

### Replant For No Implant

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#### Abstract

Avulsion or exarticulation is frequently encountered traumatic dental injury in young children mostly in the maxillary arch. The aim of this report is to present the case of an accidentally avulsed left maxillary central incisor replanted after an extraoral dry time of 3 hours. The avulsed tooth was replanted back into the alveolar socket using finger pressure and splinted with composite resin to the other teeth for a period of 2 weeks. Radiographic and clinical examinations were performed during 6 months follow-up and the tooth was asymptomatic without any mobility.

**Keywords:** Avulsion, replantation, root resorption

#### Introduction

Amongst all traumatic dental injuries tooth avulsion is most commonly seen ranging from 0.5% to 16% in permanent dentition and can exist frequently at any time of life.<sup>1</sup> Replanting the avulsed tooth is the best measure to be taken to preserve the esthetics and function after loss of tooth due to trauma. Maxillary central incisors are mostly involved with a male to female predilection of 3:1 and is mostly seen in young age due to the resiliency of bone, periodontium, and incompletely formed roots, leading to compromised esthetics and poor quality of life.<sup>2,3</sup> Andearsen reported the optimal replantation time for the best prognosis to be 5 minutes.<sup>4</sup> He also claimed success rate of reimplantation to be between 71% and

82% when avulsed teeth are replanted under more favorable conditions.<sup>5,6</sup>

This is a case report of management of accidental avulsion in a young adolescent male who reported with teeth to the dentist after an extraoral dry time of 3 hours.

#### Case Report

A 13 year old male patient reported to the Department of Pedodontics and Preventive Dentistry of ITS Dental College and Hospital, Greater Noida with missing upper front left tooth due to fall from a bike. The patient reported to OPD after 3 hours after the injury. The avulsed left central incisor was wrapped in a piece of paper. The crown of the avulsed tooth was intact and the root had a closed apex. The patient revealed no signs of any facial injury other than lip and gingival laceration. Intraoral examination revealed permanent dentition with missing maxillary left permanent central incisor, missing right lateral incisor and blood clot was also found in the alveolar socket (**Figure 1 and 2**).

The patient didn't report with missing lateral incisor from the sight of accident.

IOPA X-ray was taken to rule out any fracture of adjoining hard tissue and no tooth remnants in the socket. The patient was diagnosed with Elis class III irt 11 fracture and Lateral luxation with concomitant crown fracture N503.20 and N502.40 irt 11 and Elis Class V Fracture (N503.22) irt 21 and 12



Figure 1



Figure 2: The tooth was placed in the normal saline to clear any debris, then placed in 2% Doxycycline solution for 5 min and kept in 2% sodium fluoride solution for 30 minutes (Figure 3).

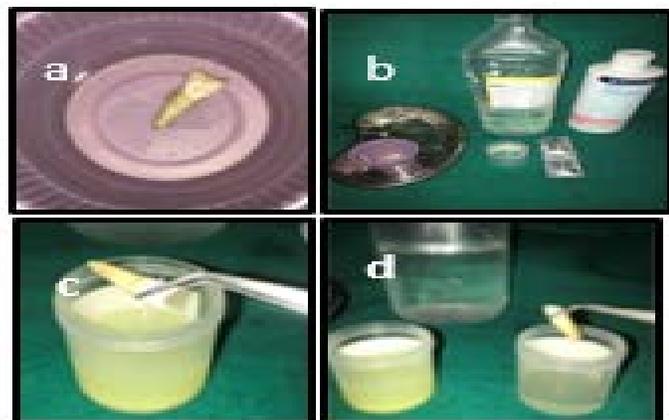


Figure 3: a) Normal saline b) Armamentarium c) Doxycycline d) Sodium fluoride



Figure 4: a) Extraoral root canal treatment b) Holding the tooth in a tweezer c) Irrigating the socket with normal saline



Figure 5: Intraoral photographs a) Placing the avulsed left central incisor with help of tweezers b) Replanting the extra orally endodontically treated left upper central incisor back into alveolar socket with help of finger pressure c) Semi-rigid splinting done from canine to canine d) Suturing done

The parents were given the line of treatment and consent was taken from them. Intentional extra oral root canal treatment (**Figure 4**) was carried out by preparing an access cavity, extripating the pulp, irrigating with 2.5% sodium hypochlorite to remove the pulpal remnants. The root canal was air dried and obturated with gutta percha followed by sealing the access cavity with Glass ionomer cement and composite restoration was done.

