Temporomandibular Joint (TMJ) Syndrome
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Temporomandibular joint (TMJ) injury encompasses soft tissue damage to the supporting jaw musculature and internal derangement or arthrosis of the joint itself. Although causes of TMJ dysfunction remain obscure, associated sequelae include painful syndromes that are difficult to differentiate from neuralgia and may be sustained by malocclusion or oral habits. Dental therapy with splints and appliances may be required for equilibration of the joint. TMJ symptoms have been associated with stressful life events and illness-seeking behavior; however, data linking TMJ syndrome to psychopathological indices in personality tests are conflicting. Painful sequelae of TMJ syndrome may require management with electromyogram (EMG), biofeedback and/or relaxation techniques.

Temporomandibular Joint Injury: An Overview

Chronic atypical pain of the head and neck that is not relieved by orthopedic therapy may indicate injury to the temporomandibular joint (TMJ) and its related musculature. The most prevalent form of TMJ injury is external pterygoid muscle trauma with associated protective splinting of other muscles of mastication and the head and neck muscles controlling mandibular function. Eventual dental and psychological management of TMJ dysfunction may be required.

Persistent post-traumatic headaches and atypical facial pain are often associated with injury to the temporomandibular joint (TMJ) and its related musculature. The initial trauma to the joint and musculature can be sustained by pre-existing dysfunctional patterns of the teeth and jaws. These dysfunctional patterns can be caused by a malocclusion (bad bite) and/or behaviors such as bruxism (clenching or grinding of the teeth) and parafunctional habits (mouth movements consistently out of the normal range of motion).

Temporomandibular joint injuries are usually classified in two groups: (1) soft tissue injury to the muscle that positions the joint, with associated muscle splinting (a physiologic response to injury of a muscle that functions within a myotonic unit or a group of cooperatively and antagonistically functioning muscles); and (2) damage to the joint itself, manifested as internal derangement (injury to the joint with functional impairment) or arthrosis (adhesions or traumatic arthritis of the joint).

If a patient presents with persistent atypical pain of the head and neck that does not respond to orthopedic care, damage to the temporomandibular joint and its associated musculature should be considered. For example, when the head is sharply and unexpectedly thrown backwards, the infrahyoid muscles, in a state of tonic contraction, maintain the mandible in a fixed position. This has the effect of thrusting the jaw forward with such force that the head of the condyle, or the articulating member of the mandible, can tear the external pterygoid muscle that
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precisely positions the teeth together in chewing, speech and function. This force can even tear the ligaments of the joint itself, dislocating the meniscus of the temporomandibular joint. (See Fig. 30-1 and Fig. 30-2.) The resultant functional impairment can range from limitation and alteration of jaw movement to severe chrome pain syndrome and its physiological and social sequelae.

To view figure 30-1 and figure 30-2, click here. (please see attached file- "LCP 5-Lesson 1- Figure 30-1 and Figure 30-2.pdf")

The most common TMJ injury is trauma sustained by the external pterygoid muscle with associated protective splinting of the other muscles of mastication and the head and neck muscles that controls complex patterns of mandibular movement. These muscles include the external pterygoids, which position the jaw and the meniscus of the temporomandibular joint; the masseter temporalis and medial pterygoid muscles, which govern the closure of the jaw; the infrahyoid muscles, which assist the external pterygoids in jaw opening, and the trapezius, sternomastoid and scalene muscles that stabilize the skull during mastication. (see Chapter 10, Facial Injuries, in Attorney’s Textbook of Medicine. New York: Matthew Bender and Co., Inc., 1986.)

Indications of traumatic TMJ injuries include the occurrence of site-specific pain within 24 to 48 hours of an accident, that is, neck or headaches and/or shooting facial pains, popping in either temporomandibular joint, limitation of jaw opening, or inability of the teeth to fit together as they did before trauma. (See also Chapter 14, Pain in the Joints and Chapter 35, Facial and Dental Pain, in Courtroom Medicine: Pain and Suffering. New York: Matthew Bender and Co., Inc., 1988.) Janet G. Travell, M.D. (1986) points out that TMJ pain patterns are typified by headache or atypical facial pain that radiates along the head, refers pain to the ears, generates pain in the neck, and through the scalene entrapment radiates pain down the arms to the fingertips. TMJ injury may also produce episodes of dizziness, blurring of vision, ringing in the ears and perception of malocclusion.

In our society, most people have some degree of malocclusion due to dental restorations, missing teeth, uneven wear of present dentition or ill-fitting dentures. Such pre-existing malocclusion can sustain the effect of the initiating trauma with the result that retained myofascial pain patterns can become more compelling. (See also Chapter 129A, Psychological and Dental Influences on Temporomandibular Joint Syndrome, in Damages in Tort Actions. New York: Matthew Bender and Co., Inc., 1987.)

References