IAPMR Guidelines

Management of Tempero mandibular Joint Pain and Disorders

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Our understanding and interest in the diagnosis and management of patients with various types of temporomandibular joint disorders has increased as research has identified structural abnormalities and disease mechanisms associated with some of these disorders.

Anatomy

The TMJ articulation is a joint that is capable of hinge – type movements and gliding movements. The articulation is formed by the mandibular condyle occupying a hollow in the temporal bone i.e. the mandibular or glenoid fossa. The bony components are enclosed and connected by a fibrous capsule.

Etiology, Epidemiology and classification

The etiology of the most common Temoporo mandibular joint disorders (TMDs) is unknown. Two hypotheses, occlusal disharmony and psychological distress, have dominated the literature, but clear and convincing evidence for either being the primary etiology does not exist. This lack of a clear single cause has resulted in the proposal of a multifactorial etiology

- Parafunctional habits (eg, nocturnal bruxing, tooth clenching, lip or cheek biting)
- Emotional distress
- Acute trauma to the jaw
- Trauma from hyperextension (eg, dental procedures, oral intubations for general anesthesia, yawning, hyperextension associated with cervical trauma)
- Instability of the maxilla mandibular relationships
- Laxity of the joint
- Co morbidity of other rheumatic or musculoskeletal disorders

- Poor general health and an unhealthy lifestyle

❖ Epidemiology

TMDs are most prevalent between the ages of 20 and 40 years and more frequently affect women.

❖ Classification

Due to the uncertainty about etiology, current diagnostic classifications of TMD are based on signs and symptoms. Amongst the several classification systems that exist, the American Academy of Oro facial Pain (AAOP) has published a useful classification system that attempts to define the diagnostic terms and provide diagnostic criteria. This includes disorders that affect the cranial bones, TMJs and masticatory muscles.

Diagnostic Classification of Temporomandibular Disorders - AAOP	
Diagnostic Category	Diagnoses
Cranial Bones (including the mandible)	Congenital and developmental Disorders: Aplasia, hypoplasia, hyperplasia, dysplasia (eg, first and second branchial arch anomalies, hemifascial microsomia, Pierre Robin syndrome, Treacher Collins syndrome, condylar hyperplasia, prognathism, fibrous dysplasia) Acccquired disorders (Neoplasia, fractures)
Temporomandibular Joint Disorders	Deviation in form Disc displacement (with reduction and

	without reduction) Dislocation Inflammatory conditions (synovitis, capsulitis) Ankylosis (fibrous, bony) Neoplasia
Masticatory Muscle Disorders	Myofascial Pain, Myositis Spasm, Protective Splinting Contracture

Assessment & Diagnosis

Present examination methods do not have the ability to accurately differentiate individuals with a TMD from those without. The most valuable aspects of the diagnostic assessment are a thorough history and physical examination as follows

- ✓ History
- ✓ Behavioral Assessment
- ✓ Physical examination
- ✓ Range of mandibular movement
- ✓ Palpation of masticatory muscles, cervical muscles, TMJ
- ✓ Provocation tests
- ✓ Assessment of parafunctional habits
- ✓ Diagnostic imaging
- ✓ Diagnostic local anesthetic nerve blocks
- ✓ Prediction of chronicity

SPECIFIC DISORDERS AND THEIR MANAGEMENT

- **Myofascial Pain of the Masticatory Muscles**

The term most commonly used for muscle pain that occurs with palpation is “myofascial pain.” Since treatment cannot be designed to address a particular cause, multiple therapies for controlling symptoms and restoring range of movement and jaw function are usually combined in the management plan.

These therapies are more effective when used together than when used alone.

- Education and Self care
- Physical Therapy: Heat and cold therapy, ultrasound, laser, TENS, range-of-motion exercises, posture therapy, passive stretching and
- Intraoral Appliance
- Pharmacotherapy: NSAIDs, acetaminophen, muscle relaxants, antianxiety agents, tricyclic antidepressants, clonazepam
- Behavior/Relaxation techniques: Relaxation therapy, hypnosis, biofeedback, cognitive-behavioral therapy

➢ **Intracapsular Disorders of the TMJ: ArticularDisk Disorders**

Intracapsular disorders affecting the TMJ are divided into two broad categories: arthritis and articular disk disorders. Either of these disorders may be present with or without symptoms. Articular disk displacement (ADD) is an abnormal relationship between the disc, the mandibular condyle, and the articular eminence, resulting from the stretching or tearing of the attachment of the disk to the condyle and glenoid fossa.

ADD may result in abnormal joint sounds, limitation in mandibular range of motion, and pain during mandibular movement, but the majority of cases of ADD occur without significant pain or joint dysfunction. ADD of the TMJ does not appear to affect children below the age of 5 years. The most common disc displacement is anterior and medial to the condyle. Posterior disc displacement (when a portion of the disk is found posterior to the top of the condyle) does occur occasionally. The specific etiology of the majority of cases of disk displacement is poorly understood. Some cases result from direct trauma to the joint from a blow to the mandible. It is also generally believed that chronic low-grade microtrauma resulting from long-term bruxism or clenching of the teeth is a major cause of ADD.

