

The Temporomandibular Joint and Related Orofacial Disorders

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Practical Guide to Differential Diagnosis

Differential diagnosis of conditions that may cause chronic pain in the mandible, cranium, and neck involves a broad range of disorders. In most instances, the site of the complaint can be traced to a specific anatomic site, but frequent overlap in symptoms with other disorders confounds diagnosis, confusing even the expert diagnostician. Often this enigma is compounded by a suspected psychological basis for the presence or continuance of pain.

Among the many painful orofacial conditions confounding diagnosis of TMD are those arising from the masticatory muscle, followed by those with dental and sinus-related origins. Although these latter two nonarticular conditions often result in acute pain, they tend, if persistent, to mimic TMD pain and may produce limited joint movement. Otic and neurologic diseases, pain of intracranial origin, headache, sympathetic fiber-mediated pain, and neoplasms also may produce symptoms resembling TMD symptoms.

Differentiating these mimicking disorders from TMD relies on the general acceptance of terms and meanings associated with signs and symptoms. These descriptors and their definitions must be continually evaluated to improve validity and reliability. Acceptance of these descriptions will help to develop a diagnostic classification that can identify specific disorders.

In contrast to the vast diagnostic literature on headache, no fully validated classification is available to differentiate TMD from overlapping disorders or forms of TMD from one another. Classifications that have been attempted include the following: painful disorders of the head and neck; myofascial pain from mimicking disorders; head and neck fibromyalgia from temporomandibular arthralgia; internal derangements from muscular disorders; and types of internal derangements.

Other useful literature discusses sinus and nasal disorders, dental problems, headache, auditory disorders, and infratemporal space pathosis. The different psychological factors involved in chronic pain, including chronic TMD pain, allow for further diagnostic distinction.

It can be difficult to make a positive decision about whether a disorder represents a separate condition. Warning signs may be few, nonspecific, and appear later in the disease. In usual practice, the diagnostic decision relies on both anamnestic and clinical results. From existing findings, a system of algorithms can be developed permitting clinicians to differentiate TM disorders from one another and from overlapping disorders. Although not every clinician will agree with certain descriptive features of TMD or disorders mimicking

TMD, clinicians need a practical system to communicate with one another, with the patient, and with insurance carriers.

The following algorithms are designed to assist in classifying similar disorders. Each provides a set of instructions for discerning disorders in a limited number of steps. Although the algorithms should not be considered definitive, they are representative benchmarks for keying problems or disorders from one another. The algorithms focus on diagnostic features of specific anatomic sites (eg, TMJ, masticatory muscle, nerve, tooth, and head) and nonarticular disorders mimicking TMD. These are followed by algorithms for psychological disorders that may be related to TMD.

Algorithm for Keying TMJ Problems

1. Sounds present after jaw movement ... 2
Loss of sounds or no history of recent sounds ... 9
2. Reciprocal clicking or popping, passive stretch ≥ 35 mm ... 3
Other sounds, passive stretch ≥ 35 mm ... 4
3. Sounds during range of movement ... **Disk displacement with reduction (type I)**
Sounds with episodic catching ... **Disk displacement with reduction (type II)**
4. Crepitus or hard grating, report of pain or no pain ... 5
Crepitus present or absent, pain acute ... 6
5. Report of pain (inflammatory phase), radiologic evidence of bony change ... **Arthritis with arthralgia (degenerative joint disease (DJD) with pain)**
No report of pain (noninflammatory phase), radiologic evidence of bony change ... **Arthrosis (DJD without pain)**
6. Signs of inflammation in other joints, positive serologic test, radiologic evidence of bony change ... **Polyarthritis (rheumatoid)**
No inflammation in other joints, negative serology ... 7
7. Localized pain on palpation, pain on function, pain during assisted jaw opening, possible swelling ... **Synovitis or capsulitis**
Rarely localized pain ... 8
8. Excessive range of motion (translation), ability to close mandible without assistance ... **Hypermobility**
Excessive range of motion, inability to close mandible without assistance ... **Dislocation**
9. Loss of sounds coincides with unilateral deviation ... 10
No recent sounds ... 11
10. Sudden loss of sounds coincides with decreased translation of ipsilateral condyle, opening 25 mm or less ... **Disk displacement without reduction, acute form**
Loss of sounds greater than 6 months duration, coincides with decreased translation, opening 25 mm or less ... **Disk displacement without reduction, chronic form**
11. Radiologic evidence of osseous change ... 12
Without osseous change ... 13
12. Recent enlargement of condyle or bony destruction, positive bone scan ... **Neoplasm**
Bony proliferation limiting translation of ipsilateral condyle, negative bone scan ... **Bony ankylosis**
13. Contralateral movement < 7 mm ... **Fibrous ankylosis**
Contralateral movement ≥ 7 mm ... **Normal.**

