Reattachment of Anterior Teeth Fragments with Two Different Treatment Techniques: Report of Two Cases
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Abstract
Coronal fractures of the anterior teeth are a common form of dental trauma. Reattachment of the tooth fragment is one of the options for managing coronal tooth fractures when the tooth fragment is available and there is minimal violation of the biological width. This article reports management of two coronal tooth fracture cases that were successfully treated using tooth fragment reattachment with different treatment modality.

Key Words: Fragment Reattachment; Band Pinching Technique; Fiber Reinforced Post.

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Introduction
Crown fractures have been documented to account for up to 92% of all traumatic injuries to the permanent dentition. (1) Dental trauma often has a severe impact on the social and psychological well-being of a patient. (2) Coronal fractures of permanent incisors represent 18-22% of all trauma to dental hard tissues, 28-44% being simple (enamel and dentin) and 11-15% complex (enamel, dentin and pulp). Of these 96% involve maxillary central incisors. (2) Traumatized anterior teeth require quick functional and aesthetic repair. (3)

The treatment modalities vary from simple reattachment of fracture fragment to complex interdisciplinary approach. Here we are reporting two such cases that were successfully treated using tooth fragment reattachment with different treatment modality.

Case 1
A 23 years old male patient reported to the Department of Conservative Dentistry, Sharad Pawar Dental College and Hospital, India following trauma in upper anterior teeth due to fall from bike. On intraoral examination Ellis Class III fracture was seen with 11 which extended vertically from incisal edge to cement-enamel junction (Fig 1a). On radiographic examination, fracture extension was confirmed and treatment plan was decided. Band Pinching Technique was selected. In the same visit, orthodontic band was pinched and cemented with Glass inomer cement on 11. Root Canal Treatment was started after rubber dam application and completed in single sitting with sectional obturation. A suitable fibre post was selected and checked for proper fit and cemented with dual core composite. At the end flap was repositioned and sutured and post-operative instructions were given to the patient. The patient was recalled for regular check up to one year (Fig 1b).

Case 2
A 24 years old male patient reported to the department of Conservative Dentistry and Endodontics, Sharad Pawar Dental College and Hospital, India following trauma to mandibular right lateral incisor due to fall on ground. On intraoral examination Ellis Class III fracture was seen with crown portion of 42, which extended from cervical 3rd of crown on labial side to 2mm subgingivally on the lingual aspect (Fig 1a). The fracture fragment was removed atraumatically and stored in normal saline. Single visit root canal treatment with sectional obturation was done. Gingival flap was raised as the fracture line was below subgingival level on the lingual aspect. Trough was prepared in the fractured crown fragment then the fracture crown fragment was reattached with remaining tooth portion by suitable fibre post with the help of dual core composite. At the end flap was repositioned and sutured and post-operative instructions were given. And Patient was kept under medication. Patient was recalled for regular check up to 1 year (Fig 2b).
Discussion

Traumatic injuries involving tooth fracture can be treated by reattachment of the tooth fragment using an adhesive system (acting as dental super glue).(1) The reattached tooth is restored to its original form, contour and margins and tends to be more compatible with the gingiva. The psychological trauma caused to the individual due loss of aesthetics can be managed by this procedure successfully.(4)

In the present cases reattachment of the fractured fragment were possible due to advancements in dentin bonding technology and fiber post systems. As the fractured fragments were intact, use of natural tooth substance clearly eliminated problems of differential wear of restorative material, unmatched shades and difficulty of contour and texture reproduction associated with other restorative techniques.(5, 6)

Band Pinching was introduced by Louis I. Grossman in 1988. It acts as a splint. Fracture reattachment by band pinching and fiber post is simple, economical and less time consuming and provides excellent results. Factor influencing the extent and feasibility of such repair include the site of fracture, size of fractured remnants, periodontal status, pulpal involvement, maturity of root formation, biological width invasion, occlusion, time and resources of the patient.(7, 8)

Extensive damage of the tooth structure and missing fragment warrants reinforcement using fiber posts.(2) Tooth colored fiber posts have several advantages. They are more aesthetic when bonded to tooth tissue, modulus of elasticity similar to that of dentin and less chances of fracture.(2) Historically cast metal post and core were used for fracture reattachment.(2) The newer variety of non-metallic posts is made of either ceramic or fiber reinforced materials like carbon, quartz or glass in an epoxy matrix.(2) By using glass fiber post with composite core and with recent advances in adhesive techniques and materials one can create a Monobloc, a multi-layered structure with no inherent weak inter-layer interfaces.(2)

Trope et al in 1985 showed that endodontically treated teeth can be reinforced with the use of resin composite restoration. The flowable composite reinforces the tooth, helps in achieving higher bond strengths and minimizes the inclusion of air voids.(8) With the materials available today, in conjunction with an appropriate technique, aesthetic results can be achieved with predictable outcomes.

Conclusion

Reattachment of a tooth fragment is a viable technique that restores function and aesthetics with a very conservative approach in single visit and can be considered when treating patients with coronal fractures of the anterior teeth, especially in younger patients.

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