

TEMPOROMANDIBULAR PAIN DYSFUNCTION SYNDROME — AN ANALYSIS OF FIFTY PATIENTS

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SUMMARY

Fifty patients with temporomandibular pain dysfunction syndrome were examined. Seventy-eight percent and 32 percent were female and male respectively. The white collar workers were more frequently affected. Emotional stress, dental malocclusion and a history of trauma were the main causes. Treatment consists of reassurance, relaxed jaw movements and exercises, anxiolytic drugs, thermotherapy, biting appliance, occlusal adjustments and restoration of lost dental units.

INTRODUCTION

Temporomandibular joint pain dysfunction syndrome (TMJPS) is also known as Arthro-facial myalgia which is caused by spasms of the muscles of mastication. Shortening of the muscle spindles, triggered by prolonged emotional stress, dental occlusal dysharmony and loss of occlusal function, and direct trauma to the surrounding areas invariably results in muscle tenderness, limitation

to jaw opening and moderate to severe pain felt in and around the temporomandibular joint which will bring the patient to seek treatment. Clicking and rarely, locking of the joints are sometimes seen.

TMJPS is not an organic disease of the temporomandibular joint, which is always found to be intact on radiographic films. It is therefore very essential that this condition should be clearly differentiated from pain arising in the joint due to organic diseases like osteoarthritis and rheumatoid arthritis. This paper explores the aetiology, clinical presentation and management of TMJPS.

MATERIALS AND METHODS

Fifty patients with complaints of pain in and around the temporomandibular joint were seen in the Department of Oral Pathology and Oral Medicine, Faculty of Dentistry, University of Malaya. Thirty seven (74 percent) patients and 11 (22 percent) patients were referred by dental surgeons and physicians respectively. Two (4 percent) patients came on their own.

Each patient was managed according to the aetiology of the pain.

RESULTS

The group of 50 patients comprised 27 (54 percent) Chinese, 20 (40 percent) Indians and 3 (6 percent) Malays. Forty-six (8 percent) patients were below the age of 30 years (Table 1). Using the social class grouping, it was found that the majority (30

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TABLE I
AGE DISTRIBUTION OF THE 50 PATIENTS

Age (years)	Number	Percentage
11-20	12	24
21-30	34	68
31-40	2	4
41-50	2	4
All Ages	50	100

TABLE III
SEX AND MARITAL STATUS OF THE 50 PATIENTS

Status	Males	Females	Total
Unmarried	4	17	21
Married			
(a) Housewives	—	15	15
(b) Employed	10	4	14
Total	14(28%)	36(72%)	50(100%)

patients or 60 percent) falls into class II (Table II). Thirty-six (72 percent) were females and 14 (28 percent) were males. Seventeen (34 percent) and 4 (8 percent) were unmarried female and male respectively, whilst 15 (30 percent) were housewives (Table III). Six (12 percent) gave a positive history of some form of trauma before the onset of the pain, whilst 32 (64 percent) admitted to having a history of emotional conflict, stress and depression (68 percent women and 32 percent men). Thirteen

TABLE II
SOCIAL CLASS GROUPING OF THE 50 PATIENTS

Group	Number	Percentage
Group I (Professional)	11	22
Group II (White collar workers)	30	60
Group III (Skilled labourers)	6	12
Group IV (Semi skilled labourers)	3	6
All groups	50	100

(26 percent) patients were found to have either deficient occlusal support due to loss of molar teeth, or dental irregularities sufficient to alter the normal pattern of jaw movement.

All patients had pain around their temporomandibular joint areas, whilst 40 (80 percent) had clicking sounds and 2 (4 percent) had periodic locking of the joint.

DISCUSSION

The sex ratio, age distribution and occupation are important factors in TMJPDS. Women seem to

be affected more than men; the ratio holds true regardless of the marital status of the person. The majority are below the age of 40, with the peak incidence between the ages of 20-30 years. However, it is also known that persons at either extremes of age may also be affected. These figures seem in accordance with that of Boering (1966) who stated that TMJPDS is a disorder predominant in women, the sex ratio being very nearly F:M = 3:1, with a mean age of presentation at 30 years. Cobin (1969), Thomson (1971) and Green (1973) have shown that this syndrome is closely related to the emotional state of the patient: Any that produces tension, worries, depression and discontent may predispose to the development of TMJPDS. This study tends to support the above finding when it was found that the majority of the sufferers were from group II and group I social groupings. It is known that the white collar workers and the professional groups (group II & I) are faced with more worries and tensions in their daily decision making than the labourer groups (group III and IV), be it conscious or subconscious.

The abundant and complex musculature is highly innervated, and any disturbance in the neuro-muscular coordination may rapidly set up a dysharmony between the two, resulting in muscle spasm, which, in susceptible patients, will produce the TMJPDS. Electromyographic studies have confirmed these. It is a point of interest that 32(88.9 percent) out of the 36 women patients were either unmarried or housewives. Could this explain the age-old layman suspicion that women, especially the unmarried, and the unhappy housewives are more stressful and prone to tension-producing situations?

