

Original Article

Myofascial Pain Dysfunction Syndrome (MPDS)

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Abstract

Introduction:

Myofascial Pain Dysfunction Syndrome (MPDS) is one of the most important causes of the orofacial pain. The main purpose of this study was to evaluate 40 related variables in this regard.

Materials and Methods:

Thirty nine patients with MPDS were evaluated in this study. Different factors including age, gender, occupation, marital status, sensitivity of masticatory muscles, maximum opening of the mouth, deviation, deflection, involvement of temporomandibular joint, habit, parafunction, malocclusion, neck pain, headache, earache and history of jaw involvement, etc were analyzed in this evaluation.

Results:

In our study, 39 patients (32 females and 7 males), 20-40 years old, with the average age of 35 ± 13.32 years were studied. 51% were housewives and 74.4% were married. The most common involvements were Clicking (74.4%), pain in temporomandibular joint (54%), headache (46.2%), earache (41%), neck-pain (35.9%), trouble in the mouth opening (71.8%), malocclusion Class I (74.4%), cross bite and deep bite (25%), clenching (64.1%) and involvement of masseter and lateral pterygoid muscle (84%).

Conclusion:

Since MPDS consists of variable symptoms, it might be very difficult to provide any definite diagnosis and treatment. Therefore the more the specialists extend their knowledge and information about this disorder, the more they will make the best decision in this regard.

Keywords:

Myofascial Pain Dysfunction Syndrome (MPDS), Patient, Variables

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Introduction:

Any disorder in different parts of masticatory system particularly in muscles, temporomandibular joint and its related structures can lead to pain and dysfunction in temporomandibular joint (1,2). MPDS is the most common form of temporomandibular disorders. Previous studies have shown muscular involvement in 90% of cases (3,4). MPDS is the most common cause of oro facial chronic pains. It also leads the patient to a dentist due to some other problems than toothache (5,6).

In fact, MPDS is a psychological disorder which involves the masticatory muscles and results in pain, limitation in jaw movement, joint noise, jaw deviation in closing and opening the mouth and sensitivity in touching one or more masticatory muscles or their tendons (7).

Maybe the patient complains about headache, earache, hypertrophy of masticatory muscles and abnormal wear of masticatory surfaces, etc (7,8).

Different ideas have been expressed by investigators about the main causes of this disorder. But the main acceptable factors include occlusion disorders and psychological problems (8,9).

The number of old conducted studies introducing the occlusion disorders as the main leading factor for MPDS, is more than those regarding psychological problems as the more effective factor. Although the results have not shown occlusion disorders as the initiator factors, they can be considered as aggravating and secondary factors. Psychological disorders have recently been reported as the primary and important factor causing the disease (8). There is a lot of disagreement among investigators about the causes and also treatment methods which have been suggested for the disorder.

Materials and Methods:

This descriptive-cross sectional study was carried out on patients with MPDS, who had been referred to the Oral Medicine Unit of the Pain Clinic, Mashhad Dental School

from Nov, 2006 to March, 2007. These patients were first interviewed and evaluated by a dentist, under the supervision of oral specialists and then the patients' related data were registered.

Regarding the current study, those symptoms which played an important role in diagnosis of MPDS consisted of sensitivity in touching masticatory muscles; feeling pain in the region of masticatory muscles with jaw movement, jaw deviation in closing and opening the mouth, limitation in the mouth opening along with softness of extremities (8,9).

In the end, 39 patients with MPDS were selected and the following variable frequencies were evaluated:

1. Separated frequency of masticatory muscles' involvement.
2. Increased pain following nervousness, speaking, chewing, yawning and loneliness.
3. Slight and average limitation in mouth opening based on the Helkimo Index.
4. History of jaw locking, jaw dislocation and jaw damage.
5. Morning stiffness in masticatory muscles, headache, neck pain and earache.
6. Frequencies of deviation and deflection.
7. Frequency of occlusion class I, II and III and also different types of malocclusions including open bite, cross bite, deep bite, large over jet and edge to edge.
8. Special habits such as bruxism, clenching, biting foreign object or nail and also chewing gum.
9. Joint symptoms such as pain and clicking.

