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PROBLEMS AND PITFALLS

Diagnosis and management of common maxillofacial injuries in the emergency department. Part 5: dentoalveolar injuries

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Injuries to teeth can be very distressing for patients. Prompt treatment is essential. Injuries of the tooth bearing portion of the mandible are common and can even result after a relatively low impact trauma. The alveolus (tooth bearing portion of bone) and/or the tooth may be damaged. Segmental fractures involve multiple teeth and the supporting alveolar bone.

INITIAL MANAGEMENT

Treatment of alveolar bone fractures requires manually repositioning the segment of displaced teeth back into proper alignment. The patient should be promptly referred to the maxillofacial service. This may be done under local anaesthetic. Dental impressions are taken and a splint is fabricated and applied.

Avulsed teeth

Deciduous teeth—that is baby teeth—should not be reimplanted as to do so may cause further injury to the developing permanent teeth. The average ages of eruption of permanent dentition in years is shown in fig 2. Reimplantation of the avulsed teeth is unnecessary in children less than six years of age.

Reimplantation of permanent tooth should be carried immediately, as periodontal ligament cells, which attach the tooth to the bone, necrose after 2 hours. The goal of reimplantation is to preserve the periodontal ligament.

Contact with the root of the tooth is best avoided to prevent further damage to the periodontal ligament.

Hold the tooth by the crown and gently wash it in saline. Do not attempt to sterilise the tooth. Do not remove the clot formed in the socket prior to reimplantation of the avulsed tooth. Replace the tooth in the socket. Compress the buccal and palatal/lingual alveolar plates. If the tooth does not seat easily, get the patient to bite on some gauze. The patient should be commenced on oral antibiotics (metronidazole), analgesia, and chlorhexidine mouth wash. Tetanus prophylaxis should be administered if the patient's immunisation is not up to date.

The tooth should not be allowed to dry under any circumstances as the periodontal ligament will die. Ideally the tooth should be reimplanted within five minutes but if this is not possible it should be stored in a medium that will help maintain vitality of the periodontal ligament fibres.

Storage media

Saliva is always available (place tooth in buccal sulcus of the patient's mouth).

Beware of doing so in a child as there is a risk of aspiration of the tooth. Ice cooled milk is the next best temporary storage medium of the avulsed teeth. Saline should be used as a last resort.

All intraoral lacerations must be cleaned and explored, looking for any foreign bodies. The oral

Dentoalveolar injuries may present in isolation or are associated with other injuries (mandibular, zygoma fractures). Teeth may be knocked out, fractured, forced out of position, or loosened. A dental avulsion occurs when the tooth is completely displaced or knocked out of the tooth socket. The central incisor is the most commonly avulsed tooth and children aged seven to ten years are most at risk.

HISTORY

It is important to obtain the cause and mechanism of injury, the length of time any tooth was avulsed from its socket, and the tetanus prophylaxis history. Ask about loose or mobile teeth or an altered bite. A medical history is required to include the need for bacterial endocarditis prophylaxis.

CLINICAL EXAMINATION

Commence with the extra oral soft tissues, noting the presence of any bruising or lacerations. Ensure that no facial fractures are present. Intraoral examination should begin with the soft tissues, noting the state of the lips, mucosa, and gingiva. It is important to check that no tooth fragments are buried in the mucosa. All teeth should be accounted for and if you are unable to account for all teeth a chest radiograph is mandatory. If teeth are inhaled they will usually be seen in the right main bronchus (fig 1). It is also imperative to remember that patients can inhale avulsed teeth even when they are conscious.

Ask the patient to clench their teeth to evaluate their occlusion.

Assess the mobility of the teeth and alveolus.

RADIOLOGICAL ASSESSMENT

An oral pan tomogram and posterior anterior mandible are helpful. A chest radiograph is required if teeth are unaccounted for.

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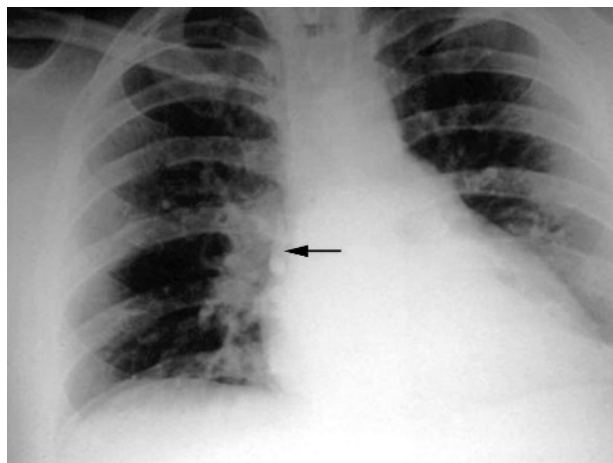


Figure 1 Chest radiograph showing lodged tooth in the right main bronchus

frenum, if torn, will heal without long term consequences.

Lacerations of the lips may be sutured. Local anaesthetic (2% lignocaine with 1: 80 000 adrenaline) is administered. The lips must be thoroughly inspected and washed to ensure there is no buried foreign material—for example, tooth. Vicryl is the suture of choice.

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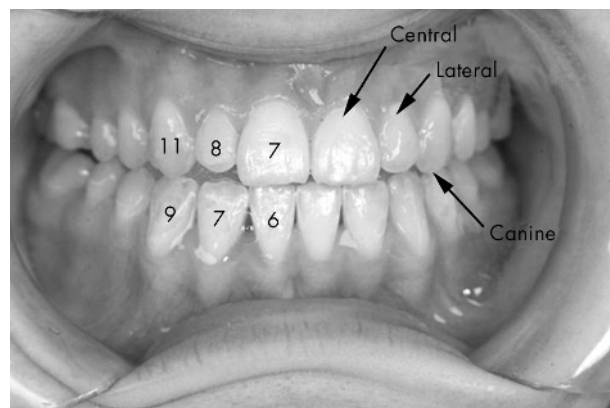


Figure 2 Average ages of eruption of permanent dentition in years

Suggested further reading

Andreasen JO, Andreasen FM. Essentials of traumatic injuries to the teeth. 2nd edition. Copenhagen, Denmark: Munksgaard and Mosby, 2000.

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