2% lignocaine was administered to the patient to anesthetize the tooth region by giving infraorbital and nasopalatine block. The tooth socket was irrigated with normal saline to remove any debris or blood clot present and the endodontically treated tooth was reimplanted back into the socket by finger pressure (**Figure 5b**). Simultaneously a Cvek pulpotomy was attempted with respect to right upper incisor after placing calcium hydroxide and glass ionomer cement. Semi rigid splinting to the adjacent teeth with flexible wire using composite was done from canine to canine (**Figure 5d**).

Composite build up was done with respect to the right upper front tooth. Then an IOPA radiograph was taken to confirm proper positioning of the replanted incisor (**Figure 6 b**)



Figure 6: Radiographic views in initial. (a) Radiographic image after avulsion. (b) Radiographic image after extraoral endodontic tooth is placed back in the socket. (c) The radiographic image after the replantation and splinting and Cvek pulpotomy with calcium hydroxide placed in it. (d) 6 month follow up radiograph.



Figure 7: a) Anterior view of replanted and splinted tooth after 7 days b) Post splint removal 2 week followup photograph

The tetanus toxoid injection was given intramuscularly. Antibiotics and analgesics were prescribed to the patient for 7 days and sutures were removed after a week. After 2 weeks the splint was removed (Figure 7) and the patient was asymptomatic with no mobility with respect to both the upper central incisors. Clinical and radiographic

follow up was done at 6 months (Figure 6) and no signs of ankylosis were seen and the absence of clinical and radiographic signs of infection with an intact lamina dura were suggestive of a favorable healing (Figure 6 d).

The patient was instructed soft food for 2 weeks, soft brushing and use of chlorhexidine (0.1 %) mouth rinse twice a day for 1 week.

### Discussion

The success of the replantation depend on the status of avulsed tooth, developmental stage of root, extraoral dry time, media of storage, the time taken for treatment and the modality used.<sup>7</sup> Physiological medias like saline, propolis, coconut water, probiotics, viaspan, HBSS, saliva in buccal vestibule, cold milk help in providing best medias for a successful reimplantation.<sup>8</sup> Milk remains the most convenient storage medium for an avulsed teeth which cannot be replanted immediately after the avulsion<sup>9</sup> Such a splinting technique is chosen that allows physiologic movement of the tooth during healing and is for less period to decrease the incidence of ankylosis. Semi rigid fixation for a period of two weeks was chosen.

It is necessary to splint the replanted tooth to the adjacent teeth flexibly during 7-10 days for periodontal healing. In the present case, the avulsed incisor had a closed apex and was kept in a dry media from the moment of trauma until its replantation 3 h later. The patient was recommended to avoid biting on the splinted teeth and instructed to brush other teeth, and keep the mouth and teeth as healthy as possible.

Prolonged extra-alveolar period and closed apex are the factors that cause deficiency in pulpal and periodontal healing causing a poor prognosis of the tooth. The replanted tooth was endodontically treated and calcium hydroxide intracanal dressing was applied to prevent inflammatory resorption.

Systemic antibiotics given at the time of replantation helps in preventing bacterial invasion of the necrotic pulp and subsequent inflammatory resorption. Tetracyclines have also reduced resorption by affecting motility of the osteoclasts and reducing effectiveness of collagenase. The administration of tetracycline twice a day for 7 days and Pencillin V 1000 and 500 mg 4 times a day for 7 days to 10 days till the splint is removed along with Chlorhexidine rinses for 7 to 10 days to maintain oral hygiene need was done.<sup>10</sup>

The inflammatory response after reimplantation is seen more in children and adolescents as compared to adults because of bone remodelling.<sup>7</sup>

### Conclusion

Prosthetic replacement of the missing incisor and impant is an alternative treatment options if the replantation isn't possible if the patient doesn't report with the missing tooth. However the best substitute for a natural tooth is that tooth itself.

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