This article will provide the reader with a review of the most accepted diagnostic classification system related to temporomandibular disorder (TMD).

It is generally recognized that two basic categories of TMD exist, extracapsular (myogenous) and intracapsular (arthrogenous). The majority of TMDs are extracapsular in nature; however, it is not uncommon for these two basic categories to co-exist. Masticatory muscle-related conditions are found to be the most common subgroup of TMD.1,2

The current understanding of the complexity and the dynamic relationship between the masticatory and cervical musculature enables the practitioner to better assess the condition(s) possible etiology(ies). The individual variations and demands placed on the system, as well as normal function while awake or sleep, are true considerations in our patient evaluation.

Myofascial pain is a regional pain, usually dull and achy with the presence of localized tenderness in firm bands of muscle, tendons and/or fascia that reproduce pain when palpated and may produce a characteristic pattern of regional referred pain and/or autonomic symptoms on provocation.3,4 Patients may complain of muscle stiffness, acute malocclusion, ear symptoms, tinnitus, vertigo, toothache, tension-type headache and masticatory muscles involvement.

Myositis is inflammation of a muscle due to local causes such as infection or injury. Pain is usually acute and in a localized area with localized tenderness over the entire region of the muscle. The inflammation also can occur in the tendinous attachment of the muscle, “tendonitis or tendinomyositis.” Increased pain with mandibular activity with alteration in function due to inflammation or pain. Swelling, tissue reddening and an increase in temperature over the entire muscle can be noticed. The most common differential diagnoses to consider include myositis, local myalgia-unclassified and myofascial pain.

Myospasm is an involuntary, sudden, continuous (fasciculation) tonic contraction of the muscle. Previously used terms are trismus, “cramp.” A muscle in spasm is acutely shortened. The patient experiences acute pain, a limited range of motion and often acute malocclusion. EMG studies verify sustained muscle contraction even at rest.7 The most common differential diagnoses to consider include myositis, local myalgia-unclassified and neoplasm.

Local myalgia — unclassified
This category includes muscle pain secondary to ischemia6, bruising7, fatigue, metabolic alterations, delayed onset muscle soreness, autonomic effects and protective splinting (cocontraction).8 Although there is significant evidence that these conditions exist, there are few reliable clinical characteristics that can be used to distinguish them from each other. Myofibrotic contracture refers to the painless shortening of a muscle. Previous terms used include chronic trismus, muscle fibrosis and muscle scarring. It is a chronic resistance to a passive stretch as a result of fibrosis of the supporting tendons, ligaments or muscle fibers themselves. The patient usually does not complain of pain unless the muscle is extended beyond its functional length. There are two basic subcategories: myostatic (reversible condition) and myofibrotic (irreversible condition). Clinical characteristics include a limited range of motion, unyielding firmness on passive stretch and a history of trauma or infection is usually reported by the patient. The most common differential diagnoses to consider includes TMJ ankylosis and coronoid hyper trophy.

Masticatory muscle neoplasia can be benign or malignant and may be associated with pain or not. Neoplasia is defined as a new, abnormal or uncontrolled growth of muscle tissue (e.g., myxoma). Confirmation must be obtained by biopsy and imaging.

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Congenital or developmental disorders Most congenital or developmental disorders are not associated with orofacial pain. They can be categorized as agenesis, hypoplasia, hyperplasia and neoplasia.

Neoplasia, a new, often uncontrolled growth of abnormal tissue and, in this case, arising in or involving the TM joint. Neoplasms can be categorized as benign, malignant or metastatic from a distant site.

Approximately 1% of malignant neoplasia metastasize to the jaws.4,5 Squamous cell carcinomas of the head and neck region, nasopharyngeal tumors, neoplasm arising from the parotid gland (adenoid cystic carcinoma) and mucinous ameloblastoma carcinomas have been reported to extend to the TMJ region resulting in pain and alteration of normal function.11,12 Disfunction is not usually caused by neoplasia.13

Primary tumors that have involved the condyle include osteoarthritis, benign osteoblastoma14, chondroma and chondrosarcoma, benign giant cell tumor, ossifying fibroma, fibrous dysplasia and myxoma.15 Malignant neoplasms have been reported originating from the temporomandibular joint space (fibrosarcoma, synovial sarcoma).12,17 Congenital or developmental disorders of the cranial bones and mandible include aplasia, agenesis, hypoplasia, hyperplasia and neoplasia. Lesions and disorders of the jaws can be either odontogenic or non-odontogenic in origin and generalized or metastatic in nature. Most congenital or developmental disorders primarily cause problems with esthetics or function and are rarely accompanied by orofacial pain unless associated with neoplasia (e.g., osteomyelitis, multiple myeloma, Paget’s disease). Complete agenesis is extremely rare.16 Aplasia is a faulty or incomplete development of the cranial bones or mandible. Most of the aplasias conditions of the mandible are categorized under hemifacial microsomia syndromes. The auditory system is frequently affected in these syndromes.

