Temporomandibular joint disorders

MS.c Essay

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Abstract

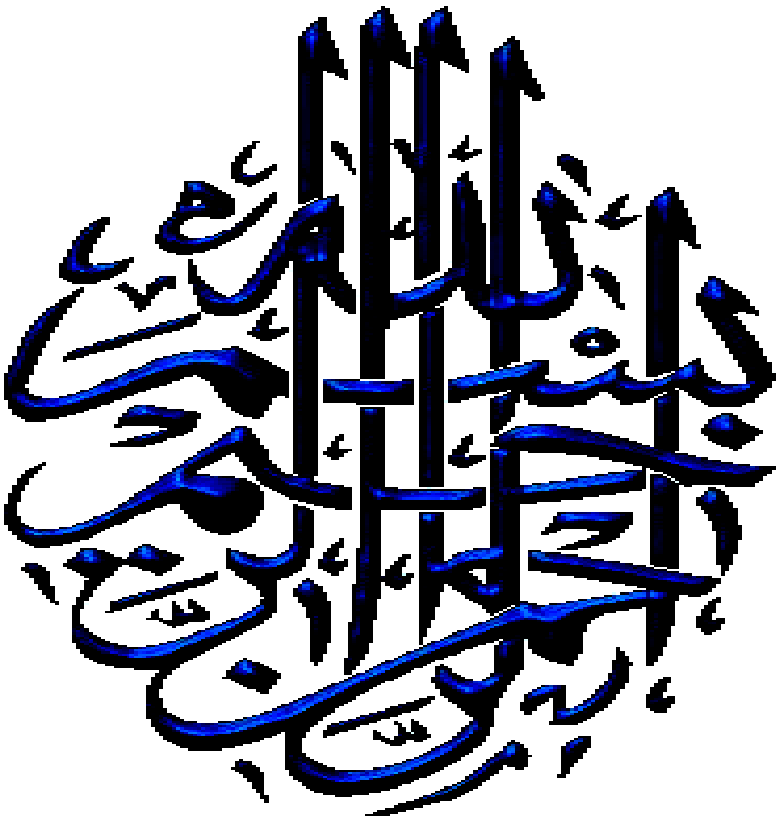
The condition is best managed by a team approach; this team consists of a primary care physician, a dentist, a physiotherapist, a psychologist, a pharmacologist, and in small number of cases, a surgeon. The different modalities include patient education and self-care practices, medication, physical therapy, splints, psychological counseling, relaxation techniques, , hypnotherapy, , and arthrocentesis.

Key word

Joint

Temporomandibular

otorhinolaryngology



قالُوا سُبْحَانَكَ لا عِلْمَ لَنَا إِلّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم
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LIST OF ABBREIATIONS

TMJ **Temporomandibular joint**

TMJs **Temporomandibular joints**

TMDs **Temporomandibular joint disorder**

MPD **Myofacial Pain Disorder**

JIA **Juvenial Idiopathic Arthritis**

RCP **Retruded Condylar Position**

ICP **Intercuspal Position**

IA **Internal Derangment**

INTRODUCTION

&

AIM OF WORK

Rationale and background

Temporomandibular dysfunction (TMD) is defined as a group of conditions characterized by pain or dysfunction in the temporomandibular joint (TMJ) and masticatory muscles, restrictive jaw movements and TMJ noises. TMD signs and symptoms may be more intensive in elderly patients and may also occur in complete denture wearers, having a correlation with the patient's general health, head posture, chewing efficiency and complete denture and occlusal conditions ***(Hotta et al., 2008)***.

Mastication is a highly coordinated neuromuscular function involving jaw movements and continuous modulations of force. It is considered one of most important functions of the masticatory system and is directly involved in general body's health. When efficiently performed, mastication facilitates swallowing and nutrient absorption, which are especially important processes in elderly patients. The capacity to exert sufficient bite force is an indicator of normal masticatory function ***(Tanaka et al., 2001)***.

However, the loss of teeth usually determines important changes in the masticatory system, affect bone structures, oral mucosa and muscles. The use of inadequate complete dentures may also result in a decrease of muscular activity and reduce bite force in comparison to dentate subjects. Several authors have demonstrated that patients diagnosed with TMD have lower maximum bite force values than healthy subjects ***(Daniele,2009)***.

The etiology, diagnosis and treatment of temporomandibular disorder (TMD) are a controversial subject. According to Mehta, et al (1984) the system can be divided in three main areas termed the "triad of dysfunction", which accounts for the majority of patients complaints:

1. Myofascial pain and dysfunction.
2. Internal derangement of the temporomandibular joint (TMJ).
3. Cervical spine dysfunction (CSD) ***(Ricardo et al., 2009)***.

AIM OF WORK

The aim of this study is to review the complex anatomy of tempro-mandibular joint and its stabillity.

The different types of tempro-mandibular joint disorders and their presentations, will be noted in this review as well as the different methods of investigation and evaluation.

