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CASE REPORT

REIMPLANTATION OF AVULSED ANTERIOR TOOTH: A CASE REPORT

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ABSTRACT

Tooth avulsion is defined as the complete displacement of the tooth out of its alveolar socket. Management of tooth avulsion in the permanent dentition often presents a challenge. Replantation of avulsed teeth is the most accepted treatment approach considering esthetic and functionality. The aim of this case report is to present the multidisciplinary treatment approach with avulsed maxillary anterior teeth.

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INTRODUCTION

Avulsion is the complete dislodgment of an intact tooth from the alveolar socket. According to Andreasen, avulsion of permanent teeth accounts for approximately 0.5–3% of all dental trauma (Andreason, 1995). It is classified as class V injury under classification of traumatic injuries by Anderson. It accounts for 16% of all injuries in permanent dentition and 7.2% of injuries in primary dentition (KatalinGabris, 2001). Loss of anterior tooth at anyoung age may have severe psychological consequences. The immediate replantation of a permanent avulsed tooth is essential to restore the function and esthetics and essential for long term success of the treatment. Avulsion presents a challenge with regard to its proper emergency management. As prognosis of a replanted tooth is directly depends on the viable periodontal cells. Use of physiological storage media like milk, saliva or saline is critical to maintain the viability of periodontal cells until professional help is obtained (Jyothi, 2011). Resorption is another area of concern to keep in mind while attempting the case of reimplantation and the prognosis depends on type of resorption. Endodontic treatment is necessary since, the pulp tissue may get necrosed or it may show periapical changes due to toxins which may get lodged during replantation procedure. Sterilization of canals is important during endodontic treatment and for success of the procedure (Indra Gupta, 2011).

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Case report

A 32year-old-lady reported to dental clinic because of fall from bike. The extraoral examination revealed swelling of upper lip and laceration (Figure 1). Intraoral examination revealed: Loss of right central incisor and left central incisor is slightly mobile and there is Ellis class 1 fracture with grade 1 mobility and slightly extruded from the socket. The radiovisiography showed the loss of right central incisor with a normal socket and no evidence of bone or tooth fracture (Figure 2). The avulsed tooth was brought by the patient in his hand within 20 minutes of the trauma. The teeth appeared normal with no signs of breakage. Patient had no relevant medical history. The periodontal ligament was not dried. The tooth was placed in normal saline (0.7%) when the patient arrived to the clinic. Local anesthesia was administered, then the area was cleaned with povidone iodine, and the tooth was then reimplanted into the socket with the help of finger pressure followed by radiograph to ensure its correct placement into the socket. The tooth was then splinted with fiber reinforced composite splint (Interlig, Angelus), along with the adjacent central incisor #21 which is having grade 1 mobility.

Figure 1. Avulsion of Tooth 11#

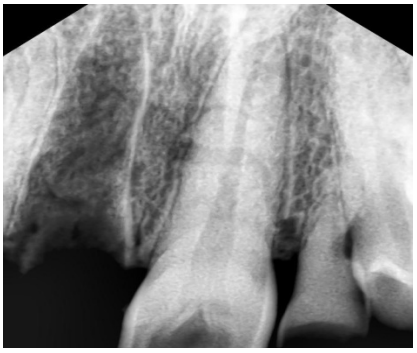

Figure 2. Radiograph of 11 and 21 teeth region

Patient was prescribed systemic antibiotics and analgesics, antitetanus serum was given. Instructions were given for the maintenance of oral hygiene and quitting of acidic beverages and soft diet was advised. Patient was recalled after a week, endodontic treatment was planned for both central incisors (#11,21). After access opening and biomechanical preparation, calcium hydroxide dressing was given and temporary restoration done. (Figure 3)

Figure 3. Tooth 11 and 21 after splinting

Patient is recalled after one week and obturation was done (Figure 4) and postoperative instructions were given. The tooth 11# which was avulsed is now stabilized and splint is removed after 4 weeks.

Figure 4. Radiograph after obturation

DISCUSSION

The success of avulsed teeth depends entirely in extraoral dry time between injury and replantation of the teeth. Teeth that have been replanted within 30 minutes of loss has good prognosis (Andreason, 1966 and Anderson, 1990). The choice of storage media for preserving avulsed teeth is important for success of replantation procedure. Ideally, the best solution is Hank's balanced salt solution (Blom, 1981 and Trope, 1992). Other storage media include milk, saliva, physiological saline, buccal vestibule (Blom, 1981 and Trope, 1992). During the treatment period, the patient was recommended to avoid biting on splinted teeth and maintain oral hygiene. Splints were removed after a week to prevent ankylosis. Another factor important in the prognosis of avulsed teeth is the closure of root apex. Petrovic et al. (de Jesus Soares, 2012), found that incisors with open apices have a lower survival and requires prolonged treatment, whereas incisors with closed apices have a high survival rate. In teeth with open apex, vitality of the teeth may be followed up after replantation by also considering the revascularization possibility.

Lasers were used which increase vascularization, activate cytokines, growth factors, necessary fibroblasts and chondrocytes and osteoblast proliferation that activates bond regeneration. Biomodulation of non differentiated mesenchymal cells to osteoblast occurs which increases healing. Collagen synthesis also increases by low level laser therapy (Weber, 2006). Additional systemic antibiotics and analgesics were prescribed. Consequently, root resorption and tooth loss possibility are known to be high in the replantation of the avulsed permanent teeth which were kept in improper physiological conditions and stayed outside of the mouth for a long period (Moradian, 2013). However, replantation treatment can be administered by considering that the missing tooth will create esthetic and functional needs, and permanent prosthetic solutions are not suitable for the growth and development period in pediatric patients.

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