

Study of Internal Derangement of Temporomandibular Joint in Bihar Population: A Mystery

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Abstract

Background: Internal derangements of temporomandibular joint (TMJ) are conditions in which articular disc has become displaced from its origin position the condylar head. This displacement causes musculature, ligaments, and impairment.

Materials and Methods: Patients of different age groups were studied. The patients having signs and symptoms of temporomandibular disorders and research diagnostic criteria positivity were studied.

Results: 4 (6.15%) were below 18 years, 7 (10.7%) were aged between 18 and 35 years, 19 (29.2%) aged between 36 and 50, 23 (35.3%) were between 51 and 65, and 19 (18.4%) were >65 years of age. The clinical manifestations were as follows: 23 (35.3%) had myofascial pain dysfunction syndrome, 19 (29.3%) had osteoarthritis, 26 (40%) had clicking sound, 17 (26.1%) had crepitus, 4 (6.1%) had joint tenderness, and 27 (41.5%) had deviation of mandible on opening.

Conclusion: This study implies that TMJ. derangements are not uncommon; however, they are self-limiting and respond well to conservative, inexpensive care. In the rare cases, surgical intervention may require.

Key words: Clicking, Crepitus, Myofascial pain dysfunction syndrome, Research diagnostic criteria, Temporomandibular joint

INTRODUCTION

Temporomandibular joint (TMJ) disorders are a collective term for conditions that involve pain and/or dysfunctions of the TMJ and the related structures.^[1] Females are more prone than males. Most of the TMJ disorder involve either muscular or skeletal or both. The articulating head of the condyle of mandible is oblong, being longer, mediolaterally than anteroposteriorly. The long axis of the condylar heads is angled and hence that the medial poles point is slightly posteriorly toward the foramen magnum.^[2] Both TMJ condyles and mandibular fossa of the skull are lined by fibrous connective tissue, show comparatively less damage overtime, and have better repair properties as compared to other joints of the body.^[3] The articular disc is biconcave in shape, with the thinnest portion near its center. Posterior border is

thicker than anterior border and the medial border is thicker than lateral border. These thicker borders aid in keeping the disc in place atop the round condylar head, moreover, lamina attaches from articular disc to the mandibular condyle has venous plexus which fills, blood during protrusion of the mandible.^[4] TMJ is hinge like or ginglymoid fashion. Roughly half of maximum opening is archived by this motion. The sliding motion allows second half of maximum opening, as well as the lateral, protrusive, and retrusive movements. This combination of hinge-like and sliding movements classified as TMJ is ginglymoarthrodial joint.

The term internal derangement refers to conditions with the articular disc displaced from its original position on the mandibular condyles. There are several specific conditions, differentiated by the position of articular disc during mandibular movements and non-movement. Hence, these movements with derangements were evaluated.

MATERIALS AND METHODS

Sixty-five patients of different age groups visited to the Dental Department of Narayan Medical College and Hospital, Sasaram-821305, Bihar, were studied.

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Inclusion Criteria

Patients having signs and symptoms of temporomandibular (TM) disorders and positive findings of research diagnostic criteria (RDC) were criteria.

Exclusion Criteria

Patients having previous history of TMJ surgeries. TM pathologies patients whose third molar was extracted were excluded from the study.

Methods

RDC is diagnostic method to study the conditions affecting either TMJ or masticatory musculature or both. The sign and symptom include pain in muscles of mastication, and/joint, which can radiate and refer locking unlocking, inability to open fully, dislocation, noises such as clicking and crepitus during movement of joint headache, tightness, around the face in morning, and referred pain to ear were recorded. Duration of study was June 2017 to July 2020.

Statistical Analysis

Various age groups and clinical manifestations were classified with percentage. The statistical analysis was carried out in SPSS software. The ratio of females and males was 2:1.

OBSERVATION AND RESULTS

Table 1, Study of age an internal derangement of TMJ was –4 (6.15%) were below 18 years of age, 7 (10.7%) were between 18 and 35 years of age, 19 (29.2%) were between the age of 36 and 50, 23 (33.3%) were between the age of 51 and 65, and 12 (18.4%) were >65 years of age.

Table 2, Clinical manifestation in internal derangement of TMJ was as follows: 23 (35.3%) had myofascial pain dysfunction syndrome (MPDS), 19 (29.3%) had osteoarthritis, 26 (40%) had clicking sound, 17 (26.1%) had crepitus, 4 (6.1%) had joint tenderness, and 27 (41.5%) had deviation of mandible on opening.

