

## DISCUSSION

Admired MLB players who were perceived to use ST served as a strong influence on high school baseball players' current use of ST and likely future use among never-users. The dangers associated with ST use and the potential influences older athletes have on young athletes provide sufficient reason for further limiting tobacco use in professional sports.

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# TEMPOROMANDIBULAR JOINT

## Nonsurgical and surgical treatment



### BACKGROUND

Temporomandibular joint disorders (TMDs) can alter jaw function, cause pain in the masticatory muscles or TMJs that can make dental care difficult to accomplish, and affect the patient's speech and eating functions. Between 60% and 70% of the general population has at least 1 sign of TMD, but just 25% of these people report the symptoms. Female patients outnumber male patients 4 to 1. These disorders are seen most often in early adulthood. The 3 most common disorders are myofascial pain and dysfunction, internal derangement, and osteoarthritis. Myofascial pain and dysfunction accounts for the majority of cases and is primarily a muscle disorder resulting from oral parafunctional habits and sometimes related to psychogenic disorders. Internal derangement refers to an abnormal position of the articular disc, which causes mechanical interference and restricted mandibular activity or hypermobility. Osteoarthritis is a localized degenerative disorder that affects mainly the articular cartilage of the mandibular condyle of the TMJ and is more common in older patients. Nonsurgical treatment is undertaken in 90% of cases, with fewer than 10% requiring surgery. The clinical evaluation and treatment options for TMD patients were presented.

### CLINICAL EVALUATION

Orofacial pain, joint noise, and restricted jaw function are the cardinal features of TMDs, with pain being the most common presenting symptom and the most difficult problem to assess. The diagnosis is based on a complete history, clinical examination, and additional investigations as indicated.

#### History

In addition to the primary complaint, patients may report less specific problems such as headache and tinnitus. Pain onset, nature, intensity, site, duration, aggravating and relieving factors, and how the pain relates to features such as joint noise and restricted mandibular motion should be documented. Pain

centered immediately in front of the tragus of the ear and projecting to the ear, temple, cheek, and along the mandible is highly diagnostic of a TMD. It may be accompanied by a click or grating sound in the pre-auricular region that occurs during chewing or yawning. Intermittent limited mouth opening that may be progressive is also a key feature.

The patient should be asked about influences such as stress, anxiety, depression, or significant life events to assess the possibility of a psychogenic basis for the TMD. Usually, the longer the duration of the symptoms and the greater the number of treatments the patient has undergone, especially failed ones, the less likely it is that the patient will respond well to further treatments unless a psychogenic cause can be identified.

#### Clinical Examination

Palpation should be done to assess the presence of tenderness in the pre-auricular region while the patient opens his or her mouth. Pain specifically located in the pre-auricular area often indicates actual joint pathology. Digital palpation of the masticatory muscles can also identify areas of tenderness, trigger points, and pain referral patterns, which can be mapped out to demonstrate the extent of the pain.

The examination should also evaluate joint sounds and their location during opening, closing, and lateral excursions of the mandible. Clicking reliably indicates internal derangement. Grating/crepitus is more likely to indicate advanced degenerative joint disease.

Mandibular function is evaluated by determining if the line of vertical opening is straight and smooth or deviates with jerky movements, indicating pathology of the joint. The range of painless maximal vertical opening is normally 40 to 55 mm interincisally. Measures less than 40 mm indicate limitation, and less than 30 mm require urgent attention and referral.

## Additional Investigations

Imaging is done to eliminate the possibility of other pathological processes producing the TMD symptoms and to see if there is a pathologic condition related to the TMJ. Plain radiographs have limits, but can serve as baseline investigations indicating gross pathological, degenerative, or traumatic changes in the mandibular condyle. Magnetic resonance imaging (MRI) can investigate the articular disc to determine any internal derangement. Cone-beam computed tomographic (CT) scans are extremely useful to show high-resolution, multiplanar images of the condylar head and any condylar pathology such as osteoarthritis.

## Differential Diagnosis

The clinician should be aware of the other common disorders that can cause the symptoms reported. For TMDs, these include dental pain; disorders of the ears, nose, and sinuses; neuralgias; headaches; and diseases of the major salivary glands.

## TREATMENT

Treatment goals are the reduction or elimination of pain and/or joint noises, as well as the restoration of normal mandibular function. In addition to the principal factors, other contributing factors, such as stress, depression, and oral parafunctional habits, should be addressed and included in the treatment plan. The proper treatment plan will be based on whether the problem is physical or psychogenic.

## Nonsurgical Approaches

Nonsurgical treatment is effective for over 90% of patients with TMDs. The best approach is to use several treatments in combination, depending on the patient's needs.

All patients should have a clear explanation of the cause and nature of their disorder and of its benign nature. This reassurance is invaluable.

The dental practitioner and patient should collaborate to formulate a self-care routine. The essentials in this routine are limitation of mandibular function, awareness of habits and their modification, a home exercise program, and the avoidance of stress. The patient should maintain a soft diet and avoid foods requiring considerable chewing. Massage of the affected muscles and the application of moist heat can soothe aching or tired muscles. Patients should identify sources of stress in their lives and alter their lifestyle accordingly. For dental care, the dentist should plan to allow for breaks so the patient can rest his or her jaw during treatment. Use of a mouth prop may be appropriate.

If further help is needed to relieve symptoms, clinicians can prescribe the use of analgesics, anti-inflammatory agents, tranquilizers, or antidepressants. A common combination of treatments includes meloxicam 7.5 mg twice a day plus

amitriptyline 10 mg at night to address bruxism/clenching until an occlusal splint can be made and fitted.

