

A Review On Temporomandibular Joint And Its Disorders

Govindarajan Sumathy¹, Bhaskaran Sathyapriya², Indhusri. K³, Anushka. A³, Chandrakala B^{*}

1. Professor And Head, Department Of Anatomy, Sree Balaji Dental College & Hospital, Bharath Institute Of Higher Education & Research, Chennai.

2. Professor, Department Of Anatomy, Sree Balaji Dental College & Hospital, Bharath Institute Of Higher Education & Research, Chennai.

3. Graduate Student, Sree Balaji Dental College And Hospital, Bharath Institute Of Higher Education And Research

Department Of Anatomy, Sree Balaji Dental College & Hospital, Bharath Institute Of Higher Education & Research, Chennai.

Abstract-

The TMJ Receives Its Name From Two Bones That Enter Into Its Formation, Namely The Temporal Bone And The Mandible. There Are Numerous Factors That Can Contribute To Temporomandibular Disorders. Epidemiology Reports State Temporomandibular Joint Disorders (TMD) Affect Up To 25% Of The Population, Yet Their Etiology And Progression Are Poorly Understood. Likewise, Treatment Requires Customized Plans To Address The Specific Characteristics Of Each Patient's Disease. The Temporomandibular Joint Disorders Are More Common In Females, The Reason Is Not Clearly Known. The Successful Management Of Temporomandibular Disorders Is Dependent On Identifying And Controlling The Contributing Factors. The Study Presents Is About TMJ And Its Associated Disorders.

Keywords: Movements And Muscles, Dislocation Of Mandible, Temporomandibular Joint Syndrome, Palpation Of Associated Muscles.

Introduction

The Temporomandibular Joint (TMJ), One On Each Side Of The Head, Allows The Movements Of The Mandible For Speech And Mastication. Temporomandibular Joints Fig.1 Are The Bilateral Components Of A Single Craniomandibular Articulation/Joint. It Is A Synovial Joint Of Condylar Variety. This Complex Synovial System Is Composed Of Two Temporomandibular Joints Together With Their Articulating Ligaments And Masticatory Muscles. Temporomandibular Joint And Its Disorders Are A Group Of Conditions That Cause Pain And Dysfunction In The Jaw Joint And The Muscles That Control Jaw Movement. The Movements Of The Mandible Needs Coordination Between Them To Maximize Function And Minimize The Damage To Surrounding Structures^[1]. Signs Of TMD Appear In About 60-70% Of The General Population And Yet Only About One In Four People With Signs Are Actually Aware Of Or Report Any Symptoms^[2]. The Term Craniomandibular Disorder Is Used Synonymously With The Term Temporomandibular Disorders And Is Considered As A Major Cause Of Non-Dental Pain In The Orofacial Pain Region.

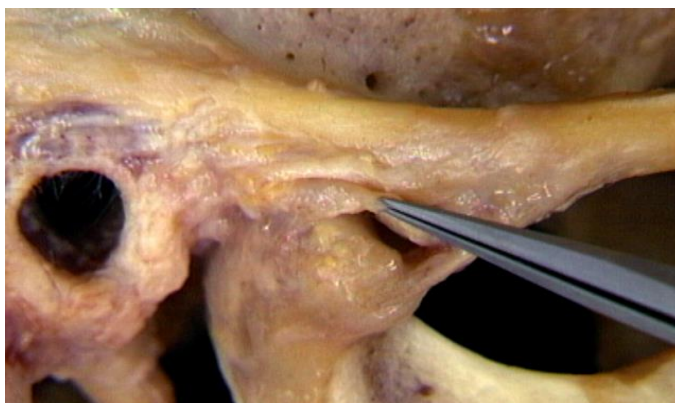


Figure 1: Temporomandibular Joint

STRUCTURE AND FUNCTION

The Main Components Are The Joint Capsule, Articular Disc, Mandibular Condyles, Articular Surface Of The Temporal Bone, Temporomandibular Ligament, Stylomandibular Ligament, Sphenomandibular Ligament And Lateral Pterygoid Muscle. Each Temporomandibular Joint Is Classed As A “Ginglymoarthrodial” Joint Since It Is Both Ginglymus(Hinging Joint) And An Arthroial (Sliding) Joint^[3]. Movements Of The Mandible Include Depression, Elevation, Protrusion, Retraction And Side To Side Movements. During Chewing, The Mandible Moves In A Specific Manner As Delineated By The Two Temporomandibular Joints. The Side Of The Mandible That Moves Laterally Is Referred To As Either The Working Or Rotating Side, While The Other Side Is Referred To As Either The Balancing Or The Orbiting Side. All These Movements Include Action Of Masticatory Muscles. The Table 1 Provides The Movements Of The Mandible And The Muscles Producing Them.