Algorithm for Keying Muscle Problems

1. Report of orofacial pain ... 2
Orofacial pain rarely reported ... 6
2. Dull ache at static jaw position, stiffness on function ... 3
Fluctuant pain in morning or evening, or acute pain ... 4
3. Pain on palpation in two or more muscles (masseter, temporalis, pterygoid origin, suprahyoid, and styloid regions), and a rating of 2 or more on a 0 to 3 scale in no more than a single muscle ... **Myalgia I or masticatory fibromyalgia (mild form)**
Pain on palpation in two or more muscles (as above) with pain rated 2 or more in two or more muscles ... **Myalgia II or masticatory fibromyalgia (moderate or severe form)**
4. Myalgia I and II plus localized tenderness in firm bands of muscle in posterior neck or shoulder, restricted opening improved 4 mm or more by manual assistance ... **Myofascial pain (generalized fibromyalgia)**
None of the above, but report of acute pain ... 5
5. Acute tenderness of entire muscle, possible swelling, positive inflammatory findings on biopsy ... **Myositis**
Continuous contraction (fasciculation), localized, positive findings on electromyogram ... **Myospasm**
6. Rigidity of several jaw muscles to manual manipulation ... **Reflex splinting**
No rigidity ... 7
7. Unyielding resistance to passive stretch ... **Contracture**
No such resistance ... 8
8. Enlargement of muscle, localized ... 9
Without enlargement ... 10
9. Uncontrolled growth, recent origin, confirmation by magnetic resonance imaging (MRI), positive biopsy ... **Neoplasm**
Grossly enlarged muscle, related to functional activity of jaw, negative MRI report or biopsy ... **Hypertrophy**
10. None of the above features ... **Normal.**

Algorithm for Keying Dental Problems Mimicking TMD

1. Toothache caused by obvious dentino-enamel defect ... 2
No obvious dentino-enamel defect ... 6
2. Carious defect identified visually or radiologically, short, sharp shock evolved by heat, cold, or air, relieved by sedative filling ... **Odontalgia**
Acute ache of variable intensity, sensitivity to cold and percussion variable, not relieved by periodontal curettage ... 3
3. Mild, vague discomfort of pulpitis, slight sensitivity to cold, disappears within 24 to 48 hours ... **Incipient acute pulpalgia**
Persistent pain, slight or no sensitivity to percussion, sensitive to cold ... 4
4. Persistent nagging or boring pain that originates spontaneously, tolerable but aggravated by cold ... **Moderate acute pulpalgia**
History of periapical abscess or painful to pressure ... 5
5. Particularly painful to pressure, throbbing pain relieved by cold, may not be relieved by local anesthesia, usually periapical radiolucency ... **Advanced acute pulpalgia**
Diffuse radiating pain, often beginning as acute apical abscess, relieved by local anesthesia ... **Chronic pulpalgia**
6. Gingival inflammation or abscess along lateral surface of tooth, radiolucency lateral if present, pain relieved by infiltration of local anesthesia or by curettage ... 7
Not as above ... 8
7. Abscess, swelling, and possible suppuration ... **Periodontal abscess**
Localized inflammation around partially erupted teeth, usually molars ... **Pericoronitis**
8. History of trauma, unexplained ache, or lancinating pain of abrupt onset during mastication, may not be identified clinically or radiologically ... **Cracked tooth**
Not as above ... **Normal or consider pain of another location.**

