

## Temporomandibular Disorders and Its Management

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## Introduction

Orthodontists are constantly being challenged with the task of providing their patients with acceptable aesthetics and masticatory functions. The masticatory system is an extremely complex system. It is primarily made of bones, muscles, ligaments and teeth.

The frequency of TMJ complaints has multiplied in last few years. This may have been brought about by the increased stresses of our fast paced world, or at least we now recognize that there is a stress-strain tension release syndrome that often manifests itself with nocturnal Para-functional activity.

## Temporomandibular Joint

The Temporomandibular joint is a synovial joint formed by the articular eminence and anterior part of mandibular fossa in the upper part articulating with the head of the condyle. TMJ is one of the most complex joints in the body. It provides for hinging movements in one plane and

therefore can be considered a ginglymoid joint. However at the same time it also provides for gliding movements, which classifies it as an arthroidal joint.

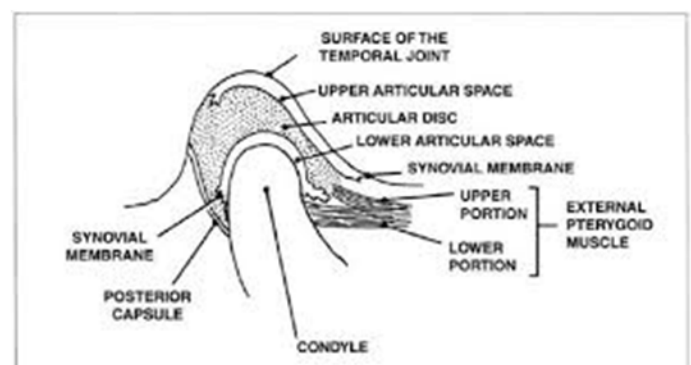


Fig 1: Anatomy of TMJ

Thus it is technically considered a ginglymoarthroidal joint. Functional disorders of the temporomandibular joints are probably the most common findings one sees when examining a patient for masticatory dysfunction. With occlusion being the other important factor influencing the masticatory function, it is only imperative

to relate malocclusion to the functional disorders of the temporomandibular joints and to establish the significance of the dental therapies in treating these problems.

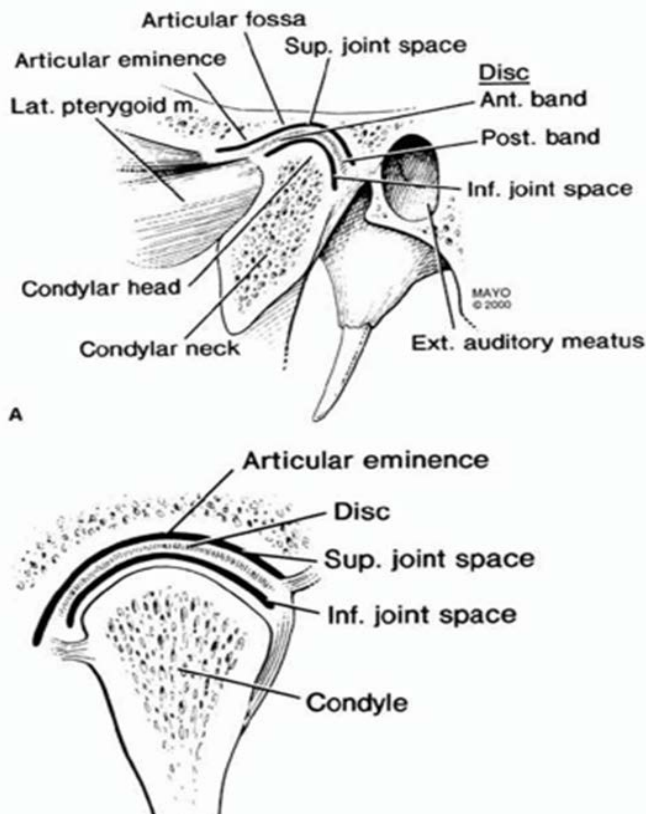


Fig 2: Attachments of TMJ

#### Etiology of TMJ Disorders

The causes of TMD are complex and multifactorial.

- McNeil(1980)- Numerous factors can contribute to TMD –
- Those that increases the risk of TMD are called predisposing factors
- And those that causes the onset of TMD are initiating factors
- Those that interfere with healing or enhance the progression of the TMD are perpetuating factors

Scientific literature reveals five major factors associated with TMD:

1. Occlusal Condition
2. Trauma
3. Emotional Stress

#### 4. Deep Pain Input

#### 5. Para functional Habits

#### Factors Associated With TMD

##### ❖ Host Adaptive Factors:

- Age
- Systemic illness  
(general, autoimmune, hyperparathyroids)
- Hormones
  1. Sex hormones (estrogen, prolactin)
  2. Corticosteroids

