Overview of Trauma Management for Primary and Young Permanent Teeth

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KEYWORDS

• Dental injuries • Traumatic injuries • Avulsion • Luxation • Intrusion
• Crown fractures • Root fractures

KEY POINTS

- Falls are the most frequent cause of dental trauma among preschool and school-age children. Sports-related injuries and altercations are more common in adolescents. Dental trauma may be an indication of child abuse.
- Dental injuries are a subset of head trauma. The history in children with dental trauma should include the time, place, and mechanism of the injury and a thorough neurologic history.
- Avulsed primary teeth should not be reimplanted.
- Avulsed permanent teeth should be reimplanted immediately by the first capable person (eg, the injured child, a parent, teacher, coach, neighbor.) If immediate replantation is not possible the tooth should be stored in cold milk or in a cup with the child's saliva. It should not be stored in water.

Managing injuries to children's teeth in the primary and early mixed dentitions can be challenging. Injured children and their parents are often anxious and this can complicate the provision of prompt, appropriate care. The clinician must be able to assess the injury, prioritize treating those problems that require immediate attention, and minimize the child's fear and anxiety.

An excellent online resource for current treatment guidelines is *The Dental Trauma Guide* (http://www.dentaltraumaguide.org).[1] This guide, developed by Dr Jens O. Andreasen and sponsored in part by the University Hospital, Copenhagen and the International Association for Dental Traumatology (IADT), contains updated guidelines on a broad array of dental injuries and is easy to use.

EPIDEMIOLOGY AND CAUSE

Differences in study design and sampling criteria make precise estimates of the incidence and prevalence of dental injuries difficult to determine. Up to 40% of preschool

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children suffer injuries to their primary teeth, with the peak incidence occurring in the toddler stages (2 to 3 years), when young children are developing their mobility skills.[2,3] Falls during play account for most injuries to young permanent teeth.[4] Children who participate in contact sports are at greater risk for dental trauma, although the use of mouth guards reduces their frequency. Automobile accidents cause many dental injuries in the teenage years, particularly when occupants not wearing seatbelts hit the steering wheel or dashboard. Many apparently minor dental injuries go unreported, so it is safe to assume that up to half of all children suffer some dental trauma.

Maxillary central incisors are the most commonly injured teeth, followed by the maxillary lateral incisors and the mandibular incisors. The ability of the upper lip to protect the maxillary teeth is affected by the degree of prominence of the anterior teeth (**Fig. 1**). The normal horizontal distance between the maxillary and mandibular incisors (overjet) is between 1 and 3 mm. Overjets greater than 4 mm increase the likelihood of dental trauma by 2 to 3 times.[5,6]

Dental trauma may be an important clinical marker for child abuse, because up to 50% to 75% of all cases involve some form of orofacial injury.[7]

Potential signs of child abuse include:

- Bruises in various stages of healing indicating multiple traumatic incidents
- Torn upper labial frena
- Bruising of the labial sulcus in young, preambulatory patients
- Bruising on the soft tissues of the cheek.

EVALUATION

History

Knowing when, where, and how the injury occurred assists the clinician in determining the severity of the injury. The time that has elapsed since the injury took place affects the treatment and, in most cases, the prognosis. Knowledge regarding the mechanism of injury helps to determine the severity of the injury and the risk of associated injuries. A thorough neurologic history should be obtained, because dental injuries are a subset of head trauma.[8] The patient should be promptly referred for medical evaluation of a potential closed head injury if any of the following signs are present:

- Dizziness
- Headache

Fig. 1. A large horizontal overjet increases the risk for dental injury.