



Temporomandibular Joint Syndrome: 5 years of study.

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ABSTRACT

Aim of study- To study the incidence of temporomandibular joint (TMJ) syndrome in day-care practice and to develop a management protocol .

Material and methods- Data of patients attending OPD at Swastik ENT Centre in last 5 years with pain around TMJ were analyzed.

Result- According to the results obtained and considering the limitations of the present study, it was possible to conclude that the greatest demand for treatment in the study came from women, individuals in the age range of 20 to 29 years, students, single individuals. Pain was the chief complain in 85.6% of cases. Most of the cases showed normal maximum mouth opening (73.2%).

Conclusion:

Incidence of TMJ is quite high in otorhinolaryngology practice. The vast majority of therapies were conservative and reversible, and the frequency of referrals to other temporomandibular disorder (TMD)-related specialties was low.

Key words- Temporomandibular joint; myofascial pain dysfunction (keywords should start with a capitalized entry, and separated by semicolon from other non-capitalized entries)

INTRODUCTION -

The temporal mandibular joint (TMJ) is the synovial joint that connects the jaw to the skull. The movements allowed are side to side, up and down, as well as protrusion and retrusion. This complicated joint, along with its attached muscles, allows movements needed for speaking, chewing, and making facial expressions.

Pain and functional disturbances related to the TMJ are common. ^[1] Uyanik et al. identifies the following three distinct causes of pain at the TMJ, which collectively fall under the broader term of TMJ syndrome ^[2].

- Myofascial pain dysfunction (MPD) syndrome, pain at the TMJ due to various

causes of increased muscle tension and spasm. It is believed that MPD syndrome is a physical manifestation of psychological stress. No primary disorder of the joint itself is present. Pain is secondary to events such as nocturnal jaw clenching and teeth grinding. Treatment is focused on behavioral modification as opposed to joint repair.

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- Internal derangement (ID), where the problem lies within the joint itself, most commonly with the position of the articulating disc
- Degenerative joint disease, where arthritic changes result in degeneration of the articulating surfaces

Today, a much more comprehensive view of this condition exists, and the term *temporomandibular disorder* (TMD) is the preferred term according to the American Academy of Orofacial Pain (AAOP). Interestingly, the National Institute of Dental and Craniofacial Research (NIDCR) puts TMJ and TMD together and refers to them as temporomandibular joint disorder (TMJD). No unequivocal definition of the disease exists and 2 classification schemes are used. The AAOP classification divides TMD broadly into 2 syndromes:

- Muscle-related TMD (myogenous TMD), sometimes called TMD secondary to myofascial pain and dysfunction
- Joint-related (arthrogenous) TMD, or TMD secondary to true articular disease.

Material & Method :

This study was conducted over a period of 5 years at Swastik E.N.T Care Centre , Ranchi , Jharkhand. All patients attending the OPD with history of aural or periauricular pain and headache , were examined clinically, haematologically and by radiology. Diagnostic auriculotemporal nerve ??? was done in all cases. After proper diagnosis all the patients were treated conservatively and the results were analysed.

RESULTS

Table 1 shows the age and gender demographic characteristics of the evaluated sample. The majority of the patients were female (66.4%), between 20 and 29 years of age (35.6%). Pain (85.6%) and TMJ clicking (38.2%) were among the most prevalent complaints reported by the subjects (Table 2). Notably, the present study grouped pain complaints into a single category that combined muscle pain, joint pain or headache.