According to Helkimo Index, the patient opens his mouth wide open without feeling any pain and the gap of incizal edge of the upper and lower incisor teeth is measured. If these 30 to 39 millimeters there is a slight limitation in mouth opening. But if this gap is less than 30 millimeters, it shows a severe limitation. Mouth opening is normal when this gap is about 40 millimeters (2,5).

Jaw deviation while opening and closing the mouth, was described as deflection and deviation in this study.

Deviation means that during mouth opening, jaw deviates to one side and it return to its

normal position while closing the mouth. But in deflection, returning of jaw to its normal position does not occur while closing the mouth (10).

Finger touching is the common accepted method in examination of masticatory muscles to detect tenderness. A normal muscle is not sensitive when touched; whereas touching an involved muscle results in pain. Touching the muscle and its adjacent regions is done with middle finger, index finger and thumb. During touching, we have to press the considered muscle mildly but continuously. Also tissues around the muscle should be pressed by fingers rotationally and slightly (10).

Results:

Thirty nine patients were studied consisting of 32 females (82.1%) and 7 males (17.9%). The selected subjects were between 15 to 61 years old by the mean age of 35 ± 13.32 . Most subjects under the study were 20-40 years old with the frequency of 48.7%. 10 (25.6%) and 29 subjects (74.4%) were single and married respectively. It should be mentioned that housewives formed more than half of the patients (51.2%). Other occupation, included, students (15.3%), teachers (12.7%) and retirees (10.23%).

In addition to 4 variables (age, gender, marital status and occupation), 36 other variables were evaluated among the patients with MPDS. The results have been listed in table 1.

Discussion:

Based on the results of the current study, the outbreak of MPDS in females (82.1%) were more than males (17.9%). Results of this study are in agreement with those of other investigators including Madani, Darbandi, Yap and Deoliveira (11-14). Since females are more exposed to psychological disorders and they have very limited tolerance to pain, these results might be reasonable (15).

Table 1: Frequency of variables related to myofascial pain dysfunction syndrome

Variable		No	%
Pain in masticatory muscles	Med. pterygoid muscle	34	87
	Masseter muscle	33	85
	Temporal muscle	16	41
	Lat. Sup. pterygoid muscle	12	31
	Lat. Inf. pterygoid muscle	21	54
Aggravators of muscle pain	Anger	24	61.5
	Talking	8	20
	Chewing	39	100
	Yawing	38	97.4
	Loneliness	15	38.5
Mouth opening	Mild limitation	24	61.5
	Severe limitation	4	10.3
	Normal	11	28.2
Jaw dislocation	Deviation	3	7.7
	Deflection	16	41
Histories	Jaw locking	3	7.7
	Jaw dislocation	2	5.2
	Jaw trauma	6	15.4
	Morning stiffness of masticatory muscles	28	71.8
Occlusion state	Class I	29	74.4
	Class II	8	20.5
	Class III	2	5.1
Malocclusion state	Open bite	4	10.3
	Cross bite	10	25.6
	Deep bite	10	25.6
	Large over jet	1	2.6
	Edge to edge	2	5.2
Habits or parafunctions	Bruxism	22	56.4
	Clenching	25	64.1
	Foreign body biting	10	25.9
	Gum chewing	14	35.9
Associated pains	Headache	18	46.2
	Earache	16	41
	Neck pain	14	35.9
TMJ symptoms	Joint pain	21	54
	Joint clicking	29	74.4

In this study, the mean age of subjects was 35 ± 13.32 ; whereas in the studies achieved by other investigators such as Honarmand, Madani, De Boever and Altinday, they were 32.4, 26.67, 33.5 and 31.3 respectively (9,11,16,17). According to the results of the current study and other investigations achieved by Lipton and Glass, the most common age for presentation of this syndrome is between 20-40 years old

(18,19). There was not any result on marital status and occupation in other studies to be compared with those in ours.

