



RESEARCH ARTICLE

Temperomandibular Joint Dysfunction causing Otagia

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Abstract

This is a retrospective study of patients reporting to ENT OPD at Princes Esra Hospital, affiliated to Deccan College of Medical Sciences, Hyderabad with otalgia between Dec 202 and Nov 2014. 452 patients reported with otalgia with different causes such as Acute Suppurative Otitis Media (ASOM), Otitis externa, furuncle ear and so on and so forth. A sizeable patients in young age group were studied and found to be suffering from Temperomandibular Joint Dysfunction (TMD) with associated otalgia. In my study majority of patients belonged to younger age group of 20-40 years. I have taken into consideration patients in age group of 20-40 years for in this group TMD is most common. After excluding various other causes of otalgia 156 cases were found to be having TMD. This constitutes 33% of cases being diagnosed to be suffering from TMD out of 452 cases reporting for otalgia. Pain due to TMD does not arise from temperomandibular joint (TMJ) for the disc and articular surface of TMJ lack innervations. The causes of TMD giving rise to otalgia are varied and complex. The contributory factors can be local, less commonly due to systemic causes such as rheumatoid arthritis or gout, but most commonly due to psychosomatic disorder for psychological stress plays a major role in causation of TMD

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INTRODUCTION

TMD was described as early as ancient Egypt

Anatomy

TMJ is a synovial joint which articulates between mandibular condyle with temporal bone mandibular fossa. Fig. 1. shows six main components of TMJ:

- (i) Mandibular condyle
- (ii) Articular surface in mandibular fossa in temporal bone
- (iii) Capsule
- (iv) Articular disc
- (v) Ligaments
- (vi) Lateral Pterygoid muscle

Capsule and articular disc: The capsule of TMJ is a dense fibrous membrane that surrounds the joint and incorporates articular eminence. It attaches to the articular eminence, the articular disc and neck of mandible.

The unique feature of TMJ is the articular disc.. This is composed of fibrocartilaginous tissue which is positioned between the two bones that form the joint. The synovial membrane lining the joint capsule produces synovial fluid. The central portion of disc is avascular and lacks innervations in contrast to the peripheral region.

Ligaments: There are three ligaments associated with TMJ: one major and two minor

The major ligament, the Temporomandibular ligament is actually the thickened lateral portion of the capsule and has two parts : an oblique portion and inner horizontal portion.

The two minor ligaments are stylomandibular ligament and sphenomandibular ligament. Fig 2.

Innervation: Sensory innervations is derived from auriculotemporal branch of V3 of trigeminal nerve, however the disc and articular surfaces of TMJ are not innervated. Auriculotemporal nerve also supplies anterior half external auditory canal.

Aetiology: The aetiology of TMD remains unclear but it is likely to be multifactorial. The capsule inflammation and muscular spasm may be caused by abnormal occlusion [1, 2] , para functional habits ex, bruxism, teeth clenching, stress ,anxiety or abnormalities of intra articular disc. Parafunctional habits have been thought to cause TMJ microtrauma or masticatory hyperactivity. [4]. There is evidence to suggest emotional disturbance may exacerbate TMD [3]. As many as 75% patients with TMD have significant psychological abnormality [3].

Materials and methods :

452 patients reported to the ENT OPD with otalgia. Firstly a thorough history was taken followed by thorough ENT examination including indirect laryngoscopic examination was carried out. Patients having otalgia due to other local causes in the ear such as ASOM, otitis externa, furuncle and so on and so forth were excluded from the study. After excluding the otological causes attention was paid to examine the other causes causing referred otalgia such as dental causes, and those other conditions giving rise to referred otalgia such as from oral cavity including tongue, oropharynx and laryngopharynx. Patients suffering from cervical spondylosis were also excluded from this study. A total of 156 cases were included in the study of which there were 92 females and 64 males in the age group of 20-40 years. Of 156 patients there were 156 females and 38 were males in this study. In these patients primary complaint was ear pain. After excluding all other causes of otalgia , attention was paid to examine TMJ. Two fingers were placed, one each in front of the ears ie over the TMJ and local tenderness if present noted. Then the patients were asked to open and close the mouth, during which gentle pressure was applied to TMJ and tenderness if present noted and creptus if any was also noted. Another method to elicit tenderness in TMJ was to place a little finger in the external auditory canal of the patient and asking patient to open and close mouth.

Trismus if is any noted. So also malocclusion. There may be tenderness in pterygoid muscle. To elicit tenderness in pterygoid muscle palpation between zygomatic arch and coronoid process of mandible is carried out. At times TMD may be confused with otitis externa for pressure over tragus may elicit pain in severe cases. Conventional radiology has no role in establishing the diagnosis[5]]. MRI of TMJ may demonstrate joint effusion or internal derangement of joint[5]

Causes of TMD encountered in our study are given in Table 1.

Considering large percentage of patients having psychological disturbance in one way or other, patients were prescribed tricyclic antidepressants in form of Amitryptaline 10 mg to be taken once daily at bed time for three weeks. Author is of considered opinion that anti inflammatory drugs have a limited role to play. Most of the patients would have already been treated by the primary physician with anti-inflammatory drugs. In addition patients were advised to give rest to the affected TMJ, by asking not to chew hard foods from that side.

