

MYOFASCIAL PAIN DYSFUNCTION SYNDROME – A CLINICAL STUDY

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SYNOPSIS

Facial pain originating from the Temporomandibular Joint areas and jaw muscles is a condition which faces many clinicians. The diagnosis of Myofascial Pain Dysfunction syndrome should eliminate other structural or general diseases which have a direct influence on the TMJ. A study of 24 MPD patients was conducted as regards to signs and symptoms and their treatment methods. The aetiology, examination and treatment methods are discussed. The study has shown that a combination of physiotherapy and the wearing of occlusal splints was successful in reducing most of the pain symptoms of these patients. The MPD syndrome should be investigated as a probable cause of facial pain.

INTRODUCTION

Facial pain originating from both temporomandibular joints (TMJ) and jaw muscles is a common clinical problem. Various names have been given to this group of symptoms. They include, Myofascial Pain Dysfunction Syndrome (MPD), Mandibular Dysfunction Syndrome (MDS) and the Temporomandibular Joint Dysfunction Syndrome (1).

Signs and symptoms of Myofascial Pain Dysfunction vary, but generally, the patient will complain of one or more of the following:- Pain in the region of the TMJ and mandibular elevators, Tenderness in the region of one or both joints, Temporomandibular joint sounds (clicking or crepitation); Restricted jaw opening, Disturbed chewing patterns and "Locking" of the jaw.

Muscle pain is one of the commonest presenting symptom and primarily involves the jaw muscles but sometimes cervical jaw muscles are involved. The pain may radiate over ipsilateral side of the face, jaw and neck. Headaches related to MPD is often caused by muscular tension of the jaw muscles (2).

The condition of dysfunction in these cases should specifically differentiate this clinical entity from a structural joint disease or organic disturbances of the joints.

The aim of this study is to examine the clinical pattern of presenting signs and symptoms of MPD and to assess the various methods of treatment received by these patients.

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MATERIALS AND METHOD

A study was conducted of patients referred to the Dental Clinic, Singapore General Hospital for pain around the temporomandibular joints. These cases were referred by private dental and medical practitioners, the SAF and from Government Hospitals. Twenty four patients (14 males and 10 females) were examined and treated for myofascial pain dysfunction syndrome. The data collected were recorded on standard forms. The patient's age range between 15 years and 58 years.

RESULTS

The clinical data of the signs and symptoms of the 24 patients are given in Table 1. The different treatment methods employed in this study are detailed in Table 2.

The presenting signs and symptoms of patients observed are given in Table 3. 83.3% of patients showed muscular pain and tenderness around the joint area. 58.3% of cases complained of pain around the TMJ. Joint sounds and clicking were observed in 70.8% of the patients. 58.3% (14 cases) complained of pain on opening the mouth and 66.0% (16 cases) had deviated mandibular movements towards the non-affected side. 20.8% (5 cases) had limited mouth opening and 25% of the cases showed severe wear-

facets on the occlusal surfaces of the teeth.

The types of treatment received by the patients are detailed in Table 4. 45.8% (11 cases) of patients underwent physiotherapy. In most cases, a course of ultrasound treatment over the affected TMJ area was prescribed over a period of time. Most patients found relief of pain after 1 week of treatment. Occlusal splints were constructed for 83.3% (20 cases) of the patients. The shortest period of wearing the splint was three weeks and the longest for one patient (AL) was for 1½ years.

Valium and analgesics were prescribed for 29.1% (7 cases) of patients while occlusal adjustment of high contact areas of the teeth was performed on 16.6% (4 cases) of patients. Most of the patients (91.6%) were instructed in performing correct movements of the jaw to prevent bad oral habits.

The majority of the patients treated had relief from pain symptoms within 3 months. Two patients (QSL and AL) were treated over a period of one year. 58% of the patients treated were in the younger age group of 15-30 years old.

