

REPLANTATION OF AVULSED MATURE PERMANENT INCISORS AFTER PROLONGED EXTRAORAL DRY STORAGE

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AIM

The aim of this case report is to present the clinical and radiographic outcomes of a replanted avulsed permanent tooth managed according to current guidelines.

INTRODUCTION

Dental avulsion is a severe traumatic injury that, in mature teeth with closed apices, leads to pulp necrosis after replantation and requires early root canal treatment to prevent external inflammatory root resorption.

MATERIALS AND METHODS

A 16-year-old female patient presented to our clinic 15 hours after dental trauma following an epileptic seizure. The maxillary permanent central incisors (teeth #11 and #21) with closed apices were avulsed and stored dry in a paper tissue. Clinical and radiographic examination revealed a concomitant alveolar bone fracture. After gentle saline irrigation of the roots and sockets, the teeth were replanted by manual compression under local anesthesia without a vasoconstrictor and stabilized with a semi-rigid splint. Root canal treatment was initiated one week after replantation. The glide path was established using ISO 10 and 15 K-files, followed by chemomechanical preparation with reciprocating files and sodium hypochlorite irrigation. Working lengths were determined using an electronic apex locator and confirmed radiographically. After irrigation with sodium hypochlorite and 17% EDTA, calcium hydroxide-based intracanal medicament was placed, and access cavities were temporarily sealed. After two weeks, root canal obturation was completed using a single-cone technique with a bioceramic-based sealer. The semi-rigid splint was removed four weeks after the trauma. At the 6-month follow-up, the teeth were asymptomatic with satisfactory clinical and radiographic healing.



Pre-op Intraoral Photograph



Avulsed Teeth



Pre-op X Ray



Post-op Intraoral Photograph



6 Months Follow-Up



Post-op X Ray

6 Months Follow-Up

RESULTS

At the 6-month follow-up, replanted teeth were asymptomatic and demonstrated clinical findings with radiographic healing and no signs of inflammatory root resorption.

DISCUSSION

Dental avulsion is one of the most severe forms of dental trauma, with prognosis strongly influenced by extra-oral dry time, storage conditions, root development, and the timing of endodontic intervention. In the present case, both maxillary central incisors with closed apices were stored dry for approximately 15 hours, a condition known to compromise periodontal ligament cell viability and increase the risk of inflammatory root resorption and ankylosis; nevertheless, replantation was performed in accordance with current guidelines to preserve alveolar bone, function, and esthetics.

CONCLUSION

This case demonstrates that successful short-term outcomes can be achieved in high-risk avulsion cases despite prolonged extra-oral dry storage when appropriate replantation and endodontic management are applied.