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| **Name:** |
| Chloë Philip |
| **Group:** |
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| **Pathology Question:** |
| What are the factors that contribute to the success of an avulsed tooth? |
| **Report:** |
| Dental avulsion, typically due to trauma, is when a tooth is completely removed from its socket and alveolus. Consequences of this type of injury include: hypoxia, root resorption, and periodontal ligament breakdown which contributes to pulp necrosis and periodontium damage. Early replantation of the tooth shortly after the injury along with correct treatment and follow up care is crucial for the survival and success of an avulsed tooth. (1, 2) It is important to note that even with successful replantation of an avulsed tooth, long-term complications such as resorption, ankylosis, and infections, are at an increased risk in these teeth (3).  The main factor affecting the success of an avulsed tooth is the timing of reimplantation. When an avulsed tooth is immediately replanted after its injury, its prognosis increases because the periodontal ligament (PDL) cells still attached to its roots remain viable. Vital PDL cells can reattached with the replanted tooth if they are hydrated; this allows for normal PDL healing and decreases the incidence of the tooth presenting symptomatic, being mobile, or radiographically, loss of its lamina dura (1, 4). Ideally, an avulsed tooth will be replanted within 20 minutes after the injury and, if not done by the dentist, can be done by the patient. If this is not possible, the tooth should be placed in a suitable storage medium that can keep the PDL cells vital. Such storage mediums include tissue transport medium, or more readily available milk or saliva (1, 2, 3).  After replanted, a splint or holding device should be put on the avulsed tooth and left on for at least 10 days. Proper care during this time is also a contributory factor to the success of the tooth. Maintaining a soft diet, not biting directly on the holding device, and maintaining proper oral hygiene care around the tooth will, over time, aid in having normal PDL healing with no radiographic or clinic abnormal findings. However, depending on the patient’s inflammatory response and timing of replantation following injury, surface resorption, ankylosis, and external root resorption may occur (1, 2). After placing the splint, testing of the tooth’s vitality will be performed to determine if a root canal treatment is needed.  Maintaining a regular recall schedule of patients for the first`` year, and then annually over the next five years, with avulsed teeth is also vital in the long-term success of the tooth. Consistent radiographic and clinical monitoring of the tooth’s mobility, eruption pattern – when applicable, and pulp can allow for preventative treatment without losing the tooth (1, 2, 3). |
| **References:** |
| 1. Muhamad, A., Nezar, W., Azzaldeen, A. (2014). Reimplantation of Avulsed Permanent Anterior Teeth: A Case Report. *Research and Reviews: Journal of Dental Sciences, 2*(4), 43-52. 2. Ram, D. & Cohenca, N. (2004). Therapeutic protocols for avulsed permanent teeth: review and clinical update. *Pediatric Dentistry 26(3)*, 251- 255. 3. Trope, M. (2011). Avulsion of permanent teeth: theory to practice. *Dental Traumatology 27(4), 281-94.* 4. Söder PO, Otteskog P, Andreasen JO, Modéer T. (1977). Effect of drying on viability of periodontal membrane. *Scandinavian Journal of Dental Research 85(3),* 164 -8. |