



INFORMATION FOR HEALTH CARE PROFESSIONALS



Dental Causes of Headache

Steven B Graff-Radford, DDS

The Program for Headache and Orofacial Pain; The Pain Center. Cedars-Sinai Medical Center, Los Angeles, CA

Teeth, Jaws and Related Structures

The most common cause of intra-oral pain is dental disease. Inflammatory dental disease may be pulpal, periodontal or a combination of both. Symptoms generally resolve after dental therapy, but post-operative persistent pain or dysesthesia can ensue. Acute dental pain may spread unilaterally but (unlike headache) rarely crosses the midline. The clinical characteristics are intense, throbbing, poorly localized and generally provoked by stimulation of the offending tooth (1). Differentiation from comorbid headache pain does not usually pose a significant diagnostic dilemma. There are occasions, however, where primary headache disorders like migraine, cluster, or paroxysmal hemicrania are located in the lower half of the face and mimic acute dental disease (2). The diagnosis of atypical facial pain is controversial, and not even recognized in the IASP Chronic Pain Classification (3). Atypical odontalgia (AO), which is considered a subcategory of atypical facial pain, is defined as a localized pain in a tooth or tooth site (3), its etiology is usually neuropathic. Pain from these neuropathic conditions may be confused with headache and are best evaluated with careful examination assessing the presence of allodynia, hyperalgesia, loss of sensation and response to somatic or sympathetic nerve block. Management is achieved through pharmacology, nerve block and sometimes surgical strategies.

Temporomandibular Disorders

Temporomandibular disorders (TMD) are a collection of clinical problems that involve the masticatory musculature or the Temporomandibular joint (TMJ) and associated structures (4). These disorders are common and not all patients need therapy. Up to 12% of TMD sufferers report pain on wide opening, 7% report limited jaw range of motion, 39% have joint noise, and 2% complained of joint pain and stiffness (5). Facial pain and headache occurs in 24% (6). TMD is more common in females.

Myofascial pain, which is considered a regional pain syndrome, is the most common form of TMD (7). Myofascial pain is characterized by discrete tender areas (trigger points) that reproduce classical patterns of pain referral when palpated. Muscle tenderness may cause headache by a mechanism that remains elusive. Trauma, occlusal interferences, and emotional stressors are common etiological factors that are implicated in TMD although none have been validated. Managing myofascial pain is achieved through posture and stretching exercises accompanied by vapocoolant spray and stretch and if needed trigger point injections. This may be supplemented with centrally acting medications such as tricyclic antidepressants or muscle relaxants. Behavioral therapy is helpful as in all chronic pain conditions.

Headache or facial pain attributed to temporomandibular joint disorder is defined The International Classification of Headache Disorders: 2nd edition as follows:

11.7 Headache or facial pain attributed to temporomandibular joint (TMJ) disorder

Diagnostic criteria (8):

- A. Recurrent pain in one or more regions of the head and/or face fulfilling criteria C and D*
- B. X-ray, MRI and/or bone scintigraphy demonstrate TMJ disorder*
- C. Evidence that pain can be attributed to the TMJ disorder, based on at least one of the following:*
 - 1. pain is precipitated by jaw movements and/or chewing of hard or tough food*
 - 2. reduced range of or irregular jaw opening*
 - 3. noise from one or both TMJs during jaw movements*
 - 4. tenderness of the joint capsule(s) of one or both TMJs*
- D. Headache resolves within 3 months, and does not recur, after successful treatment of the TMJ disorder*

General management principles for TMD include pain control with muscle relaxants, antiinflammatories or other medications, increasing mandibular mobility with exercise, reducing joint loading with splint therapy, and behavioral interventions when necessary. Rarely when there is locking (inability to open the jaw due to disk displacement) surgical intervention with arthrocentesis or arthroscopy is needed.

