

Anatomy of Temporomandibular Joint Disorder (TMJD) and Therapy in Especially in Otitis Media and Neoplasia

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ABSTRACT:

The temporomandibular joint disorder (TMJD), or jaw joint, is a synovial joint that allows the complex movements necessary for life. It is the joint between condylar head of the mandible and the mandibular fossa of the temporal bone. This system is made up of the TMJ, teeth and soft tissue and it plays a role in breathing, eating and speech¹. ² It is also called TMJ, acts like a sliding hinge. It connects the jaw bone to the skull. Temporomandibular joint disorder or TMJD can cause pain in the jaw joint and in the muscles that control jaw movements. TMJ dysfunction are condition affecting your jaw joints and surrounding muscles and ligaments. These conditions can cause several issues, including jaw pain, headaches and difficulty opening and closing your mouth and occur of several abnormalities like development of anomalies, Osteoarthritis, Rheumatoid arthritis, Psoriasis, Systemic lupus Erythematosus Otitis Media, Gonococcal, Neoplasia.

Keywords: Temporomandibular joint, condylar species, mandibular fossa, sliding hinge

Analytical estimation of TMJD in World Population:

About 5% and 12% of the general adult population have some form of TMJ disorder. The condition is twice as common in women. People between the ages of 20 and 40 are most likely to develop TMJD².

Effects of Temporomandibular joint disorder:

²Development of anomalies:(Eg: condylar hyperplasia, hypoplasia, aplasia)

Osteoarthritis

Rheumatoid Arthritis

Inflammatory Arthritis (Ex: Psoriasis, Systemic, Lupus Erythematosus)

Infective Arthritis

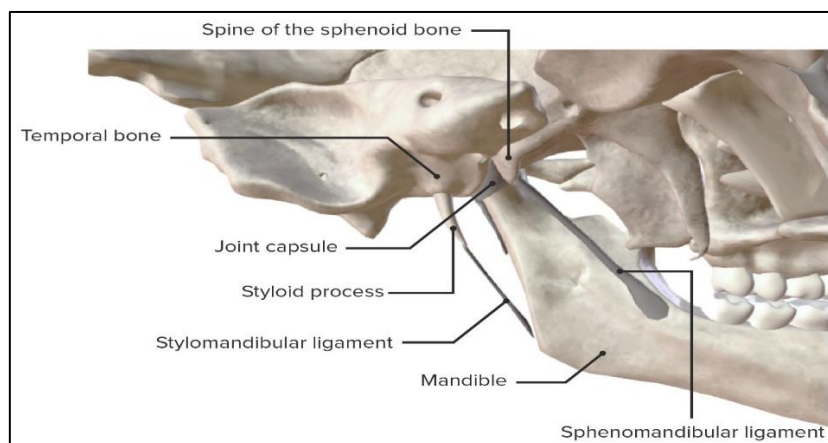
1. Local middle ear infection-Otitis Media

2. Systemic infections Ex: Gonococcal

3. Neoplasia².

Anatomy of Temporomandibular joint:

¹The anatomy of the TMJ includes the condylar, fibrous capsule, disk, synovial membrane, fluid and adjacent ligaments. The articular disc divides the joint into two cavities. These superior and inferior articular cavities are lined by separate superior and inferior synovial membranes.



1) Capsule:

The articular capsule (Capsular ligament) is a thin, loose envelope, attached above to the circumference of the mandibular fossa and the articular tubercle immediately in front below, to the neck of the condyle of the mandible allows for free movement.

The articular disc is composed of dense fibrocartilaginous tissue that is positioned between the head of the mandibular condyle and the mandibular fossa of the temporal bone. The disk divides each joint into two compartments, the lower and upper compartments. The synovial membrane lining the joint capsule produces the synovial fluid that fills these cavities.

Functions of Lower and Upper joint :

The lower joint compartment formed by the mandible and the articular disc is involved in rotational movement- this is the initial movement of the jaw when the mouth opens. The upper joint compartment formed by the articular disc and the temporal bone is involved in translational movement- this is the secondary gliding motion of the jaw as it is opened widely.

2) Ligaments:

There are majorly 3 Ligaments associated with the temporomandibular joints. One major and two minor ligaments.

The major ligament, the temporomandibular ligament, is actually the thickened lateral portion of the capsule, and it consists of 2 parts; Inner horizontal portion (IHP). This triangular ligament is attached to the zygomatic process of the temporal bone. It is fixed to the lateral side of the neck of the mandible. The ligament prevents extension and moving backward of the mandible.

The two minor ligaments, the stylo mandibular and sphenomandibular ligaments are accessory. Not linked with the any joint.

1) Stylomandibular ligament:

It runs from the styloid process to the angle of the mandible. It separates the parotid and submandibular salivary glands.

2) Sphenomandibular ligament:

The sphenomandibular ligament runs from the spine of the sphenoid bone to the lingula of mandible. It is a vestige of the embryonic lower jaw, Meckel cartilage.

3) Retrodiscal tissue:

The tissue is highly innervated and vascularized. It is the main cause of pain in the temporomandibular joint. When there is damage or compression within the joint¹.

Diagnosis of Temporomandibular disorder:

- ²Some of the imaging tests related to fascial bones
- Dental X-rays
- CT(Computed tomography) scans

- MRI(Magnetic Resonance imaging)
- TMJ arthroscopy ²

Physical test for TMJD:

If your mouth opens less than 2 fingers width ,it may mean you have temporomandibular joint(TMJ) dysfunction.

Therapy of Temporomandibular joint disorder in Otitis Media:**Otitis Media:**

³It is an infection or inflammation located in the middle Ear .It can occur after condition such as allergies, cold, sore throat or respiratory infections.

Symptoms: Ear pain, Fussiness, and irritability.

Origin of Otitis Media :

The TMJ structure are derived from changes in the splancho-cranium from reptile to mammal evaluation³.

Therapy of Otitis Media in TMJD:

Antibiotics are used in treatment of Otitis Media:

Amoxicillin

Amoxicillin/Clavulanic acid

Trimethoprim-sulfamethoxazole

Cefixime

Clindamycin

Surgery

Surgical management can be divided into the following 3 procedures

Tympanocentesis

Mringotomy

Radiotherapy

Therapy of Neoplasia in TMJD:

Management of tumor cells mostly by surgical excision and reconstructive management may vary from no replacement, free costocondrol or other bone grafts, metal condyle, total joint, the fibula is the most common free flap utilized for this purpose³.

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Temporomandibular joint : A Review of the Anatomy ,Pathology, Magnetic Resonance imaging techniques.

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