DISCUSSION

Although there are many theories in respect of the cause of myofascial pain dysfunction syndrome, the "final common path" is expressed in muscle. Whatever the cause, hyperactive muscle can give rise to

TABLE 1: SIGNS AND SYMPTOMS

No.	Name	Age/Sex	Clicking Noise	Joint Pain	Muscular Pain or Tenderness	Limited Mandibular Movement	Pain on opening the mouth	Deviated Mandibular Movements	Teeth Wear Facets
1.	WBM	30/M	+		+		+		
2.	DCM	55/M		+	+				+
3.	GTF	22/M	+	+	+			+	
4.	CIS	58/F	+		+	+		+	
5.	PWH	46/M		+	+	+	+		
6.	CGK	41/F	+	+	+		+		+
7.	BG	15/F			+		+	+	
8.	LSM	44/M			+		+		
9.	SC	35/M		+	+				
10.	TWK	19/M	+	+	+		+	+	+
11.	LLW	20/M	+	+	+		+	+	
12.	AL	53/F	+	+	+		+	+	
13.	TWC	18/F	+	+	+				
14.	TKC	19/M	+	+	+		+		
15.	OKJ	21/M	+		+	+		+	+
16.	LSS	21/M	+				+	+	
17.	HPL	27/F	+		+	+	+	+	
18.	KHL	16/F	+	+	+	+	+	+	
19.	TWY	20/M	+	+				+	
20.	QSL	37/M	+	+	+		+	+	+
21.	CL	35/M			+			+	
22.	LAE	33/F			+			+	
23.	SC	30/M	+				+	+	
24.	IL	25/M	+	+				+	+

TABLE 2: TREATMENT METHODS

No.	Name	Age/Sex	Physiotherapy	Drugs	Occlusal Adjustment	Occlusal Splints	Correct Oral Habits
1.	WBM	30/M	+	+			+
2.	DCM	55/M	+				+
3.	GTF	22/M			+		+
4.	CIS	58/F	+				+
5.	PWH	46/M	+	+		+	+
6.	CGK	41/F				+	+
7.	BG	15/F	+	+		+	+
8.	LSM	44/M				+	
9.	SC	35/M				+	+
10.	TWK	19/M	+			+	+
11.	LLW	20/M				+	+
12.	AL	53/F		+		+	+
13.	TWC	18/F				+	+
14.	TKC	19/M				+	+
15.	OKJ	21/M	+			+	+
16.	LSS	21/M				+	+
17.	HPL	27/F	+			+	+
18.	KHL	16/F	+		+	+	+
19.	TWY	20/M			+	+	
20.	QSL	37/M	+	+		+	+
21.	CL	35/M		+		+	+
22.	LAE	33/F	+	+		+	+
23.	SC	30/M				+	+
24.	IL	25/M			+	+	+

Table 3: Pattern of Presenting signs and symptoms (N = 24)

	Signs and Symptoms	No. of Patients	% of Total
1.	Joint sounds, clicking	17	70.8
2.	Pain around the joint area	14	58.3
3.	Muscular pain or tenderness	20	83.3
4.	Limited mandible movements	5	20.8
5.	Pain on opening the jaw	14	58.3
6.	Deviated mandibular movements	16	66.6
7.	Teeth wear facets	6	25.0

Table 4: Types of Treatment received by patients (N = 24)

	Treatment	No. of Patients	% of Total
1.	Physiotherapy	11	45.8%
2.	Drugs	7	29.1
3.	Occlusal adjustment	4	16.6
4.	Occlusal splint	20	83.3
5.	Correct oral habits	22	91.6

pain (which may be localised or referred) and dysfunction, expressed in alteration of mandibular posture and movement. Approximately 83% of the patients in this study complained of muscular pain or tenderness in and around the joint area with 58% to 66% of them also having deviated or reduced movements of the mandible. It seems that in this group when the demands of the masticatory system becomes excessive and the upper limit of tolerance and adaptability is reached, the ensuing pain and dysfunction followed (3). Many of these patients gave a history of stress due to pressure of work, family problems or vocational hazards.