Table 1: Movements Of Mandible And Muscles Producing Them

Movements	Muscles
Depression	Lateral Pterygoid Digastric Geniohyoid Mylohyoid
Elevation	Masseter Medial Pterygoid Temporalis
Protrusion (Protraction)	Medial Pterygoid Lateral Pterygoid
Retraction	Posterior Fibers Of Temporalis
Side To Side (Chewing)	Medial And Lateral Pterygoids Of One Side Contacting Alternatively With That Of Opposite Side

Dislocation Of Mandible

Dislocation Of The Mandible Is Due To Either Imbalance In The Neuromuscular Function Or Structural Benefit. Alteration In Neuromuscular Function Occurs Due To Laxity Of Articular Disc And The Capsular Ligament, Long Standing Internal Derangement, And Spasm Of Lateral Pterygoid Muscles. Structural Deficit Involves Arthritic Changes In The Condyle,I.E., Flattening Or Narrowing, Decrease In The Height Of The Articular Eminence, Morphological Changes Of Glenoid Fossa, Zygomatic Arch, And Squamotympanic Fissure^[4,5].Mandibular Dislocation Is Rare, And There Is No Overall Gender Or Age-Related Predilection. As Facial Trauma Is More Prevalent Overall In Men, Traumatic Causes May Show A Slight Male Predilection. Anterior Dislocations Are The Most Common Type Of Mandibular Dislocation, Usually Secondary To Atraumatic Causes. Posterior, Lateral, And Superior Dislocations Are Much Rarer. Bilateral TMJ Dislocations Occur More Often Than A Unilateral Dislocation^[6]. When The Mouth Is Wide Open, The Mandibular Condyles Move Forward And Lie Underneath The Articular Eminences. A Case Report Says If There Is Excessive Opening Of Mouth During Sudden Violence Or Yawning The Head Of Mandible Of One Or Both Sides Slip Anteriorly And Gets Locked In Temporomandibular Fossa. The Mouth Cannot Be Closed Anymore. To Reduce This Dislocation ,The Condyle Must Be Lowered And Pushed Back Behind The Summit Of Articular Eminence Into The Articular Fossa. This Is Done By Depressing The Jaw With Thumb Placed On The Last Molar Teeth And Simultaneously Elevating The Chin. Figure 2 Represents The X-Ray Of Bilateral Temporomandibular Dislocation.



Figure 2: X-Ray Of Bilateral TMJ Dislocation

Temporomandibular Joint Syndrome

The Temporomandibular Joint Syndrome Or Disorder (TMD) Is A Common Type Of Musculoskeletal Disorder In The Orofacial Region Involving The Masticatory Muscles, TMJ And Associated Structures. The Typical Features Are Pain In TMJ, Restriction Of Mandibular Movement, TMJ Sound, And Facial Deformities. Epidemiological Studies From Around The World Confirm A Very High Prevalence Of TMD Dysfunction. Reports Indicate That 39.2% Have At Least One Symptom Of TMD. The Incidence Rate Is 3.9% Among Adults And 4.6% Among Adolescents^[7]. Symptoms Include Diffuse Facial Pain Due To Spasm Of Masseter Muscle, Headache Due To Spasm Of Temporalis Muscle And Jaw Pain Due To Spasm Of Lateral Pterygoid. The Disorders Subdivide Into Three Categories Such As Derangement Of The Condyle Disc Complex, Structural Incompatibility With Articular Surfaces And Inflammatory Disorders (Synovitis/Capsulitis, Retrodiscitis, Arthralgia, Arthritis)^[8]. It Is Usually Self-Diagnosable.

Palpation Of Masticatory Muscles

Muscle Palpation Is An Important Procedure In Screening For TMD And Assessing Results Of Treatment Outcome Studies. Masticatory Muscle Palpation Scoring Was Evaluated With Respect To Interrater Agreement On 31 Myofascial Pain Dysfunction Patients Participating In A Medication Study. Palpation Induced Pain Is An Easy And Informative Psycho Physical Technique For The Clinical Assessment Of Deep Pain^[9]. It Could Be Considered Relevant For The Assessment Of Primary Headaches Disorders And It Is Useful To Differentiate Subtypes Of Tension Type Headache With Or Without Pericranial Tenderness^[10]. (A)The Greater The Number Of Palpation Induced Pain Sites, The Greater The Amount Of Associated Diagnostic Categories, (B)Myogenous TMD Was Mainly Associated With Masseter Palpation-Induced Pain, (C)Migraine Was Mainly Associated With Bilateral AT Palpation-Induced Pain. A Recent Study Proposed Multiple Comorbidity Among TMD, Primary Headaches And Sleep Bruxism. Bruxism, A Non-Painful Disorder, Which Could Be Defined As A Sleep Or Wakefulness Repetitive Jaw-Muscle Activity Characterized By Clenching Or Grinding Of The Teeth And/Or By Bracing Or Thrusting Of The Mandible^[11], Is Often Associated With Muscle Pain And Fatigue And It Is Considered A Risk Factor For TMD^[12].

Conclusion

The Main Etiology Of The TMD Is The Abnormal Functions Of TMJ Due To Incorrect Habits And Practices, As Demonstrated By Our Study. Characterizing Case Reports And Of The Joint Structures, Including The Condyle, TMJ Disc, Superior Articulating Surface, And Disc Attachments, In Affected Cases, Continues To Facilitate The Development And Validation Of Tissue Engineering Strategies. Perfect Harmony Between The Teeth, Muscles, Nerves, Supporting Tissues And Temporomandibular Joints Must Be Established To Provide Health, Functional Efficiency, Esthetics And Stability To The Entire Stomatognathic System. Hence, More Importance Should Be Given Towards Educating The Patient On How To Avoid Behaviours That Are Abusive To The TMJ As Patient Education Is Also A Key To Successful TMJ Rehabilitation.

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