

# Etiopathogenesis and Symptoms in TMJ Muscle-Pain Dysfunction Syndrome

Gül AYKANAT<sup>1</sup> 

## Abstract

**Aim** In this study, the importance of knowing the pathological conditions and symptoms that may lead to TMJ muscle joint pain dysfunction syndrome in terms of diagnosis and treatment was emphasized in the light of the literature.

**Material and method** A total of 70 patients, 52 women and 18 men, aged between 19 and 37, were included in the study.

**Results** Etiological causes and predisposing factors that may lead to TMJ muscle-pain dysfunction syndrome were investigated by considering the classifications in the literature. Malocclusion was detected in 41 (58.5%) of 70 patients, while 22 patients (31.4%) received psychological treatment.

**Conclusion** In conclusion, it is emphasized that the variations in clinical images and the pathogenesis should be taken into account in determining the treatment and plan of TMJ muscle pain dysfunction syndrome. In addition, due to the lack of specific standardized measurement techniques for this syndrome, it is difficult to easily understand the outcome of each cause alone. Since diagnosis constitutes a very important step in the treatment of diseases, the importance of detailed anamnesis, clinical and radiological examination is emphasized in our study.

**Keywords** Dysfunction syndrome, Etiopathogenesis, Muscle, Muscle pain, TMJ

## Introduction

TMJ muscle pain-dysfunction syndrome is indicated as painful spasm of masticatory muscles with dysfunction. This syndrome is clinically characterized by difficulty in mouth opening, pain, crepitation, sensitivity on palpation, and mandibular deviation (1, 2). Thus, the limitation of mandibular movements and lack of coordination were accepted as the basic criteria for dysfunction, and it was especially distinguished from other joint diseases with similar symptoms to this entity. This new and important view in TMJ diseases has fundamentally changed the clinical approach. The importance of emotional tension has been emphasized in controlled studies (3). The differences of opinion about the etiology of this syndrome are naturally reflected in the treatment method. As it is understood from the researches carried out to date, it is difficult to distinguish the cause with precise boundaries. For this reason, they are intertwined in the etiological classifications, and one can be the cause of the other. Distinguishing the causes leading to the syndrome gains importance in determining the treatment plan. Palliative, cause-oriented treatments or supportive treatments can be planned according to etiological reasons (4-6).

Although many clinical symptoms have been reported in this syndrome, the findings considered as cardinal symptoms are pain, sensitivity on palpation of masticatory muscles, decrease in maximum mouth opening capacity, limitation in chewing movements (7, 8).

Diagnosis of TMJ muscle pain dysfunction syndrome is facilitated

by one or more pathognomonic symptoms. However, if the pathogenesis and prognosis for each case are not specified, the diagnosis will be incomplete. In the literature, it has been emphasized that etiopathogenesis and clinical symptoms should be considered in the diagnosis and treatment plan of this syndrome (4, 9).

In this study, the importance of knowing the pathological conditions and symptoms that may lead to TMJ muscle joint pain dysfunction syndrome in terms of diagnosis and treatment was emphasized in the light of the literature.

## Material and Methods

A total of 70 patients, 52 women and 18 men, aged between 19 and 37, were included in the study. As a result of the anamnesis and clinical and radiological examinations taken from the patients, TMJ muscle pain dysfunction syndrome were diagnosed. In this study, the etiological and predisposing factors that may cause this syndrome were investigated. Traumas, dental treatments, chronic oral habits, pain, difficulty in chewing movements and mouth opening, presence of spontaneous pain, whether the pain increases with pressure or movement, local or reflected pain was examined. In clinical examination, crepitation, pain on palpation of TMJ and masticatory muscles, limitation of jaw movements and mandibular deviation were investigated. Maximum mouth opening capacity was measured as an objective evaluation criterion. Lower and upper jaw models of each patient were prepared and their closing relationships and missing teeth were recorded.

## Results

Etiological causes and predisposing factors that may lead to TMJ muscle-pain dysfunction syndrome were investigated by

**Correspondence:** Gül AYKANAT, gaykanat@biruni.edu.tr

<sup>1</sup> Biruni University, Faculty of Dentistry, Department of Prosthodontics, Istanbul, Turkiye

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considering the classifications in the literature. Malocclusion was detected in 41 (58.5%) of 70 patients, while 22 patients (31.4%) received psychological treatment.

When chronic oral habits were classified, the highest rate was bruxism. Bruxism is present in 49 patients (70%). Nail biting habits were found in 14 patients (20%), and jaw shifting was found in 31 patients (44.2%). In 34 patients, both bruxism and jaw shifting movements were detected. Most of the missing teeth of 48 (68.5%) patients were premolars and molars. The main symptoms of this syndrome are pain, crepitation, sensitivity in chewing muscles, limitation of jaw movements and deviation. In addition, maximum mouth opening capacity was measured as an objective finding in our study. The mean maximum mouth opening capacity was 38 mm in women and 37.4 mm in men.