Regarding the results of the current study, the most and the least common muscular involvements are related to medial pterygoid (87% of cases) and temporal (41% of cases) muscles, respectively. In the study achieved by Darbandi, the most common muscular involvement is related to lateral pterygoid muscle (82.68%) that was as much the same as the results in the current study (Table 1) (12).

Anger and loneliness have been known to affect muscular function indirectly. These two factors were reported to exacerbate muscular pain in 61.4% and 38.5% of cases under study. According to the results of the studies done by Madland, Carlsson and Rollman, patients with MPDS have had low tolerance towards their routine problems and difficulties. Also anger, thought and imagination, severe and long muscular contraction, increasing pain and discomfort were common psychological stimulating factors in these patients (20-22).

Severe or slight limitation while opening the mouth was observed in 71.8% of patients; whereas Madani and Darbandi have reported 26% and 40.38%, respectively. These differences could be the result of difference in number of samples and measuring factors (11,12).

In the current study, jaw deviation and deflection were reported in 7.7% and 41% of patients in sequence; whereas Madani has mentioned total percentage of both of them as 45% (11).

It should be noticed that deviation is more obvious in obstructive disorders of the joints disk, whereas deflection is more common in masticatory muscles' disorders. So they are consistent with the nature of the current study (10).

According to the epidemiological studies achieved by Kamisaka, there was a relation between jaw damages and temporomandibular disorders (23). This result was shown in 15.4% of the stricken

subjects in the current study too. Jaw locking and jaw dislocation were obvious in 7.7% and 5.2% of cases, respectively. These scales were consistent with those reported by Madani (11).

In the current study it was revealed that occlusion class I, was the most common type in patients with MPDS. These results were consistent with those reported by Darbandi, Madani and Williamson too (12, 24,25). Regarding the current study and those achieved by Darbandi, Madani, Motegi, the most common malocclusions among patients with MPDS were cross bite, deep bite and open bite (12,24,26).

56.4% of cases were reported to have bruxism in the current study; whereas the scales reported by Honarmand, were 45.6%, 38% and 68.9% in sequence (9).

Bruxism is the most common habit observed in patients with MPDS. Long muscle contraction during bruxism prevents adequate blood supply to the muscular tissue and results in accumulation of CO₂ and painful products in muscle and finally leads to pain, fatigue and muscular spasm (15).

Patients with MPDS may show symptoms other than pain in masticatory muscles region such as earache, neck pain and particularly headache (12). In the current study, headache (46.2% of subjects) was more common than earache and neck pain. Tension headache caused by long muscular contractions was the most common type of headache.

Conclusion:

Signs and symptoms related to temporomandibular disorders are various and they are mostly time related (i.e .disappearance of some clinical manifestations of the disease and appearance of other ones later; so that the patient can experience different symptoms in every stage); so the more manifestations are detected by a thorough history and physical examine the more accurately the diagnostic will be made.