Algorithm for Keying Problems of Headache

1. Well-defined symptoms preceding unilateral head pain ... 2
Less well-defined symptoms, unilateral or bilateral head or neck pain ... 4
2. Throbbing pain, gastrointestinal disturbance, blurred vision, no rhinorrhea ... 3
Mild to moderate pain, no gastrointestinal disturbance or blurred vision ... 5
3. Dull pain, visual, motor, or sensory symptoms, behavioral disturbance, alterations in consciousness ... **Migraine with aura (classic)**
Mood changes, autonomic disturbances, psychological phenomenon, food cravings ... **Migraine without aura (common)**
4. Tightness, tenderness in suboccipital muscles, sustained contraction of neck muscles, pain fluctuating during the day, precipitated by fatigue ... **Tension-type headache**
Steady ache, lower part of orbit or maxillary area, no infection ... **Atypical facial pain**
5. Boring, burning, or severe periorbital pain; attacks lasting 15 minutes to 3 hours, occurring in clusters for weeks and then disappearing; ptosis in 25% to 30% of patients ... **Cluster**
Not as above ... 6
6. Seizures, loss of neurologic function or consciousness, mental changes ... **Intracranial vascular, infection, or tumor headaches**
Not as above ... 7
7. Localized pain mimicking migraine, occurring on a daily basis, associated with trauma ... **Trauma headache**
Not associated with trauma ... 8
8. Headache associated with substances (eg, caffeine, alcohol, tobacco, and drugs) or their withdrawal ... **Withdrawal headache**
Not as above ... **Referral to neurologist.**

Algorithm for Keying Neural Problems Mimicking TMD

1. Pain paroxysmal ... 2
Pain continuous ... 6
2. Sharp, stabbing, or shooting pain following nerve distribution ... 3
Not as above ... 6
3. Electric-like bursts of pain of short duration, unilateral, trigger zone in lips or cheek, usually eliminated by nerve V block ... **Trigeminal neuralgia**
Not localized to lips or cheek, not eliminated by nerve block ... 4
4. Pain or altered sensitivity along the skin in the temporal, zygomatic, cervicofacial, and chin areas and in the anterior two-thirds of tongue, possible altered taste sensitivity (both usually eliminated by nerve VII block)... **Facial nerve neuralgia**
Pain localized to throat... 5
5. Pain provoked by swallowing or chewing, trigger zone in tonsillar or posterior pharyngeal area, normal radiology of styloid process ... **Glossopharyngeal neuralgia**
Pain provoked by turning of head, radiologic evidence of elongated styloid process ... **Eagle's syndrome**
6. History of nerve trauma to face ... 7
Without history of facial trauma, but history of trauma to extremity ... 8
7. Dull ache in tooth after root canal therapy or extraction, radiation to adjacent tissues, negative radiology, usually relieved by local anesthesia ... **Atypical odontalgia**
Pain rarely localized to surgical site or fracture ... **Traumatic neuroma**
8. Dull, burning pain, history of varicella-zoster virus ... 9
Without history of varicella-zoster virus ... 10
9. Dysesthesia, pain along nerve followed by vesicles (shingles) on nose or face ... **Postherpetic neuralgia**
Rare vesicles in auditory canal, followed by severe lancinating pain in canal, possible nerve VII palsy ... **Geniculate neuralgia**
10. Rare, severe hyperpathy on moving or touching the skin, disuse atrophy of limb, early relief with sympathetic ganglion block ... **Reflex sympathetic dystrophy (causalgia)**
None of above ... normal or seek neurologic consultation.

