



Letter to Editor

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Temporomandibular Joint Dysfunction

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Temporomandibular disorders- commonly known as TMJ dysfunction or Costen's syndrome- are an important entity in both medical and dental practice. Moreover, in medical practice they are encountered across a wide range of specialties including general medicine, ENT and orthopedics. It is therefore worthwhile looking into the various implications of the problem and the management strategies thereof.

The temporomandibular joint (TMJ) is a synovial joint between the head (condyle) of the mandible and the mandibular fossa on the undersurface of the temporal bone. The TMJ on each side, along with the cranium, forms a single functioning complex since movement cannot occur at one joint without a concomitant movement at the other.^[1]

The joint is much more stable with the teeth in occlusion than when the jaw is open.^[1] In the open position the joint is less stable as the condyle lies forward on the slope of the articular eminence. Forward dislocation is the most common form of displacement. When the condyle dislocates in the forward direction, spasm of the muscles of mastication prevents the jaw from assuming the normal position, thus necessitating a manual reduction. Anterior dislocation easily occurs in the edentulous patient.

The major muscles of mastication are the temporalis, masseter, medial and lateral pterygoid on each side. The accessory muscles are the digastrics (anterior and posterior bellies), superior belly of omohyoid, mylohyoid, thyrohyoid and sternohyoid.

Temporomandibular disorders (TMDs) that include true abnormalities of the TMJ may be

- a) Internal derangements
- b) Congenital and developmental anomalies
- c) Traumatic injuries
- d) Arthritis
- e) Neoplasms.

Internal derangements are abnormal processes that occur within the joint capsule, and in routine practice they mainly include disc displacements.

According to The American Academy of Orofacial Pain (AAOP) temporomandibular disorders may be broadly classified into myogenous (secondary to myofascial pain and dysfunction) and arthrogenous (secondary to true articular disease).^[2] The Research Diagnostic Criteria (RDC) for TMDs are now accepted as the most comprehensive and reliable diagnostic criteria as both physical and psycho- social components are taken into account.^[3] TMJ disorders comprising of myofascial pain and dysfunction may be included in the broad group of non- specific generalized muscular aches and pains affecting other muscle groups in the body.^[4]

Congenital and developmental anomalies include condylar agenesis and hypoplasia, condylar hyperplasia, hemifacial microsomia and branchial arch syndromes. They manifest as facial asymmetries and dental malocclusion. Traumatic injuries like dislocation, subluxation and fibrous or bony ankylosis as well as arthritis of the joint as seen in infective, traumatic, rheumatoid or degenerative arthritis have essentially the same import as internal derangements. In case of neoplasms- benign or malignant- surgery may be the first line of

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treatment.

Magnetic Resonance Imaging (MRI) is the best technique for evaluating disc morphology and position and is the most sensitive indicator of early degenerative bone changes. MRI may be supplemented with Orthopantomogram (OPG) and Computed Tomography (CT) in specific cases.^[5]

Plain X-ray, CT (computed tomography) and MRI (magnetic resonance imaging) are not useful in patients diagnosed with muscle disorders. Other diagnostic indicators which have come to light are tumor necrosis factor alpha (TNF-alpha) and interleukin-1 (IL-1), which have been found to be useful to understand the pathophysiology of the TMJ.^[6]

Treatment is mainly medical and is recommended in the initial stages using NSAIDs and muscle relaxants.

Conservative measures are also advised. The patient is asked to avoid yawning wide, excessive talking and excessive chewing by adjusting to a soft diet.

Physiotherapy is generally advocated and includes joint exercises. Ice may be applied in order to relieve acute or chronic pain. Gentle massage of the muscles and bathing in hot water also help.^[7]

Physiotherapy- both passive and active, helps to keep joint function active and may be used to advise patients on correct chewing habits.

Orthotic therapy using soft or hard splints, mouth guards and bite-opening appliances can be used in moderate or severe cases to supplement pain relief and physiotherapy. However, the use of splint therapy remains highly controversial.^[8] Studies comparing the use of occlusal adjustment and placebo have not yielded any significant difference between the two groups.^[9]

Prolonged dental or occlusal therapy for internal derangements is not recommended as it reduces the success rates derived from surgery. Early surgical intervention is recommended, for example arthrocentesis.^[10] It is believed that a partial vacuum between the displaced disc and the fossa gets released by arthrocentesis, thus reestablishing joint lubrication and fluidity and restoring joint movements.^[5] However, a systematic review of such procedures has revealed no difference between patients treated by arthrocentesis and patients offered arthroscopy.^[11] A recent study has shown that arthrocentesis is of some benefit in acute cases for disc alignment, but not in long-standing cases, where a more definitive form of surgical intervention is needed as elasticity is lost due to fibrosis.^[12]

Temporomandibular joint surgery includes a wide spectrum from arthroscopy (closed) procedures to arthrotomy (open) methods^[13] that may use microvascular composite tissue transfers, and is utilized for more serious derangements. Surgery aims to remove bony and/or fibrous ankylosis to mobilize the joint such that it can be reconstructed, thus restoring function and occlusion, and to minimize recurrences.

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