References

1. Laskin DM, Block S. Diagnosis and treatment of myofacial pain dysfunction (MPD) syndrome. *J Prothet Dent* 1986; 56(1): 75-84.
2. Carlsson EG, Magnusson T. Management of temporomandibular disorders in the general dental practice. Chicago: Quintessence; 1999: 13-93.
3. Cardli P, Lattari M, Massaro P, Pllieita M. Pharmacologic treatment of the dysfunctional patient. *J Minerva Stomatol* 2005; 54(5): 265-79.
4. Rauhala K, Okarinen KS, Raustia AM. Role of temporomandibular disease in facial pain: Occlusion, muscle, and TMJ pain. *J Cranio* 1999; 17(4): 245-61.
5. Okeson JP. Management of temporomandibular disorders and occlusion. 1st ed. St Louis: Mosby; 1989: 150-86.
6. Rezaei-Nejad A. Orofacial pain from basic sciences to clinical management. Tehran: Shayan Nemoudar; 2004: 5-87. (Persian)
7. Sherman D. Nonpharmacologic approaches to management of myofacial pain. *J Temp Mand Disorder* 2001; 5: 421-31.
8. Dolatabadi M, Kalantar-Motamed MH, Taheritalesh K. Temporomandibular disorders in the general dental practice. Tehran: Shayan Nemoudar; 2003: 5-27. (Persian)
9. Honarmand M, Javadzadeh A, Toofaniasl H, Madani AA. Frequency of psychiatric disorder in patients with myofacial pain dysfunction syndrome. *Journal of Mashhad Dental School* 2009; 33(1): 77-82. (Persian)
10. Okeson JP. Management of temporomandibular disorders and occlusion. 3rd ed. St Louis: Mosby; 1992: 228-342.
11. Madani A, Mehdizadeh F. Prevalence of temporomandibular joint disorders in patients referred to Mashhad Dental School. *Beheshti University Dental Journal* 2002; 20(2): 242-51. (Persian)
12. Darbandi A, Jajoei A. Etiology of TMJ disorder in patients referred to Shahed Dental School Tehran-2000. *Beheshti University Dental Journal* 2003; 21(1): 36-43. (Persian)
13. Yap AU, Chua EK, Tan KB. Depressive symptoms in Asian TMD patients and their association with non-specific physical symptoms reporting. *J Oral Pathol Med* 2004; 33(5): 305-10.
14. De Oliveria AS, Dias EM, Contato RG, Berzin F. Prevalence study of signs and symptoms of temporomandibular disorder in Brazilian college students. *J Pesqui Odontol Bras* 2006; 20(1): 3-7.
15. Okeson JP. Management of temporomandibular disorder and occlusion. 6th ed. St Louis: Mosby; 2008: 2-375.
16. De Boever JA, Drlaens PA. Occlusal relationship in patients with pain dysfunction symptoms in temporomandibular joint. *J Oral Rehabil* 1983; 10: 1-7.
17. Altinday O, Gur A, Altindag A. The relationship between clinical parameters and depression level in patient with myofacial pain syndrome. *Pain Med* 2008; 9(2): 161-5.
18. Lipton JA, Ship JA, Larch-Robinson D. Estimated prevalence and distribution of reported orofacial pain in the United States. *J Am Dent Assoc* 1993; 124: 115-21.
19. Glass EG, Glaros AG. Health service research on TMD. In: Sessle BJ, Bryant PS, Dionne RA. (editors). Temporomandibular disorder and related pain conditions. Progress in pain research and management. Seattle: IASP; 1995: 249-54.
20. Madland G, Feinmann C, Newman S. Factors associated with anxiety and depression in facial arthromyalgia. *Pain* 2000; 84: 225-320.

21. Carlsson GE. Epidemiology and treatment need for temporomandibular disorder. *J Orofac Pain* 1999; 13: 232-7.
22. Rollman GB, Gillespie JM. The role of psychophysiological factors in temporomandibular disorders. *Curr Rev Pain* 2000; 4: 71-81.
23. Kamisaka M, Yatani H, Kuboki T, Matsuka Y, Minakuchi H. Four-year longitudinal course of TMD symptoms in an adult population and the estimation of risk factors in relation to symptoms. *J Orofac Pain* 2000; 14: 224-32.
24. Madani SA, Ajami B. [A evaluation on occlusal relation and malocclusion in the incidence of temporomandibular disorder among Mashhad adolescents]. *Journal of dentistry of Tehran University of Medical Sciences* 2004; 17(2): 62-70. (Persian)
25. Williamson EH, Lundquist DO. Anterior guidance: Its effect on anterior temporalis and masseter muscles. *J Prosth Dent* 1983; 49: 816-23.
26. Motegi E, Miazaki H, Ogura I, Konishi H, Sedata M. An orthodontic study of TMD: Epidemiological research. *J Angle Orthod* 1992; 62(4): 249-56.

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