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Case Report

Sub gingival crown en masse fracture: A Case Report

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***ABSTRACT*:**
Trauma to maxillary anterior teeth has psychological impact on young patient as well as their parents. Patient wants immediate rehabilitation of smile. This case report presents aesthetic rehabilitation of smile of young female patient who lost her right maxillary central incisor in road side accident and subgingival crown en masse fracture of left central incisor that had been treated with minimal invasive approach.
Keywords : subgingival crown fracture, traumatic crown en mass fracture.

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INTRODUCTION

Number, type and severity of dental injuries per patient differ according to the patient's age and the cause of accident[1]. Traffic accidents may be focused as a possible increasing cause of dental injuries and represented 15.93% of the reasons of trauma to anterior teeth in 8-15 year old school children of Indian population[2], 10% of the etiologic factors in a sample of Norwegians aged 7-18 years[3] and 7.5% in Austrians with a mean age of 17.8 years (SD error 0.287)[4] Car accidents particularly accounted for 5.6% of the oral and dental injuries in Israeli population during childhood and adolescence.[5] The trauma group resulting from pedestrian, bicycle, and car-related injuries is usually dominated by multiple dental injuries, injuries to the supporting bone and soft-tissue injuries.[6] The present case report describes the treatment outcome of traumatic maxillary incisors injuries of a 15year old female due to a motorbyke accident, with a follow-up of 1 year.

CASE REPORT

A healthy 15 year-old female reported in dental clinic after suffering trauma to her maxillary incisors, following a motorbike accident occurred 90 minutes before. Extra oral examination revealed no injury to facial bone and TMJ, laceration of lower lip was present. Intraoral examination showed avulsion of tooth 11; crown en mass fracture of tooth 21. Patient has left the tooth 11 at accident site, bleeding was present with respect to socket of 11 , gingival crevice of 21and lower lip. Spontaneous pain was present in the region of maxillary incisors. With the parents' and patient's informed consent, a local anesthetic was administered. Suturing was done to arrest the bleeding from the socket of tooth 11 (Fig 1). Root canal procedure was

initiated for the tooth 21. As the crown fracture was subgingival, crown build up was done with restorative composite, so that it can hold intracanal medicaments (Fig 2). Oral antibiotic (amoxicillin 500 mg thrice daily for 5 days) and analgesic medicament on need basis were prescribed. The patient received instructions about an appropriate soft diet and about an adequate oral personal hygiene (chlorhexidine 0.12% mouth rinse twice a day for 1 week and a soft toothbrush to brush her teeth after each meal). After 3days, 21 was obturated (Fig. 3). After 7 days of trauma, on patient's third visit to the dental clinic suture were removed and post and core build up of 21 was completed. Coronal two third of gutta-percha was removed with peso reamer and radiographically evaluated. Glass-fibre post with composite was used as post and core material (Fig 4, Fig5). Patient and parents' were not interested in implant for tooth 11. Cantilever bridge was planned involving 31, 21 and11. Crown preparation of 31, 21 and 21 was done (Fig 6). Impression was made and model was sent to laboratory for the crown manufacturing.

Next day, crown was given on tooth 21(Fig. 7) and cantilever bridge was given for prosthetic rehabilitation of 11 (Fig. 8). The patient was scheduled for follow-up and was monitored weekly in the first month after the trauma, then after 3 months, 6 months and 1 year.

Fig 1. Pre treatment photo (suturing done wrt 11)

Fig 2. Intraoral photo after BMP and composite rebuild wrt 21.

Fig. 3. IOPA showing obturation wrt 21 done with gutta percha.

Fig. 4 Intraoral photo showing post and core build-up wrt 21.

Fig 5. IOPA after glass -fibre post insertion and core build up.

Fig 6. Intraoral photo showing post and core done wrt 21 and crown preparation done wrt 31 and 21.

Fig 7. Porcelain fused to metal crown given wrt 21.

Fig. 8 Post operative photo showing PFM cantilever bridge wrt 31,21 and 11 and PFM crown wrt 21.

DISCUSSION

Trauma with accompanying fracture of anterior teeth is a tragic experience for young patients and requires immediate attention, not only because of damage to the dentition but also psychological effect of the trauma to the child and his/her parents. In this case avulsion of right permanent central incisor and subgingival fracture of left permanent central incisor had a deep psychological impact on the young patient. . The possibility of saving and reconstructing teeth with cervical crown-root fractures is the preferred method of treatment to extraction of the remaining tooth structure[7]. Fracture line below the gingival attachment or alveolar bone crest presents restorative difficulties for the clinician. The possible treatment alternatives include surgical or orthodontic extrusion of the root, osteotomy, and gingivectomy[8]. Surgical extrusion is rather an invasive technique that may cause complications related to surgical procedure or postoperative marginal bone loss. In this case, osteotomy and gingivectomy would affect the esthetics in the anterior region due to retraction of the gingival tissues. Rapid extrusion involves stretching of the periodontal fibers without any marked bone remodeling. Rapid tooth movement may cause a relapse before apical fiber reorganization. Slow orthodontic movement is least invasive but requires time for extrusion as well as retention. Patient needed immediate rehabilitation of her smile. Hence, fractured tooth was endodontically restored followed by post and core to provide mechanical support for the fractured segment. For better esthetics, tooth-colored glass-fiber composite posts can be utilized as they have light transmission properties and are capable of resisting occlusal loads.[9,10] In the present case, an adhesive, dual-cure-luting composite system and a glass-fiber-reinforced composite post were used. For better esthetics and longevity of a nonvital fractured tooth, porcelain-fused metal crown was utilized as a permanent restoration.

Long-term prognosis of the fractured segment may be queried and may thus require other restorative alternatives such as veneering and crown fabrication in case of failure. Hence, to overcome such problem, porcelain-fused metal crown was selected as a permanent restoration. There are citations in the literature regarding the use of porcelain-fused metal crown in children.[11,12,13] Patient was not ready for surgical procedure, therefore to restore anterior aesthetics porcelain fused to metal cantilever bridge was given.

CONCLUSION

Combined Endodontic and prosthodontic techniques, as in this case report can be used in the management of complicated anterior tooth fracture that has shown better prognosis, functions, esthetics, and satisfaction of patient and parent.

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