Opinion Article

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Dental Avulsions: If Immediate Replantation was Impossible

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Opinion

Traumatic dental injuries represents a serious dental health problem especially among children and young adults. One of them is tooth avulsion, "Avulsion" is used to describe a situation in which a tooth has been removed from its socket as a result of severe trauma. As well as teeth (the neurovascular bundle at the root apex, the cement layer of the tooth) and environmental support tissues (the periodontal ligament (PDL) fibers, alveolar bone, and the gingiva) are all damaged seriously with tooth avulsion [1]. Incidence of avulsion account for 0.5% to 16% of traumatic injuries in the permanent dentition [2]. Maxillary incisors are most commonly affected. Tooth avulsion has been puzzling for many pediatric dentists. Because the management of avulsion is effected several factors alone either or together. These factors are root development, extra-alveolar period, storage medium, the patient's age and medical status, development of the dentition, concomitant dentoalveolar injuries and type and duration of splint. Replantation is the only treatment choice, but careful assessment of the cases is most importance for the avulsed tooth to be successfully replanted. The successful treatment outcome after replantation of the avulsed tooth is pulp survival and periodontal healing and minimal bacterial contamination [3]. Especially extra-alveolar period and storage medium determine the success of replantation directly. The time until replantation ranged between 15 minutes and 10 hour in some studies [1,4]. The extra-alveolar period should ideally be a maximum of 20 minutes to 30 minutes for the best prognosis for replantation [2,5]. However, ideal timing for immediate replantation is not always possible, thus late replantation is applied. Some factors such as lack of knowledge of the people about management of an avulsed tooth, unavailability of finding appropriate storage medium and bleeding due to soft tissue injury mask the loss of teeth have not allow this situation always.

When late reimplantation decision taking, it must be concentrate on applications to prevent the ankylosis-related resorption (replacement resorption) and infection-related (inflammatory) root resorption. In delayed reimplantation, it has been suggested that removal of necrotic periodontal ligament remnants and applying of a number of materials and methods on root surface to resist the root any type of resorption such as sodium floride, stannous fluoride, tetracycline, citric acid, hypochloric acid, calcium hydroxide, formalin, alcohol, diphosphonates, indomethacin. Fluoride acts on cementum, convert hydroxyapatite to a more resistant substance, fluorapatite. Also it inhibits microbial growth and metabolism and probably has a specific inhibitory action on the clastic cells. Generally semi-rigid splints have been suggested for replanted tooth but the duration of the split varies depending on various factors such as concomitant trauma, developmental stages of the avulsed tooth root, the time of endodontic treatment etc.

The replantation of maxillary incisors maintains growing of bone and soft tissues of alveolar process. Also, replantation of avulsed tooth is crucial for providing of esthetic, functional and psychological requirements of patients. Therefore some factors such as extra-oral period and type of storage medium of avulsed teeth should not be an obstacle for replantation. It was demonstrated that replantation of the tooth which was in acceptable media for 15 hours before replantation had acceptable prognosis during 3 years of follow-up [6]. However, the dilemma continues about delayed replantation of avulsed teeth between practitioners.

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