

## Therapeutic Management of an Avulsed Mature Central Incisor: Better Understanding for Better Outcome

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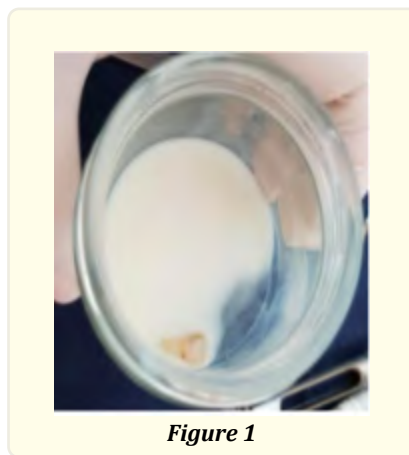
### Introduction

Avulsion of permanent teeth represents the most dramatic accident among active young patients. That's why this traumatism should be managed immediately and correctly to restore damaged structures and function, which can affect daily patient's life. Treatment of tooth expulsion is often complicated and challenging. Prognosis can be poor as it is in relation with the damage severity of both tooth and supporting tissues. Other factors can affect the prognosis such as status of traumatised tooth, root maturation, extra-oral time and storage conditions prior to the replantation and duration of splinting. Guidelines about management of total avulsion are available and periodically updated by experts. However, the clinical efficacy of the treatment guidelines differs from one situation to another since clinical evolution is unpredictable [1, 2].

Therefore, our case report aimed to assess the effect of different variables such as extra-oral time, storage media, splinting time and time to initiation of endodontic treatment on the long-term prognosis of a replanted permanent tooth [3].

### Clinical Observation

A 16-years old girl presented to our department after dental trauma sustained in the maxillary anterior region, as well as the avulsion of left central incisor. The trauma occurred 24 hours ago where the girl during an assault. First examination had reported no neurological damage or medical complications. Medical history of the patient was irrelevant. The affected tooth was stored in a cup of milk (figure 1). The Clinical examination showed laceration on lower lip and avulsion of maxillary left central incisor (figure 2). Radiographic examination showed the absence of alveolar bone trauma or other dental tissue injuries (Figure 3). The examination of the affected tooth showed that it was mature with a closed apex. The root surface was covered with dirt and dried necrotic periodontal tissue [4].

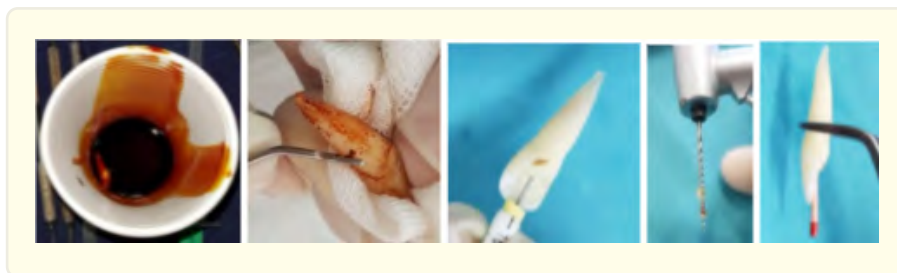


**Figure 1**



**Clinical management**

**1/Prior to replantation**



Desinfection of the tooth in povidone iodine , Elimination of necrotic periodontal ligament using an excavator , Pulp was extirpated, Endodontic treatment was performed using rotary files , Canal was obturated using gutta percha cones.

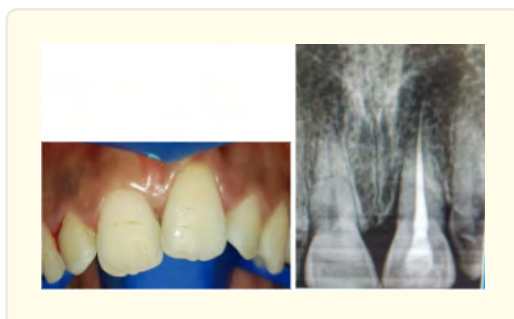
**During replantation**



The socket was gently cleaned to remove any coagulum, granulation tissue and then irrigated with saline. Gingival laceration was sutured. The affected tooth was replanted slowly with no occlusal interference, and attached to other teeth with a flexible splint during

4 weeks. A Periapical radiograph was performed after replantation to confirm the right adaptation of the tooth [5].

**FOLLOW UP**

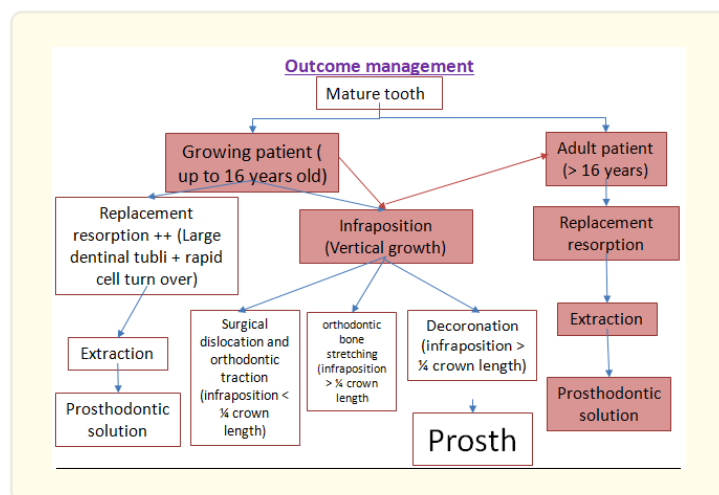


3 years follow-up: Clinical examination showed infra-position of the replanted tooth. Radiographic exam showed replacement resorption interesting the apical third of the root. Thus we indicated extraction of the tooth and its replacement with an implant.

**Discussion**

<i>Factors influencing the prognosis</i>	<i>Effect on prognosis</i>	<i>Our clinical case</i>	<i>Tips/ changes/ Recommendations</i>
Extra-alveolar time: 24 hours	(-) PDL: Non viable Pulp: Necrotic	Immersion of the tooth in a povidone iodine solution. Elimination of the totality of PDL.	Application of fluoride 2%/ Emdogain
Storage Media	(+/-)	Tooth was placed in milk	Cooled milk provides better cell viability. Rice water / probiotic media / HBSS.
Time to initiation endodontic treatment	(+)	Mature tooth: prior to replantation to prevent early inflammatory resorption	Delayed endodontic treatment and prolonged calcium hydroxide therapy in replanted teeth increases infection-related resorption
Splinting Time	(+/-)	4 weeks in case of absence of alveolar bone fracture	The AAE recommends time of 2 weeks if the extra alveolar time exceeds 60 min to prevent ankylosis
Age of the patient	(+/-)	16 years: limited growth factor	Outcomes will be managed for adult patient

### Outcome management



### Conclusion

Awareness regarding medical first aid guidance should be boosted so we can save avulsed teeth. In presence of special physiological storage media and correct management, prognosis of replanted teeth is improved.

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