

# DENTAL AVULSION-IMMEDIATE REPLANTATION AND MAINTAINING VITALITY: TWO YEAR FOLLOW UP CASE REPORT

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## ABSTRACT:

Management of avulsed tooth in the permanent dentition is a critical phase for the prognosis. For successful treatment such cases should be identified and treated immediately. This article gives a detailed immediate management of an avulsed permanent incisor with a follow up of 2yrs.

**Key words:** Injuries, tooth avulsion therapy, tooth replantation.



## INTRODUCTION:

Trauma to the anterior teeth is a most common dental problem in both children and adolescence. Dental avulsion is a complete displacement of a tooth from its socket due to trauma. Most of the traumatic injuries constitutes 0.5 – 16% which results in tooth avulsion of permanent dentition<sup>(1)</sup>. Avulsion most commonly affects the maxillary central

incisors. Avulsion is most commonly seen in children and young adults at an age where the alveolar bone is resilient and minimal resistance to the external forces. Prognosis depends on the time where replantation occurs within 20min or if the avulsed tooth is placed in a suitable storage media until a dentist can replant the tooth. Delayed replantation beyond 5min affects the tooth survival as defined

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by Andreasen<sup>(2)</sup>. Management and handling of avulsed tooth is a critical phase for the prognosis of the avulsed tooth which is reinserted into its original position or socket.

### STORAGE MEDIA

Various transport media such as Viaspan, Hank's Balance Salt Solution (HBSS), saline, saliva, milk, etc. Readily available storage media for an avulsed tooth in order of preference, are milk, saliva and saline<sup>(3,4)</sup>.

Failure of the treatment depends upon the people who are unaware of avulsion at the site of injury and knowledge how to manage an avulsed tooth<sup>(5)</sup>. If the periodontal ligament left attached to the tooth surface does not dry out, then it will affect the outcome of the treatment<sup>(6)</sup>.

The treatment should be directed in minimising the inflammation which occurs as a direct result of the avulsed tooth namely attachment damage and pulpal infection<sup>(7)</sup>. Delayed replantation of avulsed tooth can lead to complications such as inflammatory resorption. Prolonged extra oral storage of an avulsed tooth before replantation will lead to total necrosis of periodontal ligament and will affect the outcome of the treatment. The reported clinical success rate of delayed replanted avulsed teeth has been low. One of the causes for this poor rate is the lack of recognition that avulsed teeth are presented in the dental office under different conditions that require different treatments. Avulsion should be

understood because of proper initial care, long-term clinical and radiography.

The integrity of the periodontal ligament suggested by many researchers as being essential for the success of replantation cannot be controlled by the dental professional as it depends on the interaction of the factors<sup>(8,9)</sup>.

### CASE DETAIL:

A 12yr old young boy reported for emergency treatment at Department of Pedodontics and Preventive Dentistry with a history of fall in the school 15min before accompanied by his teacher.

The avulsed tooth was carried in a container which carried milk. He had little lacerations over his lip. Intraoral examination revealed no dento-alveolar fracture with normal adjacent teeth. The tooth was removed out from milk and it was cleaned with water spray and saline to remove superficial debris on the tooth surface and then tooth was placed HBSS solution which was available in the department. Assessment of socket, surrounding teeth and bone by palpating and radio-graphing injured site will determine whether the socket is intact and suitable for replantation. Then fresh bleeding was prompted in the alveolar socket and the tooth was placed into the alveolar socket. A radio-graph was taken to check the proper placement of avulsed tooth. Then splinting was done with the composite splint. Any sharp edges were smoothed and adjacent tissues were irrigated using betadine solution. Extra oral lacerations were cleaned and

dressing was done. After completion of the procedure patient was under systemic antibiotic coverage. Patient was recalled after 7 days for the follow up examination. Patient was asymptomatic after 7 days and after 2 weeks, removal of splinting was planned but splint was removed after 3<sup>rd</sup> week. Radiograph after 3 weeks showed normal periapical tissues and vitality showed normal results. Next patient follow up was planned after 6 months, 1yr and 2yr interval. The tooth gave normal vitality result and radiographs showed the normal periapical findings at the each interval.(**Figures 1-8**)

## DISCUSSION:

Trauma to the dentition is considered as an emergency situation. It results in functional and aesthetic disturbances. Avulsion of teeth is a serious assault on gingival and periodontal ligament. According to many studies it has shown that teeth replanted within 5min after avulsion at the best prognosis. The teeth which cannot be replanted immediately should be stored in an appropriate media such as normal saline, milk, saliva, hanks solution or water<sup>(10)</sup>. The pulpal and periodontal healing was inversely related to the stage of root development and the period of dry storage. The majority of traumatic injuries in children takes place either at home, school premises or playgrounds. In a serious accident, teeth are not the subject are of greatest interest, they are important for function and aesthetic<sup>(11)</sup>.

In the present case the patient reported immediately to the department with the

avulsed tooth in proper storage media milk and accompanied by his teacher. So it was considered a case which was having good prognosis. Some factors such as minimal extra oral time, carrying of the tooth to the clinic, and the young age of the patient enhance the result of the case. Root canal therapy was not carried out to reduce the extra oral time<sup>(12)</sup>.

Splinting is required routinely after replantation of the avulsed teeth. A splinting technique that allows physiological movement of the tooth during healing and that is in place for a minimal time period results in a decreased incidence of ankylosis. Semi-rigid (physiological) fixation for 7-10 days is recommended<sup>(13)</sup>. The splint should allow the movement of the tooth and should have no memory (so the tooth is not moved during healing) and should not impinge on gingival area, and should not prevent maintenance of oral hygiene in the area. In this case splinting was done for a period of weeks.

Systemic antibiotics were given at the time of replantation but their effectiveness in preventing root resorption is not mentioned<sup>(14)</sup>. To date, the value of antibiotic therapy in replantation has been demonstrated only in the experimental setting<sup>(15,16)</sup>.

Follow up evaluation was done at 1, 6, 12, and 24 months after replantation. The replanted tooth is determined to have a satisfactory outcome if it is asymptomatic, as normal mobility and eruption pattern, normal sound to percussion, and tests positive to vitality tests. As in the present

case due to minimal extra oral time, the root canal therapy was planned after placement of the tooth into its socket. But when follow up was done, the tooth gave normal vitality response and no periapical changes were seen in the radio-graphs.

Now, after 2yrs tooth is responding normal to all the tests and no root canal therapy seems to be required for this tooth<sup>(17-18)</sup>.

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**FIGURES:**



**Figure 1:** Socket before replantation.



**Figure 2:** Radiograph before replantation.



**Figure 3:** Splinting of teeth.



**Figure 4:** Immediate radiograph after replantation.



**Figure 5:** After 1 month.



**Figure 6:** After 6 months.



**Figure 7:** After 1 year.



**Figure 8:** After 2 years.