Occlusal splints are the most common treatment for TMDs. These devices protect the teeth from abnormally high loads during clenching and grinding and reduce loads on the TMJ. Muscle pain is also theoretically reduced. Although the physiological basis for this treatment modality is not yet understood, occlusal splint therapy relieves symptoms in over 70% of TMD patients. The best splints are custom made, comfortable, safe, and do not alter the occlusion.

Physiotherapy restores mandibular function by using techniques that relieve musculoskeletal pain and promote tissue healing. It can also include adjunctive measures such as dry needling, transcutaneous electrical nerve stimulation (TENS), and pulsed ultrasound therapy to relieve muscle pain. Physiotherapy is especially useful in managing myofascial pain and TMJ closed lock and is an essential element after TMJ surgery.

Several habits exacerbate or maintain the TMD but can be addressed by cognitive behavioral therapy. Options include counseling on lifestyle, relaxation therapy, hypnosis, and biofeedback.

Psychotherapy can be useful if the TMD is a somatic expression of an underlying psychological or psychiatric disorder. Patients who describe bizarre symptoms, exhibit odd behavior, or report suffering out of sync with their condition may benefit from a psychiatric referral.

Other therapies that are used in some cases include acupuncture, Botox injections, and chiropractic or osteopathic jaw manipulation. These lack evidence-based proof of their effectiveness.

## Surgical Approaches

The surgical options for managing TMDs range from TMJ arthrocentesis and arthroscopy to open joint surgical procedures. Generally, oral and maxillofacial surgeons prefer to have the patient undergo a period of nonsurgical treatment before turning to surgery. The specific indications for TMJ surgery include chronic severe limited mouth opening and gross mechanical interferences. It's important to differentiate between patients with failed TMD treatment that require chronic pain management and those who would benefit from surgery. Intolerable joint-specific pain and dysfunction confirmed by radiologic evidence of joint pathology are key criteria in selecting surgery (Table 3).

The benefits of TMJ surgery rely on appropriate case selection. Patients should be compliant with treatment regimens, understand their disorder, and be free of unrealistic expectations for treatment outcomes. Should the surgeon be inexperienced and/or have poor patient skills, patient selection may also be faulty, raising the risks for a poor outcome to the surgery.

**Table 3.** Indications for TMJ Surgery

Absolute indications

- 1 Ankylosis – eg. Fibrous or osseous joint fusion
- 2 Neoplasia – eg. Osteochondroma of the condyle
- 3 Dislocation – ie. Recurrent or chronic
- 4 Developmental disorders – eg. Condylar hyperplasia

Relative indications

- 1 Internal derangement
- 2 Osteoarthritis
- 3 Trauma

A General indications

- i Disorder not responding to non-surgical therapy
  - ii Where the TMJ is the source of pain and dysfunction
- a Pain localised to the TMJ
  - b Pain on functional loading and movement of the TMJ
  - c Mechanical interference with TMJ function

B Specific indications

- i Chronic severe limited mouth opening
  - ii Advanced degenerative joint disease with intolerable symptoms of pain and joint dysfunction
- iii Confirmation of severe joint disease on CT scan or MRI

(Courtesy of Dimitroulis G: Management of temporomandibular joint disorders: A surgeon's perspective. *Austral Dent J* 63:579-590, 2018.)

### Closed TMJ Procedures

TMJ arthrocentesis and arthroscopy can manage “stuck” joints by lubricating the superior joint space and allowing mobilization of the articular disc. TMJ arthrocentesis is useful for acute onset closed lock TMJ, whereas arthroscopy is more effective in managing chronic or recalcitrant cases of closed lock.

### Open TMJ Procedures

Arthotomy, which includes the open TMJ surgical approaches, involves surgical exposure of the TMJ using an incision in front of the ear. The range of surgical procedures that can be performed include disc repair and repositioning and discectomy, among others. Arthotomy is best performed when the joint has been damaged and fails to respond to

other measures. If the problem is that the TMJ components are beyond salvage, the condylar head of the mandible is resected. To maintain facial symmetry and preserve occlusion, a prosthetic total joint replacement is needed. Recovery from TMJ total joint replacement is usually 3 to 4 weeks and requires jaw physiotherapy.

## DISCUSSION

When managing TMDs, a multidisciplinary team is the best approach because of the many aspects of care that must be addressed. If nonsurgical approaches are not successful, dental practitioners should be prepared to refer patients as needed to obtain specialized care.

### Clinical Significance

Most TMD patients respond to nonsurgical approaches. The wide range of options makes it possible to fit the treatment to the patient's needs. Should such therapy fail, surgery offers a more definitive approach and can achieve good results in many cases. Dental practitioners must also be aware of the psychological aspect of TMDs and make referrals to address any patients with psychogenic TMD.

Dimitroulis G: Management of temporomandibular joint disorders: A surgeon's perspective. *Austral Dent J* 63:579-590, 2018

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# THIRD MOLARS

## Managing third molars



### BACKGROUND

Clinicians can be faced with the decision whether or not to remove a third molar and when to do so. At least 96% of the population has 1 or more third molars, and up to 36% of young people may have an impacted third molar. However, the current evidence does not clearly indicate the correct decision in all cases. The assessment of third molars, a decision matrix,

indications for and against removal, and a case are presented to help in clinical situations involving third molar management.

### ASSESSMENT

#### Classification

The most suitable classification system describes third molars as being symptomatic or asymptomatic and disease free or disease