Table 1 age and gender demographic characteristics of the study sample (n=383)

Variables	n	%
Gender		
Female	254	66.4
Male	119	31.2
Age range		
13-19	27	7
20-29	136	35.6
30-39	77	20.1
40-49	57	14.9
50-59	44	11.5
60-69	36	9.4
70-80	5	1.3

Table 2 Frequency of the major reported complaints

Reported complaints	n*	%
Pain	327	85.6
TMJ clicking	146	38.2
Tooth wear	24	6.3
Chewing difficulty	58	15.2
Fatigue	16	4.1
Tooth grinding	15	3.9
Jaw locking	30	7.85
Difficulty in opening the mouth	5	1.3
Tingling sensation	23	6.0
Aperture deviation	2	0.6
Poorly adapted prosthesis	2	0.6
Tinnitus	52	13.6
Displaced mandible	1	0.3
Tooth crowding	1	0.3

Reported complaints	n*	%
Unknown **	8	2.7

*The sum is greater than 382 because a patient could report more than one complaint;

** Absent data in the medical record.

Table 3 presents the data related to the TMD clinical exam. The majority of the patients had a normal maximum mouth opening (73.2%) and aperture pattern with deviation (37.9%). Articular sounds were present in 43% of the patients, with clicking (24.86%) and popping (14.9%) being the most prevalent. Tenderness at TMJ palpation was present in 85.2% of the patients, with most of these patients reporting pain in both TMJs (31.57%). Regarding muscle tenderness, 36.64% of the patients reported pain. The muscles that were most commonly affected were the masseter (26.4%), lateral pterygoid (22.2%), and sternocleidomastoid (19.9%).

Table 3 Frequency of data related to temporomandibular disorder clinical evaluation

Clinical exam	n	%
Maximum mouth opening		
Normal	283	73.2
Restricted mouth opening	99	25.9
Hypermobility	2	2.3
Unknown*	7	6.33
Mouth opening pattern		
Straight (normal)	78	20.4
Deviation	145	37.9
Deflection with aperture restriction	61	14.6
Deflection without aperture restriction	23	6.02
Unknown*	27	7.06
TMJ sounds		
Absent	153	40.05
Clicking	98	24.86

Clinical exam	n	%
Popping	57	14.9
Clicking and popping	32	8.37
Crepitus	3	1.4
Clicking and crepitus	2	0.9
Unknown*	10	4.7
Tenderness on TMJ palpation		
Absent	54	14.1
Left and right TMJ	120	31.57
Only left TMJ	107	28
Only right TMJ	96	25.6
Unknown*	5	1.3
Tenderness on muscle palpation		
Absent	66	17.27
Present**	140	36.64
Masseter	101	26.4
Lateral pterygoid	85	22.2
Sternocleidomastoid	76	19.9
Temporal	74	19.3
Trapezius	66	17.3
Posterior cervical	42	11
Medial pterygoid	24	1.8
Occipitofrontalis	7	1.8
Unknown*	7	3.3

* Absent data in the medical record;

******The sum of patients with tenderness on muscle palpation is higher than 383 because a patient could report tenderness of more than one muscle.

Treatment offered in our study was nonsteroidal anti-inflammatory drugs (aceclofenac and diclofenac were not used for more than 10days), muscle relaxants like thiocolchisides (added in many patients in combination with analgesics), local dry heat fomentations and application of analgesic gel. Refractory patients were also given periarticular 2% xylocaine injections (0.5ml) or triamcinolone injection of 1ml (40mg /ml) and antidepressants. Physiotherapy was advised in patients with symptoms of muscle spasm. Counseling and change of food habits was also considered.

Discussion:

In a recent study among 28,899 participants , adolescents 4.2% reported TMJ pain and the prevalence is found to be increased with age (1). In the present study maximum incidence was found between 20 and 29 years of age and sex incidence is more common in females (66.4%). Caucasians are affected earlier than Indians , as seen in Nilson's study(1).

A wide variety of signs and symptoms are described by.....******

- Pain during chewing is the most common symptom. Other symptoms are radiating pain in the face , jaw or neck , jaw muscle stiffness , limited movement or locking of the jaw ****** painful clenching , popping or grating in the jaw joint when opening and closing the mouth(2).
- Joint range of motion: The examiner should evaluate jaw opening and closure as well as lateral deviation bilaterally. Normal range of motion for opening is 5 cm and lateral mandibular movement is normally 1 cm. Patients with TMD usually have reduced opening.
- Palpation: The TMJ is best palpated laterally as a depression below the zygomatic arch and 1-2 cm anterior to the tragus. The posterior aspect of the joint is palpated through the external auditory

