

A Case Report

Management of Avulsed Maxillary Permanent Teeth By Extended Time Replantation: A Case Report

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Abstract

One percent to sixteen percent of all acute dental injuries involve the avulsion of permanent teeth, which is considered a dental emergency. It often affects people in the 7 to 14 age range, and the maxillary central incisors are the most frequently affected teeth. Replanting an avulsed tooth can restore occlusal function and aesthetics. This article's goal is to detail the treatment of a 12-year-old male youngster who had his permanent maxillary central incisor avulsed and replanted seven days after receiving triple antibiotic root surface treatment.

Introduction:

1-16% of all dental traumas result in tooth avulsion, which is the complete removal of the tooth from its socket. The most common teeth to be avulsed are the maxillary central incisors. Even though avulsions can happen at any age, they tend to happen most frequently between the ages of 8 and 12 since this is when the periodontal ligament that surrounds erupting teeth is least densely developed and offers the least amount of resistance to an extrusive force.¹

Different types of dentition have different causes for tooth avulsion. A hard item striking the teeth is the main cause of avulsion in primary teeth, whereas falls, fights, sports injuries, motor accidents, and child abuse are the main causes of avulsion in permanent teeth.

The main objective of treating an avulsed tooth is to preserve and cure the supporting dental tissues in order to replant the avulsed teeth while also addressing esthetics, which might be of particular importance in young people.² The general health of the patient, the root's maturity, the length of time the tooth was out of the socket, the type of storage medium used, and the patient's level of dental cleanliness all affect the effectiveness of the replantation. The

duration of extra-oral time and the type of storage media have the greatest impact on the condition of pdl cells.³

The purpose of this case report was to describe a situation in which both maxillary central incisors were delayed in being reimplanted after a prolonged dry extra-alveolar interval of seven days.

Case Report

A 12-year-old child was referred to the pediatric and preventive dentistry division of PDM Dental College & Research Institute, Bahadurgarh, Haryana, India.

The patient accidentally fell down some steps at home seven days prior to coming to see us, landing directly on his maxillary central incisors. Following the incident, both central incisors were somewhat avulsed, and an extraoral examination showed only minor lip abrasions. Upon intraoral inspection, it was discovered that both of the maxillary central incisors were gone, and the area around the missing tooth and inflamed socket was surrounded by lacerated gingival tissue.⁴

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At the initial appointment, the tooth surface was cleaned by first keeping it in a 2.5% sodium hypochlorite solution for 20 minutes, then in an APF gel for another 20 minutes. By injecting 1ml of 1:80,000 adrenaline into the buccal vestibule of each of the maxillary central incisors, local anesthesia was induced. Betadine and saline were used to gently irrigate clean the empty sockets. Both sockets were gently irrigated with 0.9% saline solution for five minutes after being curetted with an API to eliminate any coagulation, granulation, and pathological tissue.

The working length of the canal was determined with 20 no. K files at the same appointment, and the canal was thoroughly irrigated with 2.5% hypochloride for 5 minutes. The BMP procedure was completed, the canals were dried, and a triple antibiotic paste including minocycline, metronidazole, and ciprofloxacin was made in the ratio 1:1:1 with macrogol and propylene glycol as the carrier.⁵GIC type II cement was used to seal

the access cavity. Patients were given oral hygiene instructions and were continued on a prophylactic antibiotic treatment for 5 days.(400 mg of metronidazole and 500 mg of amoxicillin, as directed, three times daily).

Following that, the prepared socket held the treated teeth, and a periapical radiograph was used to confirm their precise location.⁶Teeth were finally divided with neighboring teeth for 14 days following installation.

Following follow-ups were conducted at 1, 2, and 4 weeks after the patient was additionally prescribed gum paint. and the patient was then recalled at 1, 3, 6, 9 and 12 months. Clinical and radiographic evaluations were performed at each appointment. Splinting was changed to a fiber splint during the one-month checkup for aesthetic reasons.

Following follow-up, both clinically and radiographically, a favorable prognosis was observed.



Fig 1: Avulsed teeth treated with APF GEL.

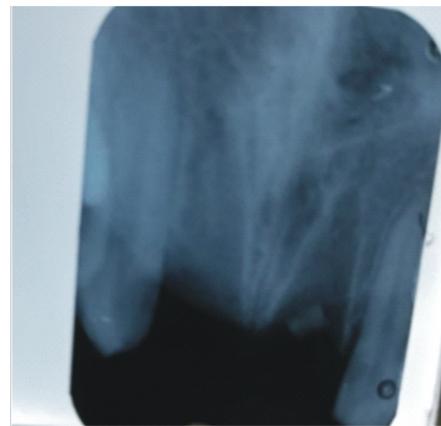


Fig 2: IOPA showing sockets with avulsed teeth



Fig 3: Extroral root canal treatment and placement of triple antibiotic paste in canal.



Fig 4: RVG showing the placement position of teeth in socket after replantation.



Fig 5: IOPA showing replanted teeth after replantation



Fig 6: Intraoral view of teeth after replantation and splinting.

Discussion:

The best time for re-implantation, according to Anderson, is within 5 minutes. However, the likelihood of finding the perfect conditions for replantation is extremely low in the Indian context due to a lack of dental and medical facilities as well as a lack of patient education regarding the storage of teeth after avulsion.⁷ We made an exemption in this instance based on the patient's age esthetics and maintenance of bone integrity. The maturity of the root apex (open or closed) and the state of the PDL cells influence the choice of treatment for avulsed teeth. There is a probability of sluggish root resorption if the root apex is closed, but this chance increases if the apex is open.⁸

The storage media is crucial to the effectiveness of replanting. HBSS, saline, milk, or saliva are good preservation options until the dentist can replant it. But in this instance, the extraoral storage period was 7 days, and the teeth were dried in paper wrap. After this, triple antibiotic paste was applied to the canals during the extraoral root canal procedure, which decreased the inflammation of Pdl fibers and their resorption. Tetracycline contributes to roots' delayed resorption.

Because of its antibacterial and tissue-dissolving qualities, hypochlorite (2.5% concentration was employed for 20 minutes), was used to disinfect teeth in order to stop the spread of infection.

For better socket healing and to improve the likelihood of successful replantation, sockets were cleaned and bleeding was induced. Even though half of the bone had already begun to resorb, we were still able to save a third of the remaining teeth thanks to this treatment, which will aid in bone remodeling in that location and also help with planning future prosthetic treatments like implants when the patient reaches adulthood.⁹

Conclusion:

Despite an extended period of extra oral dry storage, teeth had to be replaced because of aesthetics and the necessity to preserve bone integrity for future treatment modalities.

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