

Rate of Prevalence of Temporomandibular Joint Dysfunction (MPDS) Among Partially Edentulous Population around Patna: A Population Based Study.

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ABSTRACT

Background: Temporomandibular joint is a unique type of joint in which translatory as well as rotational movements are possible and where both ends of bone articulate, in the same plane, with that other type of bone. It is also known as ginglymodiarthrodial joint. TMJ function has very important role in maintaining overall health of an individual, a little bit of dysfunction in temporomandibular joint internally or externally leads to severe discomfort to the individual. Myofacial dysfunction is now a day's common among population specially, partially edentulous population. In order to know exactly the relationship between partial edentulousness and myofacial dysfunction this study is undertaken. Aim: To know the rate of prevalence of myofacial dysfunction among partially edentulous individual. **Methods:** Total of 200 individuals having partial edentulousness not less than 5 year and having no any abnormality either systemic or local of age group 40-50 were taken for the study. **Results:** Total of 200 patients were taken for the study in which 110(55%) were female and 90(45%) were male patients. Frequency of distribution of various TMJ dysfunctions in which masseter muscle tenderness is (78%),temporalis muscle tenderness is (36%),medial pterygoid tenderness is (71%) and lateral pterygoid tenderness is (82.5%).Pain and tenderness over TMJ is seen in (85.5%) of total patients where as shifting of mandible is found to be in (17%) of patients. Mouth opening between 10-20 mm is found to be only (5%) where as 20-30 mm opening is found to be 16% and 30-40 mm opening is found to be (79%). Most of the Occlusion state of is found to be class 1 which is (90%) where as class II patients (6%) and class III is found to be (4%). One of the important feature during opening and closing is clicking sound which is found to be in (72%) of patients and crepitus is found in 56.5% of patients. Stress is found to be responsible in (52.5%) patients in triggering pain where as chewing (83.5%) and yawning is found to be (86%). **Conclusion:** The Study shows clearly that the period of edentulousness is factor in MPDS.However a broad and comprehensive study is required.

Keywords: MPDS, TMJ Dysfunction, Partial Edentulous, Myofacial Pain.

INTRODUCTION

Temporomandibular disorder is well known clinical condition affecting number of individuals; it is defined as a group of conditions characterized by pain and dysfunction in temporomandibular joint and /or muscles involved in mastication.^[1] MPDS is one of the most common cause of orofacial chronic pains.^[2] TMJ dysfunction affects individual variably from minor discomfort to severe pain in such a way that it disturb quality of life psychologically, emotionally and disturb daily activities. A number of studied shows muscle involvement in 90% of cases.^[3] It involves the muscles of mastication, results in pain, limited jaw opening, clicking of sound, deviation of jaw movement and muscle tenderness. The pain involving TMJ and associated muscle is varies with the individual ranging from mid discomfort to severe pain leading to limited mouth opening and

chewing difficulty. The main etiology behind the MPDS is not very well understood however several factors are supposed to be the reason behind the dysfunction. Many authors suggested that the loss of dentition and disturbance of occlusion or unsatisfactory occlusion as the most frequent factor causing MPDS. Various suggestions have been expressed by investigators about the main causes of this disorder but the main acceptable factors include occlusion disorders and psychological problems.^[4] However some other authors suggested that hyper function may trigger myofacial pain and assert that the TMJ disturbance are usually related to dysfunction of masticatory muscles and /or emotional disturbances. Probably because they are masticatory muscles results in pain, limitation of jaw movement, joint noises,deviation in opening and closing of mouth and sensitivity in touching one or more muscles of mastication or their tendons.^[5] MPDS shows lifetime prevalence of

85% in general population.^[6] It is seen in various studies that females are more commonly affected.

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MATERIALS AND METHODS

This cross sectional study was carried out on partial edentulous patients in order to know the exact relationship between partial edentulism and MPDS. A total of 200 patients having one or more signs of MPDS in the age range of 40-50 years were taken for the study in which 110 patients were female and 90 were male having period of edentulousness is not less than five year. Patients having any history of trauma and cervical problem were not considered.

MPDS signs and symptoms which is quite commonly encountered were taken as reference like, muscle tenderness over TMJ, masticatory

muscle sensitivity, sounds in opening and closing, deviation in opening mouth, limitation in mouth opening, feeling of heaviness around TMJ. Informed consent was taken from the participating patients.

Muscle tenderness were checked by touching it with the index, middle and thumb finger, masseter and temporalis were palpated using bimanual palpation where as superior lateral and medial pterygoid were examined by asking the subjects to clench their teeth and inferior lateral pterygoid by asking the subjects to protrude against resistance provided by the clinician. Joint sound like clicking and crepitus were checked with the help of stethoscope by placing in front of external auditory meatus.