DISCUSSION

Study of internal derangement of TMJ in Bihar population was as follows: 4 (6.1%) were below 18 years, 7 (10.7%) were aged between 18 and 35, 19 (29.7%) were aged between 36 and 50 years, 23 (35.3%) were aged between 51 and 65, and 12 (15.4%) were > 65 [Table 1]. 23 (35.3%) had MPDS, 19 (29.3%) had osteoarthritis, 26 (40%) had clicking sound, 17 (26.1%) had crepitus, 4 (6.1%) had joint tenderness, and 27 (41.5%) had deviation of mandible on opening [Table 2]. These findings are more or less in agreement with the previous studies.^[5-7]

Table 1: Study of age in internal derangement of TMJ (Number of patients: 65)

S. No.	Particulars	Number of patients	Percentage
1	Age below 18	4	6.15
2	18–35	7	10.7
3	36–50	19	29.2
4	51–65	23	35.3
5	>65	12	18.4

TMJ: Temporomandibular joint

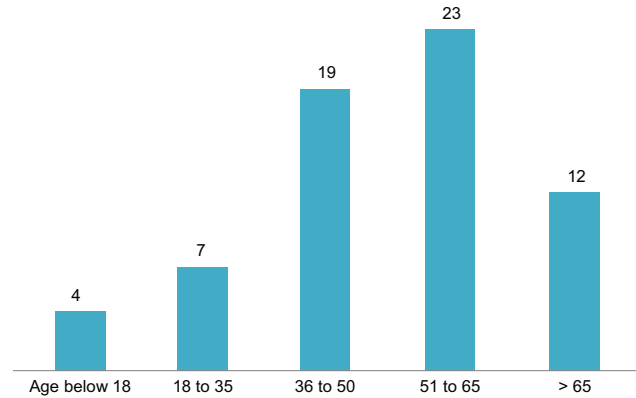
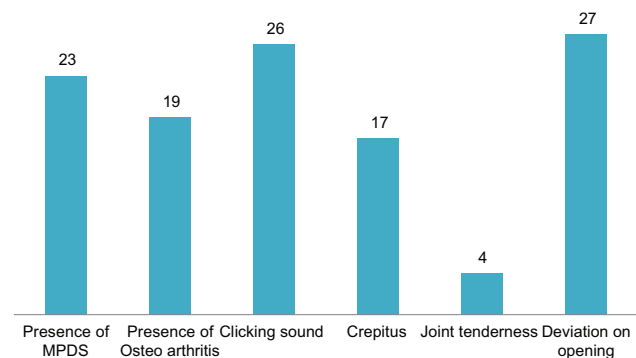


Table 2: Clinical manifestation in internal derangement of TMJ

S. No.	Manifestation	Number of patients	Percentage
1	Presence of MPDS	23	35.3
2	Presence of osteoarthritis	19	29.3
3	Clicking sound	26	40
4	Crepitus	17	26.1
5	Joint tenderness	4	6.15
6	Deviation on opening	27	41.5

TMJ: Temporomandibular joint; MPDS: Myofascial pain dysfunction syndrome



Disc displacement with reduction occurs when range of motion is not limited; however, movement may not be smooth as normal TMJ. Because momentary sliding of the condyles on and off the disc. In posterior disc displacement, disocclusion of posterior dentition occurs on the affected side, typically 1 mm; pain is present more often when the disc is perforated. Joint sounds occur with click in majority of cases. Open lock and TMJ luxation

were also observed in few cases,^[8] disc displacement without reduction, without limited opening, and the mandibular movements are not limited. Disc displacement with reduction, with intermittent locking is identical to disc displacement with reduction, with the additional mandibular opening on the occasions that disc does not reduce.^[9]

Pain of TMJ requires treatment when pain is not acceptable to the patient and when pain limits range of motion, range of motion is needed to maintain fluid flow in the joint and thus clearance of irritants, fluid flow maintains lubrication between the articular surfaces. Dysfunction is generally not acceptable to the patient, when it affects eating food, talking. Dysfunction usually involves a limitation in range of motion, which can perpetuate damage.

Disc displacements do not cause pain or dysfunction and therefore do not require treatment,^[10] but they have joint noises. However, the suddenness of onset of pops and clicks, the relative loudness, and lack of any signs and symptoms can cause anxiety in the patients when disc displacement is painful do require management of pain and dysfunction. The pain is due to inflammation within the joint are adequately managed with non-steroidal, anti-inflammatory drugs will also address the dysfunction of the joint. Reduction of disc may relieve the pain.^[11] It is also reported that by wearing the appliance for a week displacement will come to normalcy. In frequent locking, the lubrication of articular surfaces has to be increased.

When conservative methods become ineffective, in specific pain due to condyle compression innervated neurovascular structures, arthrocentesis was carried out under local anesthesia; as arthroscopy was more aggressive performed under general anesthesia.

Arthroplasty is an open joint procedure which involve disc repositioning surface. The females and more prone to derangement of TMJ must probably osteoporosis due to loss of blood during menses.

SUMMARY AND CONCLUSION

The present study of internal derangements of TMJ in Bihar population has an indication that internal derangement

is quite common because of simultaneous movements of depression elevation and side to side movements during mastication and phonation, it is reinforced by ligaments, muscles supplied by rich neurovascularity, hence, any derangements become enigma to the dentist to rule and the exact cause of derangement if treated conservative or surgical intervention.

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