RESULTS:

A total of 156 cases were diagnosed to be suffering from TMD with primary complaints of otalgia on the side of TMD. Out of 452 cases of otalgia reporting to ENT OPD. Majority of patients fell in the age group of 20- 40 years .In our study 76.9% of patients diagnosed as having JMD had psychological stress . Our figure is close to 75% as reported by Okeson JP [5]] Female patients constituted 75.6% and rest were males. Majority of patients responded to conservative treatment of rest to the part and Amitryptaline 10mg orally taken at bed time for three weeks. There were four resistant cases. One case which showed oedema of pterygoids was administered 40 mg of methylprednisilone orally twice daily for three weeks and there was resolution of pain. Other three cases were referred to oral surgeons for further management. Over all response to Amitryptaline is good in majority of patients.

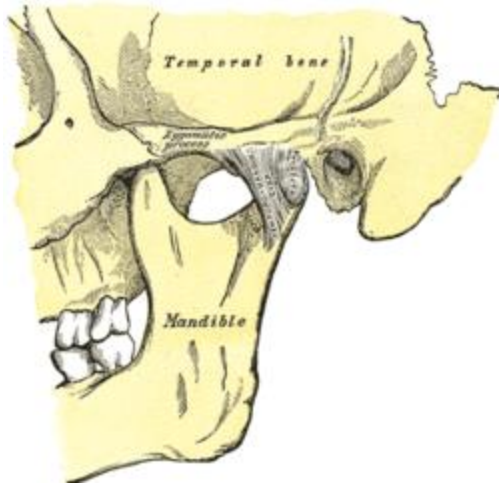


Fig.1: Showing TMJ

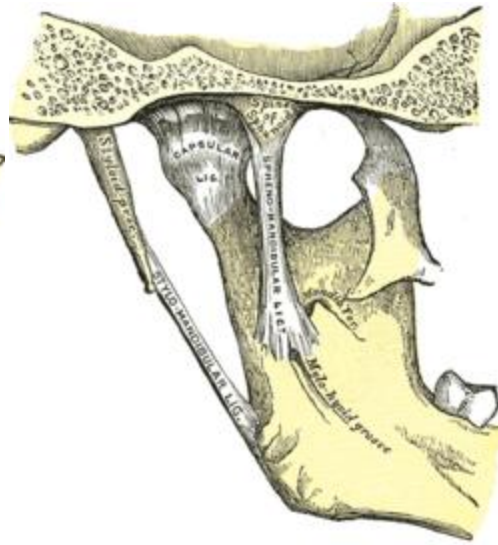


Fig.2. Showing stylomandibular and sphenomandibular ligament

Table 1.

S. No.	History	No. Of Cases	%
1	Local Trauma	2	1.28
2.	Prolonged dental procedure	4	2.56
3.	Ghutka chewing for prolonged period	15	9.6
4.	Psychological stress	120	76.9
5.	Oedema of pterygoids as demonstrated in MRI	1	.6
6.	Idiopathic	14	8.9
Total		156	

Discussion:

About 20-30% of adult population are affected by TMD to some degree [6]. Usually patients affected are between 20-40- years of age and is more common in females than in males [6]. TMD is common in adults as stated above; as one third of adults report having one or other symptom which include jaw or pain in TMJ and clicking or grating within the joint. TMD is often self limiting. In epidemiological studies up to 75% of adults show at least one sign of joint dysfunction. Significant number of patients with TMD present with otalgia, together with other symptoms. This is firstly due to the shared innervations between the TMJ and ear and secondly to the close proximity of TMJ to the ear.

. As many as 75% of patients have a significant psychological abnormality[5] and this figure closely corresponds to our finding of 76.9%. For most patients, the signs and symptoms of TMD resolve over a period of time with or without treatment. As many as 50% of patient improve in one year and 85% improve completely in 3 years [6]. Radiologic imaging is not helpful [6]. But MRI can demonstrate joint effusion or internal derangement of joint [5]

All authors agree that sufferers are of secondary otalgia are likely to be females, with statistically significant levels of physical co-morbidity and psychological stress[7]

Costen's syndrome has been described as comprising of otalgia, tinnitus, a sense of impaired hearing loss and even vertigo. The author in his 32 years of ENT practise has not come across Costen's syndrome nor did other senior colleagues. Authors claim is vindicated by Bush et all [8] who could not find association of chronic TMJ pain with tinnitus or dizziness and patients symptoms felt more related to psychological distress. Other conditions which fall in differential diagnosis causing otalgia are as follows:

- (i) Post tonsillectomy
- (ii) Neuralgias eg trigeminal neuralgia
- (iii) Glossopharyngeal neuralgia
- (iv) Geniculate neuralgia known as tic douloureux of nervus intermedius[9,10] with characteristic severe paroxusmal neuralgic pain deep in the ear
- (v) Stylomastoid syndrome

Conclusion:

Otolgia due to TMD is a common presentation in young adults. Females are more often affected than adults. Significant psychological stress is a major contributory factor. Conservative treatment with oral tricyclic antidepressant in form of Amitryptaline proved to be effective in treating TMD. Conventional radiology has no role in diagnosing TMD. MRI proves to be helpful.

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