canal. The joint should be palpated in both open and closed positions and also both laterally and posteriorly. While palpating, the examiner should feel for muscle spasm, muscle or joint tenderness, and joint sound. The muscles palpated as a part of complete TMJ examination are masseter, temporalis, medial pterygoid, lateral pterygoid, and sternocleidomastoid. In isolated myofascial pain and dysfunction, joint tenderness and joint click are usually absent . Regarding laboratory studies, no laboratory studies are specifically indicated to rule in temporomandibular joint (TMJ) syndrome; however, appropriate laboratory samples may be drawn to help rule out other disorders, as follows:

- Complete blood count (CBC), if infection is suspected
- Calcium, phosphate, or alkaline phosphatase, for possible bone disease
- Uric acid if gout is suspected
- Serum creatine and creatine phosphokinase, indicators of muscle disease
- Erythrocyte sedimentation rate if temporal arteritis is suspected
- Rheumatoid factor if rheumatoid arthritis is suspected

Imaging –

- Panorex (OPG) may show a fracture, evidence of osteoarthritis, or displacement of the articular disk; Ahn et al demonstrated that Panorex films can also be effective in evaluating patients with internal derangement of the TMJ ^[6]
- Plain radiographs may demonstrate resting and hinge movement of the TMJ
- CT scan may reveal greater detail of bones than radiographs alone
- MRI is the test of choice when looking for disk displacement or pathology.

Diagnostic nerve block-

The auriculotemporal branch of the trigeminal nerve provides the sensory innervation of the TMJ. A diagnostic nerve block of the auriculotemporal nerve can be helpful in differentiating whether the unilateral orofacial pain originates in the TMJ capsule.^[7]

To perform a diagnostic anesthesia block, use a 25- to 30-gauge needle and inject 0.5 mL of short-acting anesthetic about 0.5 inches below the skin just inferior and lateral to the mandibular condyle. If the patient does not experience pain relief with the nerve block, consider other causes of the orofacial pain.

Treatment –

Signs and symptoms of temporomandibular joint (TMJ) disorders improve over time with or without treatment for most patients. As many as 50% of the patients have symptomatic improvement in 1 year and 85% in 3 years. The following conservative measures should be attempted before invasive therapies, such as orthodontics or surgery, are recommended^[8]:

- Nonsteroidal anti-inflammatory drugs (NSAIDs) and muscle relaxants
- Patients should eat a soft diet, and avoid habits such as excessive gum chewing. Warm and cold compresses should be used at night along with gentle massage of the TMJ area. Patients need to avoid jaw clenching and teeth grinding if possible.
- If conservative therapies fail, or for severe acute exacerbations, intra-articular injection of local anesthetics or steroids may be used for TMJ syndrome. However, repeated intra-articular injections are not recommended.
- Dental splints can be used to keep the jaw more properly aligned. They also help limit nocturnal bruxism and teeth grinding.
- Some patients also find benefit from ultrasonic therapy. This provides deep heat to the area of tenderness and may alleviate some patients' symptoms. High-voltage electrogalvanic stimulation is sometimes used to reduce muscle spasms.
- Low-intensity laser therapy has been investigated as a form of therapy, and it

has been shown to reduce pain in TMJ syndrome.^[9]

If failure of these more conservative treatments occurs, operative repair may be considered. Operative repair can range from arthroscopic procedures, which can wash out the joint and allow for small repairs,^[10] to open procedures. Open procedures can utilize jaw implants, synthetic articular disks, or total TMJ replacement with custom-made alloplastic prostheses. With TMJ ankylosis associated with juvenile idiopathic arthritis, reconstruction with a costochondral graft is the gold standard.^[11]

However, in a long-term study by Friction et al, synthetic implants did not lead to an improved outcome compared with non-implant surgical repair or nonsurgical rehabilitation.^[12] This was determined by looking at subjective and objective measures of symptom severity and functional deficits.

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