Occlusal disharmony of the teeth contributed only a small factor in including MPD syndrome. This was shown by the fact that only 16.6% (4 cases) needed occlusal grinding and adjustment of the occlusal surfaces of the teeth. Carlsson (4) in a recent review has shown that the role of occlusal interferences in causing MPD is not quite conclusive. He states that the outcome of occlusal interference depends on how they are used, and how a person adapts and reacts to them.

Many temporomandibular joints will click if excessive posturing of the mandible occurs during opening movements. Shore (5) advocated exercises where the patient learns to open slowly and progressively wider while holding the chin point backward to minimise the clicking condition. The patients in this study who complained of noises in the joint were taught these exercises and most of them found that the exercises reduced their clicking condition.

Most of the patients (83.3%) responded positively to the wearing of occlusal splint. Pain symptoms were reduced in many of these patients after wearing the occlusal splint for only two weeks. This feature seems to compare favourably with the findings of other workers (6). The two commonly used occlusal splints are the lower full coverage occlusal splint and the upper anterior plateau (Fig. 1, 2). It is difficult to explain how a bite plane (occlusal splint) actually works in the treatment of these cases. One hypothesis is that the success is attributed to an improvement in the skull-mandible relationship and to others who explain success in terms of improved muscular relaxation or balance (7). The occlusal splint will remove all

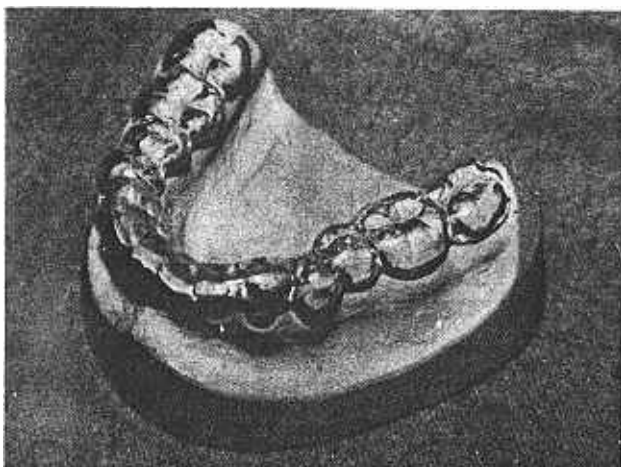


Fig. 1. Lower Acrylic "Occlusal Splint" on stone cast.

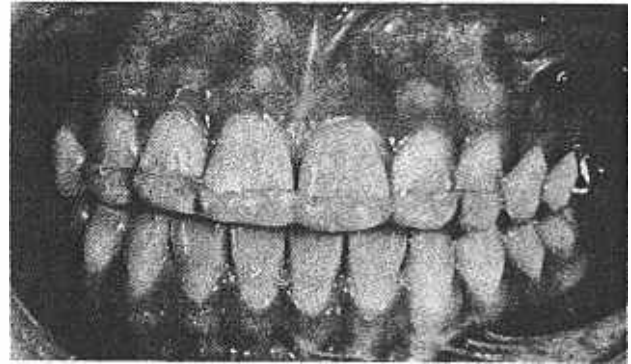


Fig. 2. Upper anterior plateau splint in position, teeth in occlusion.

occlusal stimuli which may have been causing displacing activities and any consequent hyperactivity of the jaw muscles (8, 9).

People cope with anxiety in many ways, Trenouth (10) has pointed out that those suffering from M.P.D. syndrome tend to use their jaws as a means of releasing emotional tension to a greater extent than others. Thomas (11), Moody (12) found that conditions of stress designed to produce anxiety and frustration caused MPD patients to show greater tension in the masticatory muscles than non-MPD patients and that this tension was maintained for longer periods.

Most of the patients who underwent physiotherapy (11 cases) in this study obtained relief from pain and reduced muscular tension around the TMJ area after 1 week. This positive response seem to substantiate the fact that muscular tension could be a causative factor in causing facial pain.

