

Dr. Dale M. Gallagher, Oral and Maxillofacial Surgeon, presents

Practical Practice Pearls

For Dental and Medical Professionals

This newsletter is published monthly and contains useful information about current pharmacology and therapeutics, pathology, techniques, and procedures used for the management of diseases and conditions of the hard and soft tissues of the face and mouth. Please contact us to be added or removed from our fax list, and/or with your comments and suggestions for "Pearl Topics". Copyright 2003 by Dale M. Gallagher, DDS, PA, 12210 Pecan Street, Austin, Texas 78727 phone: 512 258-1636; fax: 512 258-6352; email: dgallagher@jawpain.com

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Dentoalveolar Trauma (DAT)

We have all received calls to manage dental trauma, many of these come on weekends or after office hours, times when children and adults are outside riding their bikes, playing sports and engaging in outdoor projects. Depending on the nature of the trauma, injuries may be isolated or extensive. Swelling, bleeding, malocclusion, disfigurement, and anxiety are early consequences of DAT.

Dentoalveolar injuries are most commonly located in the anterior maxilla, followed by the anterior mandible. The injury may be isolated to the dentition, but most commonly involves the dentoalveolus. Teeth may be avulsed or subluxed, the alveolus can be grossly intact or comminuted. Remember that the teeth are harder than the alveolar bone, so it is common for teeth to be intact even though the bone around them is fractured. Debris from the ground, pavement or injuring device may be present in the mouth or in adjacent tissues. The goal of treatment is to restore a functional dentition through normalization of alveolar contour and volume, even if the injured teeth are lost. That is, if teeth are lost, then the alveolus should be restored to accommodate future implants and/or a removable prosthesis.

A comprehensive head and neck physical evaluation should be completed to rule out fractures of the mandible, other facial bones, and cervical spine. Document the exam with written records, photographs and radiographs. All DAT patients should receive a panoramic radiograph. When fractures of the teeth are extensive, the more detailed periapical radiographs will help to locate root fractures and/or retained roots and debris from restorations or other foreign bodies. If teeth and/or restorations are missing, their location must be determined. Abdominal or chest x-rays may be necessary to rule out aspiration. Unfortunately, DAT is often associated with insurance claims and litigation, so be very precise and complete with documentation.

In our practice, the most common recipient of DAT is the younger patient with a mixed dentition. Frequently, a central incisor will have been avulsed with an accompanying gingival and labial tissue injury. Ideally, an avulsed tooth should be immediately re-implanted into the socket even before the patient is brought to the office or the emergency room. If this cannot be done the tooth should be placed in moist gauze. It is not unusual that parents will put the tooth in milk. Although not harmful, milk's only contribution is to keep the tooth from desiccating. If tooth has been out of the alveolus for an extensive period (greater than an hour), then the results of re-implantation are compromised and the possibility of infection is high. Infection will result in the loss of alveolar mass and make the final rehabilitation/reconstruction of the traumatized area more difficult. It is our preference to *not be extremely heroic* in reimplanting teeth, but direct treatment to restoring the alveolar contour and volume, preserve an infection-free environment, and replace missing teeth after an appropriate period of healing with

dental implants.

Avulsion, dentoalveolar fractures, and subluxation of teeth must be treated early with stabilization with arch bars, acrylic splinting, or interproximal bonding as is done for periodontally compromised teeth. At times, it may be necessary to construct an acrylic bite splint to preserve alignment of the dental arch. The dentition is stabilized for three to four weeks. The teeth will still be mobile, but the mucogingival tissues will be epithelialized. Orthodontic brackets and arch wires (and pulpotomy if necessary) is done at this time. A soft diet for 2 months helps avoid excessive function upon the injured dentoalveolus.

Injuries to the primary dentition often involve intrusion of the tooth into the alveolus. A primary anterior tooth intruded as a result of a blow may be expected to re-erupt. Teeth may subsequently function normally, undergo normal resorption, and be replaced by the permanent successor. However, if the tooth undergoes pulpal necrosis (discoloration, fistula) or when internal root resorption is evident, these teeth should be extracted. The prognosis for severely loosened, displaced but not intruded, primary teeth is poor because they remain mobile, often undergo resorption, frequently become infected, annoy the child, aggravate the parents, and should be removed. Be sure to maintain space for eruption of the permanent teeth.

Intrusion of a permanent tooth, often an incisor, is treated according to maturity of the apex. The closed-apex tooth found in an adult patient will often require early root canal therapy. The more open-apex tooth found in a younger patient may recover from their injury, continue normal development, and remain asymptomatic. It is best to advise all patients and parents that RCT may be needed years later if discomfort, infection, resorption, *etc.*, are observed.

The complications of dentoalveolar injuries generally include infection of the injured tooth/teeth or bone, loss of dental vitality, ankylosis, root resorption, loss of teeth, bone loss, periodontal defects, and malocclusion. Altered and abnormal function can be the result of any of these problems.

The medical management of injured patients is necessarily modified by the severity of the injury. All patients should receive prescriptions for appropriate antibiotics, and analgesics. Chlorhexidine mouthwash is mandatory for DAT. It is better to have a little dental staining than no teeth to be stained.

Whereas the consequences of DAT are dramatic, few areas of the body enjoy such a rapid rate of healing. Patients will experience reduced pain and swelling within days after their injury. The goal of all treatment rendered by the medical-dental team is the early and complete restoration of function and cosmetics. Close observation and radiographic evaluation is necessary for months to years after these injuries to insure the continued health and integrity of the injured area.