Hypoplasia is the incomplete development or underdevelopment of cranial bones or the mandible that is congenital or acquired. The growth is considered normal but proportionately reduced. Treacher-Collins Syndrome is an example of incomplete development.20 Condylar hypoplasia can occur secondary to trauma, resulting from incomplete or underdevelopment of the mandibular condyle.

Hyperplasia is the overdevelopment of the cranial bones or the mandible. This can be developmental or acquired. Hyperplasia can occur as a localized enlargement, such as in condylar hypoplasia or coronoid hyperplasia, or as an overdevelopment of the entire mandible or side of the face.

Fibrous dysplasia is a form of hyperplasia due to a benign, slow growing swelling of the mandible and/or maxilla. It is characterized by the presence of fibrous connective tissue.

The disease occurs in children and young adults and becomes inactive when they reach skeletal maturity. Radiographically the lesion may appear from an opaque ground-glass to a lucent appearance, depending on the ratio of fibrous tissue to bone. Clinically, usually there is no displacement of teeth and the cortical bone and occlusion remain intact.

Disc derangement disorders are an abnormal arrangement of intra-articular joint parts causing interference with the structural relation during mandibular condyle translation with mouth opening and closing.

In the TMJ this alteration can relate to the elongation, tear or rupture of the capsular ligaments causing a disruption in the disc position or morphology. The sub-classification of disc displacement represents a disc-condyle misalignment and is subdivided into disc displacement with reduction or disc displacement without reduction.21,22

Disc displacement with reduction is characterized by the “temporal” alteration or interference of the disc-condyle structural relationship during mandibular translation resulting in an opening joint sound, for example clicking or popping. A reciprocal closing noise is usually of less magnitude and is thought to be produced by the displacement once again of the disc (to its original position) in usually an anterior or anteromedial position.23 It has been theorized that the momentary misalignment of the disc is due to articular surface irregularities, disc-articular surface adherence, synovial fluid degradation and disc-condyle incoordination as a result of abnormal muscle activity or disc deformation.

Although the concept of natural history of TMJ dislocation has been suggested, there is currently no convincing evidence that TMJ clicking typically progresses to locking and degenerative arthritis.24,25 Similarly, TMJ ankylosis has been reported to progress to a nonreducing stage,26 probably demonstrating a normal physiological response.27,28

Disc derangement criteria include: reproducible joint noise usually at variable position (opening, closing), soft-tissue imaging confirms a displaced disk that improves its position during jaw opening and hard tissue imaging will demonstrate absence of extensive degenerative bone changes. Pain may be precipitated by joint movement and deviation during movement coinciding with a click.

Disc displacement without reduction, or “closed-lock,” is described as an altered or misaligned disc-condyle structural relationship that is maintained during mandibular translation.

It is characterized by a lack of joint noise and limited jaw motion (opening <35 mm), mandibular deflection to the affected side (if not bilateral), soft-tissue imaging reveals disc displaced without reduction and hard-tissue imaging reveals no extensive osteoarthritic changes.

Local tenderness associated with TMJ pain is present. Patient may experience pain precipitated by forced mouth opening. A history of clicking that ceased with the occurrence of locking, ipsilateral hyperocclusion (during acute stage) and occasionally hard-tissue imaging can reveal moderate osteoarthritic changes.

Studies on the progression of the disease have demonstrated very few reducing displaced disc cases progressing to a nonreducing stage, but almost all the non-reducing displaced disc cases developed structural bone changes.

Joint dislocation, or “open-lock,” is characterized by the condyle and usually the disc position anterior to the articular eminence and unable to return to a closed position without a specific manipulation.

Elevator muscles activity and/or a true hyperextension of the disc-condyle complex may be responsible for the patient’s difficulty in returning to a normal position. A temporary dislocation that can be reduced by the patient is referred to as subluxation. Patient usually reports a history of excessive range of motion (hypermobility) that is not painful, but pain can occur at the time of dislocation with mild residual pain after the episode. Radiographic evidence reveals the condyle well beyond the eminence. The most common differential diagnosis to consider is fracture.