In conditions which has a pronounced emotional overlay, the clinician may very well have a deeper than usual involvement with his patient. Indeed the success of treatment is often dependent upon the rapport and understanding established between them.

The condition of MPD syndrome must be differentiated from conditions arising from organic disease like osteoarthritis and rheumatoid arthritis.

In acute osteoarthritis, muscle pain and trismus can simulate a myofascial pain dysfunction syndrome. Radiographic findings usually reveal a rapid destructive process of the condyle and eminentia. Radiographs usually reveal fuzzy margins on the condyle followed by the articular eminence and radioluscent spots or spur formation on the condyle. Crepitus occurs early with a limitation of movement due to the splinting of the muscles. The disease process is most often unilateral and affects the center of the joints working its way peripherally. In the event symptoms persists up to 2 years, surgical intervention may be necessary (13).

Rheumatoid arthritis must be differentiated from osteoarthritis. In rheumatoid arthritis the synovial cells are converted to pannus cells that secrete an enzyme which erodes the articular surface (14). This is associated with acute inflammation of the marrow spaces. The pathological process erodes from the periphery towards the center, corresponding to the location of the synovial cells. Rheumatoid arthritis is usually a bi-lateral disease, and other joints of the

body, such as the hip, knee and elbows are affected first.

There is general agreement that MPD syndrome is multicausal. Definitive diagnosis is sometimes difficult, and as a result empirical methods must be utilized. There are many approaches and methods for palliative and definitive treatment which are used in combination. This study has shown that a combination of physiotherapy and the wearing of occlusal splints was successful in reducing most of the pain symptoms of these patients.

Facial pain is of particular interest to the clinician and differential diagnosis of acute and chronic pain in the face remains one of the most challenging and perplexing fields of clinical therapy. Pain arising from the myofascial Pain Dysfunction Syndrome (MPD) should be investigated as a probable cause of facial pain.

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REFERENCES

1. Laskin D M: Etiology of the pain dysfunction syndrome. *J Amer Dent Assoc* 1969; 79: 147-53.
2. Lous I: The importance of referred pain in myogenic headache. *Headache* 1976; 16: 119-122.
3. Berry D C: The Temporomandibular Syndrome. *J Prosthet Dent* 1963; 13: 1122-9.
4. Carlsson G E: Consequences of occlusal interferences. In: Zarb G A Ed. *Prosthodontic treatment for partially edentulous patients* 1978; 163-5.
5. Shore W A: Educational program for patients with temporomandibular joint dysfunction. *J Prosthet Dent* 1970; 23: 691-5.
6. Griffin C J, Munro R R: Electromyography of the masseter and anterior temporalis muscle in patients with temporomandibular joint dysfunction. *Arch Oral Biol* 1971; 16: 929-49.
7. Franks A S T: Comparative treatment of temporomandibular dysfunction, a comparative study. *Dent Pract* 1965; 15: 205-9.
8. Graf H: Bruxism. *Dent Clin N Amer* 1969; 13: 659-64.
9. Green C S, Laskin D M: Splint therapy for the myofascial pain-dysfunction (MPD) syndrome. *J Amer Dent Ass* 1972; 84: 624-8.
10. Trenouth M J: The relationship between bruxism and temporomandibular joint dysfunction as shown by computer analysis of nocturnal tooth contact patterns. *J. of Oral Rehabil* 1979; 6: 81-7.
11. Thomas L J, Tiber N, Schireson S: The effects of anxiety and frustration on muscular tension related to temporomandibular joint syndrome. *Oral Surg* 1971; 36: 763-8.
12. Moody P M, Callhoun T C, Okeson J P, Kemper J T: Stress-pain relationship in MPD Syndrome patients and non-MPD Syndrome patients. *J Prosthet Dent* 1981; 45: 84-8.
13. Toller P A: Osteoarthritis of the mandibular Condyle. *Brit Dent J* 1973; 134: 223-9.
14. Blackwood H J J: Arthritis of the mandibular joint. *Brit Dent J* 1963; 115: 317-26.