References

1. Sharav Y, Singer E, Schmidt E, Dionne RA, Dubner R. The analgesic effect of amitriptyline on chronic facial pain. *Pain* 1987;31:199-209.
2. Obermann M, Mueller D, Yoon M-S, Pageler L, Diener, HC, Katsarava, Z. Migraine with isolated facial pain: a diagnostic challenge. *Cephalalgia* 2007;27:1278-1282.
3. Zakrzewska JM, Harrison SD. Assessment and Management of Orofacial Pain. *Pain Research and Clinical Management*, Vol 14. Chapter 14: 255 – 266.
4. Orofacial Pain: Guidelines for assessment, Diagnosis and Management. 3rd Ed. Jeffrey Okeson Quintessence 1996
5. Agerberg G, Carlsson GE. Functional disorders of the masticatory system. *Acta Odont Scand* 1972; 32: 597 – 613
6. Agerberg G, Bergenholz A. Craniomandibular disorders in adult populations of West Bothnia, Sweden. *Acto Odontol Scand* 1989;47: 129 -140.
7. Mense S, Simons D. Russell JI. *Muscle Pain - Understanding its nature, diagnosis and treatment.* Lippincott Williams and Wilkins 2001; Ch. 1: 7 – 15.
8. The International Classification of Headache Disorders: 2nd edition. *Cephalalgia* 2004;24 Suppl 1:9-160.

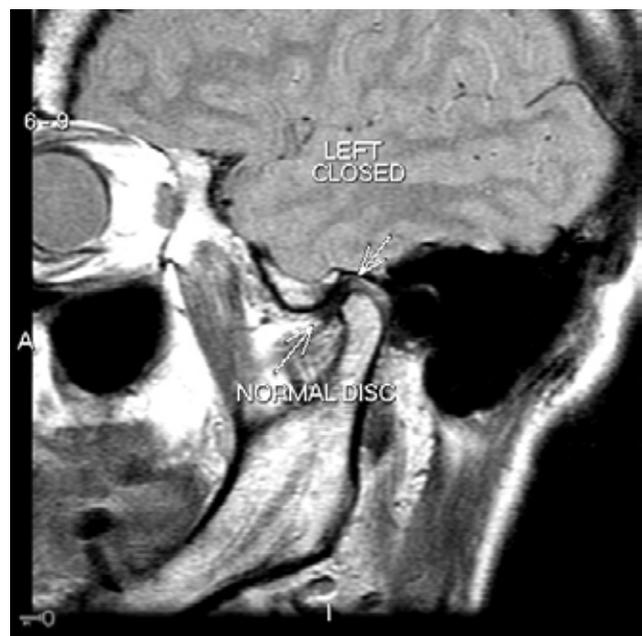
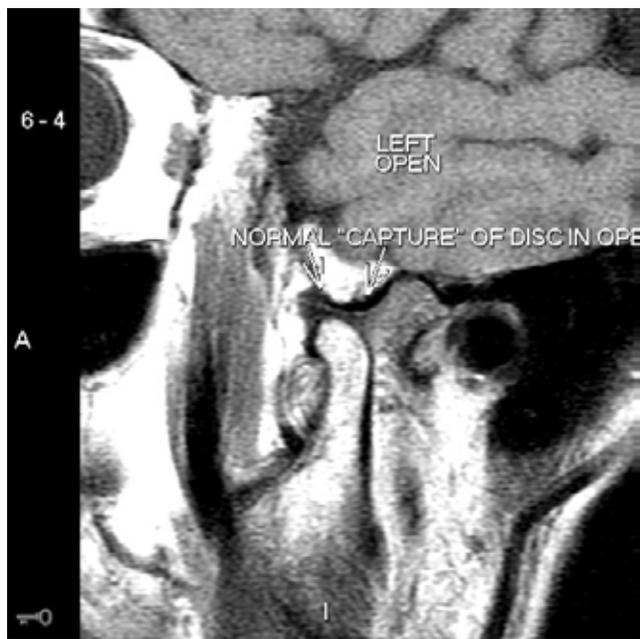


FIG. 1. Magnetic resonance imaging (MRI) of a normal temporomandibular joint showing the condyle and cartilage dividing the joint into an upper and lower joint space open and closed.