CASE REPORT

MULTIDISCIPLINARY TREATMENT APPROACH FOR THE MANAGEMENT OF SUBGINGIVALLY FRAC TURED INCISORS

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ABSTRACT

Traumatized anterior teeth with subgingival fractures of crown are a challenge to treat. This paper reports the management of subgingival fractures of crown of the four maxillary anteriors in an 18 year old male. The technique described here involves the use of fixed appliance, post and core with a loop fabricated on it for retention of fixed appliance.

Key Words: Fracture; Tooth; Root Extrusion; Crown Fracture

Introduction
Fracture of a tooth below the gingival attachment or crest of alveolar bone presents a very difficult restorative problem. Such fractured teeth are often considered unsalvageable and are extracted. However, prior to extraction some alternative treatment options should be considered with the ultimate goal to preserve the tooth or at least utilize it in the best possible way. Only an appropriate treatment planning may provide an acceptable functional and esthetic outcome.

To facilitate prosthetic restoration of fractured teeth various techniques have been described to extrude the roots. Surgical crown lengthening is often recommended, such an approach is usually discouraged because of the possible adverse periodontal changes to the adjacent teeth and compromised esthetics. The use of orthodontic extrusion also referred as forced eruption is an alternative to periodontal crown lengthening. This paper reports the management of subgingival fractures of crown of the four maxillary anteriors in an 18 year old male with the use of fixed appliance, post and core with a loop fabricated on it for retention of fixed appliance.

Case Report
An 18 year old male sustained multiple injuries in a road side accident, which included blunt head injury, fracture of the limbs, loss of part of his nose, laceration of upper lip, fracture of four anterior teeth from upper jaw. After his major injuries healed and his general physical condition stabilized, he was referred to Dental College for opinion and treatment. He had undergone a major physical and psychological trauma; as the accident led to disfiguring of his face; he was worried about esthetics and wanted to get back to normal as early as possible. He wanted to get rid of the anterior tooth stumps, which according to him were of no use and he was in a hurry to get prosthesis. He was explained that his esthetics can be restored while preserving the roots of fractured teeth and utilizing them for prosthesis. A conservative multidisciplinary treatment was planned with his consent.

Discussion
The necessity for interdisciplinary treatment approach to routine dental problems has been recognized for a long time. It is clear from the case described, without such cooperative action; prognosis might not have been so good. Extraction must not be the first treatment choice for fractured and extremely broken down, young, permanent teeth in the anterior region as it takes a toll on esthetics due to loss of alveolar bone. In case of fractured anterior teeth preservation of alveolar bone should be a priority, if possible. In the present case location of fractured teeth margin were such that it was difficult to get access to them unless the roots were exposed, either by surgical crown lengthening or orthodontic extrusion.

In most cases forced eruption provides a useful alternative to extraction or extensive periodontal surgery, as periodontal crown lengthening can lead to long unaesthetic teeth with visible restorative margins. Contrary to conventional orthodontic treatments, the purpose of this method is not the correction of tooth position in the arch; it is to preserve the root and biologic width, which is essential for successful prosthetic rehabilitation. Orthodontic extrusion for fractured incisors was found successful even after three years follow-up. Additional advantage of forced eruption is that the adjacent teeth need not be prepared for fixed prosthesis and alveolar bone is conserved. Although orthodontic extrusion reduces crown/root ratio and widens the embrasure, this approach allows maintenance of the biologic width and optimizes the marginal sealing of the restoration as it moves the fracture line.

Figure 1. Fractured Incisors, Figure 2. Radiograph showing sufficient root length and obturated canals and threaded posts, Figure 3. Coronal parts of the posts restored with composite resin, Figure 4. Stainless steel arch wire with loops and step down bends bonded on canines, premolars and molars, Figure 5. Porcelain crowns cemented on the extruded teeth.
supragingivally.\textsuperscript{9-12} Rapid extrusion was performed with simple and cost effective appliance in a period of four weeks and when the tooth was moved to a new position, circumferential supracrestal fibrotomy was performed to avoid relapse. As the supracrestal gingival fibers tend to stretch with rapid extrusion and may become the major cause of relapse, when the tooth was in new corrected position.\textsuperscript{1} Multidisciplinary treatment approach has been utilized successfully by various authors in the management of fractured incisors, as it was done in this case.\textsuperscript{13-15}

Conclusion
This multidisciplinary treatment including forced eruption is the ideal option to restore the fractured teeth especially in the anterior segment. The advantage of this approach includes preservation of the root structure in order to avoid atrophy of the surrounding bone that normally accompanies a long standing extraction site. The enhancement of gingival level provides the restorative dentist with more favorable conditions for placement of esthetically pleasing restorations. The preservation of bone will enhance the success of eventual implant placement if becomes essential at a later stage.

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Source of Support: Nil
Conflict of Interest: None Declared