MANAGEMENT OF COMPLICATED CROWN FRACTURE BY 180 DEGREE ROTATION AND INTENTIONAL REPLANTATION WITH 3 YEAR FOLLOW-UP- A CASE REPORT

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Introduction:

Traumatic injuries comprise of 5% of all injuries for which people seek treatment.[1,2]33% of the adults experienced trauma to permanent dentition.[3] Traumatic injuries to the tooth are the third most common cause of tooth loss.[4]Traumatic injuries affect the maxillary anterior predominantly with the commonest cause being fall/accident.Injuries can range from a simple enamel infraction to tooth loss in toto. Hence, a wide range of treatment options have to be considered when managing traumatic injuries to the teeth. This case report narrates the management of complex crown fracture of maxillary incisor treated successfully by intra-alveolar implantation followed by post-endodontic management.

History:

A 24 year old male patient reported to the Department of Conservative Dentistry and Endodontics of Tamil Nadu Government Dental College with the chief complaint of trauma due to road traffic accident.

Clinical examination: Complicated crown fracture in 12, 11, 22 (Ellis Class III). 12 had 50% of crown structure remaining. 11 had 2 mm of remaining crown structure. 22 sustained an oblique fracture of the crown with the incisal most extent measuring 4 mm.

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Radiographic examination: Loss of crown structure involving the enamel, dentin and pulp chamber of 12, 11 and 22.

Diagnosis: Ellis class III fracture in 12, 11, 22 with symptomatic irreversible pulpitis

Treatment planning:

12: Root canal treatment of 12 followed by full crown

11: Root canal treatment in 11 followed by intra-alveolar implantation (180 degree rotation) of 11. Cast post and full crown in 11

22: Root canal treatment and cast post with full crown in 22

Treatment done:

Root canal treatment was done in 12, 11 and 22. Core build up with light cure composite and porcelain fused to metal crown in 12. Cast post and porcelain fused to metal crown in 22.Atraumatic extraction of 11, 180 degree rotation andIntra-alveolar implantation of 11, followed by wire and composite splinting in 11 for 2 weeks. Cast post in 11 with porcelain fused to metal crown.

Case description:

Under Local anaesthesia (2% Lignocaine with 1:80,000 Adrenaline), access opening was done in 12, 11 and 22. Working length determination was done as follows: 12- 18mm, 11- 16mm, 22- 15 mm. Cleaning and shaping was done using manual K files with step-back technique as follows: 12 and 22: master apical file no 60; 11: master apical file no 80. Obturation was done using cold lateral condensation technique. Core build-up was done in 12 with light cure composite resin (Tetric N Ceram, IvoclarVivadent) followed by tooth preparation and PFM crown.

Under Local anaesthesia (2% Lignocaine with 1:80,000 Adrenaline), 11 was atraumaticallyextracted and withdrawn coronally by 2 mm, rotated to 180 degrees and transplanted back into the socket till it was stabilized within the alveolus. The transplanted tooth was splinted using wire and light cure composite resin from 13 to 23 for 2 weeks. After 2 weeks the splint was removed and the patient was assessed for gingival bleeding and mobility of the transplanted tooth.

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Post space preparation was done in 11 and 22 using Peeso reamers size 4 and 3 respectively. Wax pattern was recorded using type I inlay wax and custom made cast post was fabricated using lost wax technique. Cementation of cast post was done using Zinc Phosphate cement followed by PFM crown in 11 and 22.

The patient was periodically followed up for up to 36 months. At the end of this follow up period, patient was totally asymptomatic. The intra-alveolar transplanted tooth was clinically functional withgood gingival health and absence of mobility or periodontal pocket. Intra oral radiograph in relation to 12,11,21,22 region revealed that the root, alveolar bone were apparently normal with no evidence of root resorption or periapical pathology.

1. Pre-operative view- labial

2. Pre-operative view- palatal

3. Pre-operative radiograph 12,11,21,22

4. Postoperative radiograph 12, 11

5. Atraumatic extraction 11

6.180 degree rotation followed by intra-alveolar transplantation of 11

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