Deviation denotes the shifting of jaw other than normal position, in case of MPDS it generally deviates to affected side.

Tenderness over TMJ was checked using standard bimanual digital palpation bilaterally over external auditory meatus and laterally over condyl in the vicinity of preauricular region.

RESULTS

Variables	Total no of patients taken	NO of patients affected	Percentage of the affected patients (%)
1) pain and tenderness in masticatory muscles	200	156	78
a) Masseter		87	43.5
b) Temporalis		78	39
c) Medial pterygoid		165	82.5
d) Lateral pterygoid			
2) Pain and tenderness over TMJ		171	85.5
3) Shifting of mandible during closing		34	17
4) Mouth opening			
a) between 10-20mm		10	5
b) between 20-30mm		32	16
c) between 30- 40 mm :		158	79
5) Occlusion state			
a) class I :		180	90
b) class II :		12	6
c) class III :		8	4
6) opening sound like			
a) clicking :		144	72
b) crepitus :		113	56.5
factors triggering pain			
a) stress :		119	59.5
b) physical work :		37	18.5
c) chewing :		167	83.5
d) yawning :		172	86

Total of 200 patients having partial edentulousness for not less than five years were taken for the study in which 110 (55%) were female and 90 (45%) were male patients.

[Table 1] shows the frequency of distribution of various TMJ dysfunctions in which masseter muscle tenderness is (78%), temporalis muscle tenderness is (36%), medial pterygoid tenderness is (71%) and lateral pterygoid tenderness is (82.5%). Pain and tenderness over TMJ is seen in (85.5%) of total patients where as shifting of mandible is found to be in (17%) of patients. Mouth opening between

10-20 mm is found to be only (5%) where as 20-30 mm opening is found to be 16% and 30-40 mm opening is found to be (79%). Most of the Occlusion state of is found to be class I which is (90%) where as class II patients (6%) and class III is found to be (4%). One of the important feature during opening and closing is clicking sound which is found to be in (72%) of patients and crepitus is found in 56.5% of patients. Stress is found to be responsible in (52.5%) patients in triggering pain where as chewing (83.5%) and yawning is found to be (86%).

DISCUSSION

It is well known fact that loss of tooth for a longer period leads to migration into adjacent edentulous space and if not restored in time; causes occlusal problem. It has been seen that occlusal disturbances is one of the factor which causes TMJ dysfunction and myofacial pain dysfunction. It is documented that patients having few remaining teeth may have higher incidence of TMJ dysfunction.^[7] In this study a total of 200 patients having one or more sign and symptoms of MPDS were taken in which 110(55%) female patient was found to be suffering with MPDS where as 90 (45%) male patient was found to be affected with MPDS. The result of this study is found to be in accordance with other investigators like of Darabandi, Madani, Yap and Deoliveria.^[8-10] Since females have limited tolerance to pain and are more exposed to psychological disorder, these result may be reasonable.^[2] However some other study suggested that both of sexes are equally affected.^[11] The present study shows that most common muscle tenderness found to be lateral pterygoid (82.5%) followed by masseter(78%),temporalis (43.5%)and medial pterygoid(39%). Darabandi found that lateral pterygoid involvement is (82.68%) which is similar to the present study.^[12] Pain and tenderness is quite common among the patient affected with MPDS and it is (85.5%) and it is quite natural as well most of the studies proven it. Shifting of mandible during closing is found to be (17%) where as some studies by Madani shows it is 45% it includes both deviation and deflection.^[13] The present study found that among the MPDS most of the patient fall into class I occlusion state(90%) this is reported to accordance to the study done by Darabandi, Madani and Williamson too.^[14,15] Opening sound like clicking (72%) and crepitus (56.5%) is found to close to the study done by Hamid Mortazavi et al The factor which triggering pain the is yaning (86%), chewing (83.5%) and stress accounts to (59.5%) and physical work (18.5%).

One of the important factor which is taken into consideration is mouth opening, since in this condition due to pain normal mouth opening is compromised, in the 30-40mm bracket (79%) patient falls whereas (16%) of patient has limited mouth opening (20-30mm)

CONCLUSION

The present study strongly correlates that partial edentulism is one of the reason of MPDS or TMJ dysfunction, since with loss of tooth there is a gradual loss of supporting bone and associated structure and migration of tooth which leads to loss

of proper occlusion, these all factors overload the TMJ and associated structure, which may be the reason of this MPDS. The Study shows clearly that the period of edentulousness is factor in MPDS. However a broad and comprehensive study is required.

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