Emotional stress, anxiety and depression the main cause of TMJPDS (Thomson 1971, Green 1973, Toller 1974). The trigeminal nerve is mainly responsible for conveying the impulses that arise around the temporomandibular joint centrally to reach the thalamus. From here, the impulse reaches four areas: The sensory cortex, temporal cortex, the hypothalamus and the frontal lobe. The last mentioned zone is responsible for emotional response.

Thirty-two (64 percent) patients readily admitted to being under emotional stress, anxiety, tension, and depression. Of these, the number of women doubled that of men. Dissatisfaction and unhappiness at work, domestic problems, frustrations, resentment, fear and worry are the commonest examples of anxiety neurosis met. The loss of someone close at heart is an important example of reactive depression that led to TMJPDS in some patients.

Dental irregularities and malocclusion that lead to abnormal chewing pattern, as well as loss in occlusal support due to loss of the molar teeth are significant factors. Boering (1966) and Franks (1967) showed that most of their TMJPDS cases had 3-4 missing dental units, which they believed to be partially responsible for the condition. It is widely accepted that when a patient with normal occlusion clench his teeth together, a balanced support is established between the teeth of both jaws on one hand and the condylar head of the mandible against the glenoid fossa on the other. But when a few dental units have been lost, especially the molar teeth, this happy state of affairs does not exist any longer. On closing the mouth, the condyle now impinges onto the posterior aspect of the joint, compressing the neuro-vascular bundles, which could lead to local pain and subsequent muscle spasm.

Dental irregularities or malocclusion invariably produces irregular, non-smooth sliding movement of the mandible due to obstruction of its movement. The oral structures are rich in proprioceptors which may be easily upset by this jerky and uncoordinated jaw movements which

may in turn, produce spasms of the muscles of mastication. This study tends to support the findings of Boering (1966) and Franks (1967) as 13 (26 percent) of our cases showed either dental irregularities or loss of molar support.

Trauma, in any form, does not seem to be the main cause of TMJPDS. Only 6 (12 percent) patients were aware that pain started following either one of these: traumatic multiple extractions of teeth, excessive laughing, shouting and yawning following events leading to such behaviours, or direct traumatic blows to the joint area. All these are known to set the muscles around the joint into spasms, in susceptible patients.

The authors believe that management of TMJPDS should be divided into two phases: conservative and non-conservative.

Conservative phase: The majority of our patients responded well with reassurance. A sympathetic ear to the problems and worries that haunt the patients has proved to be effective. Such patients are desperate for communication, which they often cannot find. They will find tremendous relief and satisfaction in the dental surgeon or physician who understands their problems and difficulties. Anti-anxiety drugs like diazepam and nitrazepam are the drugs of choice which may be given to allay anxiety and has been found to produce good results. Analgesics, like mefenamic acid or dihydrocodeine are helpful in abolishing pain. Relaxed jaw movements and exercises to avoid further triggering the proprioceptors, avoidance of excessive mouth opening, soft diet, and thermotherapy to the affected region either in the form of a hot face towel, applied several times daily to the affected area, or by the use of short wave diathermy are routine measures. Green (1973) has shown that the use of the occlusive splint or biting appliance worn nightly cured 80 percent of his patients. It is thought that the splint prevents the generation of injurious proprioceptive impulses due to cuspal interference from the teeth, or alternatively, it may act simply as a "placebo".

Psychiatric help may be required in intractable cases.

Non-conservative phase: This phase is only entered after all the above mentioned methods have failed to produce results. The dental state of the patients should be thoroughly examined for malocclusion that leads to interference of smooth jaw movements. If so, occlusal adjustment in the form of permanent alteration to the tooth surface must be undertaken. In severe malocclusion, the positions of the offending teeth may be orthodontically or surgically repositioned. It must be stressed that these are irreversible procedures and should only be carried out as a last resort. The restoration of lost dental function is affected by removable denture or fixed appliances wherever applicable.

REFERENCES

- Boering, G. (1966) *Arthrosis deformans van het kaakgewicht. Gronigen: Drukkerij Van Denderen*, 54-57
- Cobin, H.P. (1969) Treatment of the temporomandibular pain dysfunction syndrome, *N. Y. St. dent J.*, 35, 552-555.
- Franks, A.S.T. (1967) The dental health of patients presenting with T.M.J. dysfunction, *Brit. J. Oral Surg*, 5, 157-160.
- Green, C.S. (1973) Survey of current professional concepts and opinions about the myofascial pain dysfunction syndrome, *J. Amer dent. Ass.*, 86, 128-132.
- Thomson, H. (1971) Mandibular dysfunction syndrome, *Brit. dent. J.*, 130, 187-190.
- Toller, P.A. (1974) Temporomandibular arthropathy, *Proc. Roy. Soc. Med.*: 67, 153-155.