##### ❖ Mechanical Factors (compression, stretch):

- Occlusal therapy.
- Internal Derangement
  1. Compression
  2. Vascular Insufficiency
- Parafunction
- Macrotrauma
- Unstable Occlusion

#### Classification of TMJ Disorder

- Masticatory muscle disorders
- Disc interference disorders
- Inflammatory disorders
- Chronic mandibular hypomobility
- Growth disorders

##### I. Masticatory muscle disorders

1. Protective co-contraction
2. Local muscle soreness
3. Myofascial pain
4. Myospasm
5. Centrally mediated myalgia

##### 2. Temporo mandibular joint disorders

##### I. Derangement of the condyle-disc complex

- a. Disc displacements
- b. Disc dislocation with reduction
- c. Disc dislocation without reduction

##### II. Structural incompatibility of the articular surfaces

a. Deviation in form

i. Disc

ii. Condyle

iii. Fossa

b. Adhesions

i. Disc to condyle

ii. Disc to fossa

c. Subluxation (hypermobility)

d. Spontaneous dislocation

III. Inflammatory disorders of the TMJ

a. Synovitis/Capsulitis

b. Retrodiscitis

c. Arthritides

i. Osteoarthritis

ii. Osteoarthritis

iii. Polyarthritides

d. Inflammatory disorders of associated structures

i. Temporal tendinitis

ii. Stylomandibular ligament inflammation

IV. Chronic mandibular hypomobility

1. Ankylosis

a. Fibrous

b. Bony

2. Muscle contracture

a. Myostatic

b. Myofibrotic

3. Coronoid impingement

V. Growth disorders

1. Congenital and developmental bone disorders

a. Agenesis

b. Hypoplasia

c. Hyperplasia

d. Neoplasia

2. Congenital and developmental muscle disorders

a. Hypotrophy

b. Hypertrophy

C. Neoplasia

Signs and Symptoms

Most common symptoms are

- TMJ sounds
- Limited range of movements of the mandible
- Tiredness or fatigueness in the jaw muscles
- Pain in face and jaws at rest or during jaw movements
- Headaches
- Globules
- Vertigo
- Tinnitus

Evaluation of Patients With TMDs

- Palpation
- Auscultation
- Radiology

Special tests

- MRI
- Arthrograph,
- Osseous Scintigraphy,
- Anesthetic Injections,
- CT Scan

**Management of Temporomandibular Disorders**

Accurately diagnosing and treating TMD's can be a difficult and confusing task. This is often true primarily because a patient's symptom do not always fit into one classification. In many patients one disorder contributes to another.

The interrelationship of the various TMDs must always be considered in the evaluation and treatment of patients. Sometimes it is nearly impossible to identify which disorder preceded which. Often the evidence to determine such an order can be obtained only from a thorough history.

The treatments that have been suggested for TMDs vary enormously over a great spectrum of modalities. For a

clinician to confidently select an appropriate treatment he/she should demand adequate scientific evidence to support its use.

All treatment methods can be categorized into two:-

1. Definitive Treatment:- Refers to those methods directed towards controlling or eliminating the etiologic factors that created the disorder.

2. Supportive therapy:- Refers to treatment methods directed toward altering patient symptoms.

1. Definitive treatment:- “All initial treatment should be conservative, reversible and non-invasive”.

a) Occlusal therapy

i) Reversible occlusal therapy: Accomplished with an occlusal appliance

ii) Irreversible occlusal therapy: Alters the occlusion permanently

b) Emotional stress therapy:

i) Patient awareness

ii) Relaxation therapy

iii) Voluntary avoidance

2. Supportive Therapy:

a) Pharmacologic therapy

- Analgesics
- NSAID's
- Anti-inflammatory agents
- Anxiolytics
- Muscle relaxants
- Tricyclic antidepressants
- Local anaesthetics
- b) Physical therapy
- Thermotherapy
- Coolant therapy
- Ultrasound therapy
- Iontophoresis
- TENS
- Cold laser

- Muscle conditioning

## Conclusion

The goal of the orthodontist is to develop an esthetic smile and a functional masticatory system. Although initially, esthetics often is considered the most important goal, function eventually becomes far more important in the overall success of treatment. Therefore orthodontist must always consider how the orthodontic therapy will affect function. The importance of treating from a centric relation position to a centric relation position cannot be stressed any more. To maximize sound orthopedic function, the occlusal condition must be finalised in harmony with the musculoskeletally stable position of the temporomandibular joints. There are so many factors involved in formulating a diagnosis, just as many possible solutions. As a result there is an element of truth in every theory and something beneficial in every approach. To this we must add the considerable difficulty of planning treatment procedures on the basis of a pertinent detail the type and extent of damage, granted that no two cases are ever identical.

Despite these limitations and allowing for all personal interpretations, it is becoming a common belief that the clinician must not ignore the TMJ aspect and that orthodontics must contribute to the solutions of TMJ problems were present.

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