CLINICAL MANIFESTATIONS

Disc displacement is divided into stages based on signs and symptoms combined with the results of imaging studies. Asimple classification system divides ADD into

1. Anterior disc displacement with reduction (clicking joint)
2. Anterior disc displacement with intermittent locking
3. Anterior disk displacement without reduction (closed lock)

MANAGEMENT

Longitudinal studies demonstrate that most symptoms associated with ADD resolve over time either with no treatment or with minimal conservative therapy.

Painful clicking or locking should initially be treated with conservative therapy. Recommended treatments for symptomatic ADD include splint therapy, manual manipulation and other forms of physicaltherapy, anti-inflammatory drugs, arthrocentesis, arthroscopiclysis and lavage, arthroplasty, and vertical ramusosteotomy. Many of these nonsurgical and surgical technique sare effective in decreasing pain and in increasing the range of mandibular motion although the abnormal position of the disk is not corrected.

- **ARTHRITIS OF THE TEMPOROMANDIBULAR JOINT**
- **Degenerative Joint Disease (Osteoarthritis)**

Degenerative joint disease (DJD), also referred to as osteoarthrosis, osteoarthritis, and degenerative arthritis, is primarily a disorder of articular cartilage and subchondral bone, with secondary inflammation of the synovial membrane.

Clinical Manifestations

DJD of the TMJ begins early and has been observed in over20% of joints in individuals over the age of 20 years. The incidence of degenerative changes increases with age, and such changes are found in over 40% of patients over 40 years of age. Patients with

symptomatic DJD of the TMJ experience unilateral pain directly over the condyle, limitation of mandibular opening, crepitus, and a feeling of stiffness after a period of inactivity. Examination reveals tenderness and crepitus on intra-auricular and pretragus palpation with deviation of the mandible to the painful side.

Radiographic findings in degenerative joint disease may include narrowing of the joint space, irregular joint space, flattening of the articular surfaces, osteophytic formation, anterior lipping of thecondyle, and the presence of Ely's cysts. These changes maybe seen best on tomograms or CT scans. Thepresence of joint effusion is most accurately detected in T2-weighted MRI images.

Treatment

Degenerative joint disease of the TMJ can usually be managed by conservative treatment. Significant improvement is noted in many patients after 9 months, anda "burning out" of many cases occurs after 1 year.

It seems prudent to manage a patient with conservative treatment for 6 months to 1 year before considering surgery unless severe pain or dysfunction persists after an adequate trial of nonsurgicaltherapy.

Conservative therapy includes non steroidal anti-inflammatory medications; heat; soft diet; rest; and occlusal splints that allow free movement of the mandible.Intra-articular steroids can be used during acute episodes, but there is concern that repeated injections may cause degenerative bony changes.

Rheumatoid Arthritis

The disease process starts as a vasculitis of the synovial membrane. It progresses to chronic inflammation marked by an intense round cell infiltrate and subsequent formation of granulation tissue. The cellular infiltrate spreads from the articular surfaces eventually to cause an erosionof the underlying bone.

CLINICAL MANIFESTATIONS

The TMJs are usually bilaterally involved in RA. The most common symptoms include limitation of mandibular opening and joint pain. Pain is usually associated with the early acute phases of the disease but is not a common complaint in later stages. Other symptoms often noted include morning stiffness ,joint sounds, and tenderness and swelling over the joint area. The symptoms are usually transient in nature, and only a small percentage of patients with RA of the TMJs will experience permanent clinically significant disability.

The most consistent clinical findings include pain on palpation of the joints and limitation of opening. Crepitus also may be evident. Micrognathia and an anterior open bite arecommonly seen in patients with juvenile RA.

TREATMENT

Involvement of the TMJ by RA is usually treated by anti-inflammatorydrugs in conjunction with the therapy for other affectedjoints.soft diet duringacute exacerbation of the disease process, but intermaxillary fixationis to be avoided because of the risk of fibrous ankylosis.Useof a flat plane occlusal appliance may be helpful, particularly ifparafunctional habits are exacerbating the symptoms.An exerciseprogram to increase mandibular movement should be institutedas soon as possible after the acute symptoms subside.

When patients have severe symptoms, the use of intra-articularsteroids should be considered. Prostheses appear to decreasesymptoms in fully or partially edentulous patients.

Surgical treatment of the joints including placement ofprosthetic joints, is indicated in patients who have severefunctional impairment or intractable pain not successfullymanaged by other means.

- **Ankylosis**

True bony anklyosis of the TMJ involves fusion of the head ofthe condyle to the temporal bone. Trauma to the chin is themost common cause of TMJ ankylosis although infections alsomay be involved.Children are more prone to ankyloses because

of greater osteogenic potential and an incompletelyformed disk. Ankylosis frequently results from prolongedimmobilization following condylar fracture. Limited mandibularmovement, deviation of the mandible to the affected side onopening, and facial asymmetry may be observed in TMJ ankylosis.

Osseous deposition may be seen on radiographs.Ankylosis has been treated by several surgical procedures. Gaparthroplasty using interpositional materials between the cutsegments is the technique most commonly performed.