Pain is usually seen unilaterally in the angulus mandible, ear and temporal region. Pain was the first complaint of the patients and was the reason for applying to our faculty. 61 of the patients (87.1%) state that they suffer from chronic pain. As pain localization, they specified the front of the ear and the temporal region. Local pain was 33% and referred pain was 67% in TMJ. When the referred pain is divided according to the regions, it spreads to the tragus, anterior ear, mandible, maxilla, and zygomatic bone. In addition, 38 of these patients complain of headache.

In our clinical examination, sensitivity to palpation was observed in the masticatory and neck muscles. In our study, it was clear that crepitation is a common finding in TMJ muscle pain dysfunction syndrome. There was crepitation in 37 patients (52.8%) and mostly unilateral.

Limitation and deviation in jaw opening movements due to pterygoid muscle spasm is another finding. There was limitation in jaw movements in 57 patients (81.4%), and deviation in 12 (17.1%) patients. The distribution of the accompanying symptoms is as follows: there were 35 patients (50%) with only pain and crepitation, 4 patients (5.7%) with pain and deviation, 33 (47.1%) patients with crepitation and limitation of jaw movements, and 5 patients (% 7,1) with pain, crepitation and deviation.

## Discussion

In epidemiological and clinical data, TMJ muscle pain dysfunction syndrome is more common in women than in men. This study was consistent with the data in the literature, and the number of female patients was in the majority. In addition, the mean age of 31.4 years in the study group corresponds to the typical mean age of 30 years reported in this syndrome (10).

Pain in TMJ muscle pain dysfunction syndrome has been reported as 87% in the literature (11). In our study, the percentage of pain was 87.1%. It has been reported that referred pain mostly affects the TMJ and tragus regions. In our study, the spread of pain was mostly found in this region. While some researchers report that crepitation is one of the most common findings in this syndrome, some researchers give rates varying between 48-69% (12, 13).

In epidemiological studies, it is stated that crepitation is also high in the normal population, which increases the rate of crepitation (9). When pathological conditions and symptoms that may cause TMJ muscle pain dysfunction syndrome are examined,

a wide variety of causes and rates are observed. Occlusion disorders, according to some authors, is the most important cause playing a role in the etiology. It has been reported that the loss of bilateral posterior teeth and the removable and fixed prostheses cause excessive contraction of the chewing muscles when they are not performed in a certain discipline (6). In our study, loss of premolar and molar teeth was 70%.

Although it has been stated that trauma to the head and neck is a contributing factor to pain and dysfunction, our patients have no history of trauma. Chronic oral habits are also reported to cause spasm and pain in the masticatory muscles. In epidemiological studies, the bruxism index has been reported to be around 60%. In our study, the rate of bruxism was found to be 70%.

In studies on the etiology of TMJ muscle pain dysfunction syndrome, there are many authors who agree with the psychogenic aspect of the condition (3). In this study, 22 patients who are thought to have a primary role in emotional stress are observed. In a study, this rate was reported as 52%. However, it is stated that the phenomenon started suddenly in patients in this group, spontaneous remissions occur, and the psychological state worsens the results.

In TMJ muscle pain dysfunction syndrome, it is observed that the mean values of mouth opening capacity decrease due to pain and muscle spasm. This measurement has been reported as a minimum of 49.4 and a maximum of 58.6 mm in normal individuals (7). The average value we obtained in this study is 37.1 mm. This value indicates that mouth opening movements are restricted.

TMJ diseases and dysfunctions are closely related to all branches of dentistry. The problems that have arisen in parallel with the development of civilization in today's societies have made TMJ complaints a current issue. The chewing system is an extremely complex system. The etiology of such disorders is complex and not easily understood. For this reason, it was stated that knowing the pathological conditions and symptoms that may lead to the syndrome is very important in terms of diagnosis and treatment planning, and the data of our research were compared with the studies on this subject.

In conclusion, it is emphasized that the variations in clinical images and the pathogenesis should be taken into account in determining the treatment and plan of TMJ muscle pain dysfunction syndrome. In addition, due to the lack of specific standardized measurement techniques for this syndrome, it is difficult to easily understand the outcome of each cause alone. Since diagnosis constitutes a very important step in the treatment of diseases, the importance of detailed anamnesis, clinical and radiological examination is emphasized in our study.

## Declarations

**Author Contributions:** Conception/Design of Study- G.A.; Data Acquisition- G.A.; Data Analysis/Interpretation- G.A.; Drafting Manuscript- G.A.; Critical Revision of Manuscript- G.A.; Final Approval and Accountability- G.A.; Material and Technical Support- G.A.; Supervision- G.A.

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