Algorithm for Keying Less Common Disorders Mimicking TMD

1. Vague headache or intense pressure in frontal, maxillary, ethmoid, or sphenoid cavities following infection, pain increased by lowering the head, intact tympanum, opacification of the antrum radiographically if severe ... **Sinusitis**
Not as above ... 2
2. Infection in middle ear, ear pain, inflamed tympanum, fluid behind tympanum confirmed by tympanometry or air insufflation into auditory meatus ... **Otitis media**
Not as above ... 3
3. Unilateral, nonspecific postnasal irritation and obstruction, restricted movement of soft palate, sudden hearing loss, posterior triangle adenopathy limiting mastication ... **Nasopharyngeal carcinoma**
Not in pharynx ... 4
4. Unilateral or bilateral ear pain, skin sensitivity, long-standing hearing loss confirmed by audiogram, vertigo exacerbated by head movement ... **Acoustic neuroma**
No hearing loss or vertigo ... 5
5. Swelling, redness, and tenderness over gland, suppuration from duct, pain worst when eating ... **Parotitis**
Tenderness over temples, constant throbbing pain, elevated erythrocyte sedimentation rate, arterial pathology confirmed by biopsy ... **Giant cell (temporal) arteritis.**

Algorithm for Keying AXIS I Psychological Disorders Possibly Associated With TMD

1. The development of symptoms associated with a physical traumatic event affecting general responsiveness outside the range of human experience ...
Post-traumatic stress disorder
Not-trauma related ... 2
2. A disturbance usually lasting less than 6 months, but may recur ... 3
Excessive fear, worry, or concern ... 5
3. Mood disturbance lasting at least 2 weeks with loss of interest or pleasure in all activities ... **Depression (major)**
Depressed mood lasting for 6 months or more ... 4
4. One or more depressive episodes accompanied by manic episodes ... **Bipolar disorder**
Depressed mood for most of day and for more days than not for at least 2 years ... **Dysthymia**
5. Maladaptive reaction to identifiable psychosocial stressors occurring within 3 months after onset ... **Adjustment disorder**
Frequent, unrealistic worry ... 6
6. Discrete periods of intense fear or discomfort ... **Panic disorder**
No fear ... 7
7. Excessive worry about two or more life circumstances, person is bothered by concerns more days than not ... **Generalized anxiety disorder**
Not as above ... 8
8. Time-consuming obsession or compulsion in functions unrelated to health concerns causing marked distress that interferes with daily activities ...
Obsessive-compulsive disorder
Similar but health-related concerns ... 9
9. Multiple somatic complaints with no frank physical findings for which medical attention is sought ... **Somatization disorder**
Preoccupation with pain in the absence of physical evidence of disease ...
Somatoform pain disorder.

Algorithm for Keying AXIS II Personality Disorders Possibly Associated With TMD

1. A pervasive pattern of peculiarities of ideation, appearance, and behavior with deficits in interpersonal relatedness ... **Schizotypal personality disorder**
No ideation with deficits ... 2
2. A pattern of excessive emotionality and attention gathering ... **Histrionic personality disorder**
No attention gathering ... 3
3. Social discomfort, fear of negative evaluation, and timidity ... **Avoidant personality disorder**
No fear of negative evaluation ... 4
4. Pattern of passive resistance to demands for adequate social and occupational performance ... **Passive-aggressive personality disorder**
No resistance to demands ... 5
5. Pattern of perfection and inflexibility ... **Obsessive-compulsive personality disorder**
No pattern of perfection ... 6
6. Unwarranted tendency to interpret actions of others as deliberately threatening - **Paranoid personality disorder**
No sense of being threatened ... 7
7. Pattern of self-defeating behavior ... **Self-defeating personality disorder**
Instability of self image, interpersonal relationships, and mood ... **Borderline personality disorder.**