Also, the aim of this study is to address the different methods in the treatment of tempro-mandibular joint lesions with their advantages and disadvantages.

CHAPTER (I)

CHAPTER (I)

Anatomy of Temporomandibular Joint

TO understand some of the clinical problems that can originate in the TMJ It is first necessary to understand something about the anatomy of this unique structure, the mandible can be thought of as a single long bone, articulated at both end, However, both joints must act simultaneously with movement, which is unique in the body. The temporomandibular joint (TMJ) is the site of articulation between the mandible and the skull, specifically the area about the articular eminence of the temporal bone. This bilateral joint functions to open and close the jaws and to approximate the teeth of the opposing arches during mastication. The articulation consists of parts of the mandible and temporal bones, which are covered by dense, fibrous connective tissue and are surrounded by several ligaments. The TMJ is operated by four bilateral muscles of mastication assisted by accessory muscles that manipulate the lower jaw in mastication, swallowing, and phonation ***(Katzberg et al.,1996).***

The TMJ consists of the movable condyloid process and its articulating counterpart, the articular eminence, which forms the anterior aspect of the glenoid fossa. The articulating surfaces are lined with fibrous connective tissue beneath which, on the condyle, is a layer of hyaline cartilage. This relatively unprotected cartilage layer is an important growth site for the mandible, and damage to it can have major effects, not only on mandibular growth and morphology, but also ultimately on growth of the maxilla and midface. Thus, whenever there is any abnormality involving the TMJ in a growing child, there is not only need for

concern about the primary condition, but also its possible secondary effects on facial growth **(*Hiatt et al.,2010)*.**

Temporomandibular Joint (TMJ) Articular Coverings include the joint capsule, lateral ligaments, and accessory ligaments on the medial aspect of the joint. The TMJ is entirely enclosed by the joint capsule attached to the temporal bone, and it continues inferiorly where it is attached to the mandibular neck, the articular disc is attached to the capsule on its medial and lateral surfaces, causing the capsular space to be divided into superior and inferior synovial compartments ***(Zhang et al.,2009)***

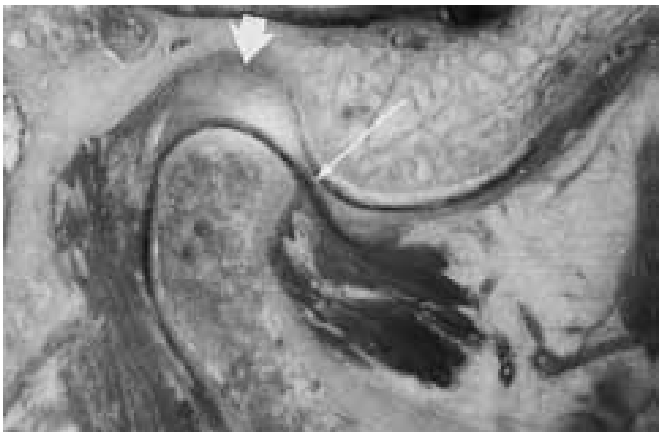

FIGURE (1) Normal TMJ in sagittal section

Obliquely oriented ligaments reinforce the capsule. The lateral ligament or temporomandibular ligament restricts mediolateral movement. The sphenomandibular ligament, located on the medial aspect of the TMJ, has been suggested to limit lateral mandibular movement. The other medial ligament, the stylomandibular ligament (a specialization of the deep cervical fascia) may assist in limiting the protrusion of the mandible. Several pairs of muscles attached to the

mandible produce the movements necessary to suckle, ingest, and masticate food; swallow; yawn; and produce speech **(*Paparella,1991).***

Interrelationships of the stomatognathic system in occlusion, neuromuscular function, and temporomandibular articulation are of paramount importance to the dental professional because treatment of any component affects the functioning of this entire system, There are two joint spaces, or compartments. The superior space separates the glenoid and articular eminence of the temporal bone from the disk and its attachments. The inferior joint space separates the disk and its attachments from the condyle of the mandible. The anterior recess is a small space in the inferior joint compartment anterior to the condyle. The posterior recess is the part of the inferior joint space posterior to the condyle. The lower part of the bilaminar zone (posterior disk attachment) curves downward to attach to the condylar neck and thus forms the posterior boundary of the posterior recess of the inferior joint compartment **(*Baltali and Keller,2008).***

Mandible

The mandible possesses two articular surfaces; a condyle (head) located on the superior extremity of each of the bilateral condylar processes. Each condyle articulates with a disc that is interposed between it and the temporal bone **,** The condyle which are characteristically “football-shaped,” measure about 20 mm through the long mediolateral axis and 10 mm through the anteroposterior axis. The condyle is directed at an oblique angle to each other and to the frontal plane so that if the planes of the long axes were continued they would meet at the foramen magnum. The long axis is also at right angles to the ramus of the mandible.