a more conservative approach. In addition, this technique is less time consuming and provides a more predictable long term wear than when direct composite is used.^[12] In cases of complicated fractures, when endodontic therapy is required, the space provided by the pulp chamber can be used as an inner reinforcement, thus avoiding further preparation of the fractured tooth.^[13,14] However, in such cases, esthetics may become an important issue as pulpless teeth loss part of their translucency and brightness. Fabrication of a mouth guard and patient education about treatment limitations may enhance clinical success as reattachment failures may occur with new trauma or parafunctional habits.^[15]

Conclusion:

Thus, along with the materials available today and an appropriate technique, esthetic results can be achieved with predictable outcome. Thus, the reattachment of a tooth fragment is a viable technique that restores function and esthetics with a very conservative approach, and it should be considered when treating patients with coronal fractures of the anterior teeth, especially younger patients.

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