



## THE EFFICACY OF HIGH CONDYLECTOMY IN INTERNAL DERANGMENT OF THE TEMPOROMANDIBULAR JOINT

Dr Shraddha  
Dadhich

MDS, Oral and Maxillofacial surgery

### ABSTRACT

**Background-** Temporomandibular joint (TMJ) is a ginglymoarthroidal Joint, it is the only mobile joint in the entire maxillofacial region and is a part of craniomandibular articulation.

**Methods-** All the patients with internal derangement of temporomandibular joint having anterior disc displacement without reduction with complaints of pain and limited opening of mouth, of all age group reporting to the Department Dental were included in the study.

**Results-** At one month follow up out of 20 patients 13 patients were not satisfied and at 6 month follow up 2 patients were not satisfied at all.

**Conclusion-** We conclude that surgical treatment for internal derangement of the TMJ is required, this technique is effective to improve pain and mouth opening without complications. Although this study has a short follow up period and small sample size.

**KEYWORDS :** Mandible, Maxilla, TMJ.

### INTRODUCTION

Internal derangement was first described by Hey Davis in 1814 as localized mechanical fault interfering with the smooth action of a joint.<sup>1</sup>

Internal derangement of the temporomandibular joint (TMJ) can be defined as an abnormal relationship of the disc to the condyle, fossa and articular eminence.<sup>2</sup> The disc is usually displaced anteriomedially. Internal derangement is a common problem of the TMJ. **Black wood** reported that anterior disc displacement was a common finding at autopsy, with the displacement being accompanied by either thinning or tearing of the posterior attachment tissue.<sup>3</sup>

Anterior displacement of the disc results in abnormal mandibular function, and it is characterized by reciprocal clicking of the joints (click on opening followed by click on closing). The clicking is the result of the thick posterior band of the disc initially being located anterior to its normal position when the mouth is in closed position. Upon opening of the mouth, the condyle pushes against the posterior band of the disc instead of rotating under the thin intermediate zone; the posterior band thus functions as a mechanical obstruction. The click that occurs on opening is the result of the condyle moving under the posterior band in to the posterior zone (normal relation). The closing click occurs when the condyle moves behind the posterior band and the disc slips anteriorly. In the closed lock form of internal derangement the disc is displaced anteriorly and remains anterior to the condyle during entire cycle of opening and closing. Consequently jaw opening is usually limited. This is the most severe form of the disease.

According to Annandale, Sir Astley Cooper was the first to suspect the existence of altered condyle disk-fossa relation.<sup>8,9</sup>

Later the term *internal derangement* was adopted to describe any pathologic entity that interfered with the smooth function of the TMJ. The term is currently used exclusively to describe alterations in disk-fossa relations. Historically, clinicians have recognized that surgery for internal derangements should be reserved for patients with pain or dysfunction that is severe and disabling and is refractory to nonsurgical management. These conditions still form the basic indications for surgery. Open surgery of the TMJ for primary disease has undergone a complete metamorphosis as a result of the research and clinical results of surgical arthroscopy. At one time only a handful of surgeons professed the viability of function with a displaced disk and argued against surgical repositioning.

Only if the mechanical obstruction is felt to be the primary etiology behind the symptoms is surgery indicated. The surgical management of a collection of signs and symptoms without a clear definition of the pathology is risky at best.<sup>10,11</sup>

The clinical management of TMDS often convoluted in its intertwining of medical, occlusal, physical therapeutic, and some time psychological methods.

Even if surgery is indicated, ignorance of these contributing factors - however minor - may lead to clinical failure; thus surgeon must weigh and investigate all these factors when deciding whether surgery is necessary.<sup>12</sup>

### MATERIAL AND METHOD

#### Study Site:

The study was conducted in the Department of Dental.

#### Study Subjects:

All the patients with internal derangement of temporomandibular joint having anterior disc displacement without reduction with complaints of pain and limited opening of mouth, of all age group reporting to the Department of Dental were included in the study.

#### Exclusion Criteria:

1. Refused consent
2. Medical contraindication for surgery
3. Internal derangement of TMJ with osteoarthritis, terminal joint disease
4. Recurrent cases or previously surgically treated cases

### RESULTS

The present study comprises 20 cases of TMJ internal derangement operated in the Department of Dental. In this study only the patient with internal derangement having pain in the involved joint and limited mouth opening were included. All cases were operated by removal of only the articulating surface of the condyle "High condylectomy". Thus there is increase in the joint space and no interference of the disc to the condyle. So there was no pain during movement of the joint.

All patients were referred from general dental practitioners who had previously treated non-surgically. These treatments included various drugs, splint therapy, physiotherapy, multiple steroid injections to the involved TMJ.

The most common reason for patient seeking treatment was pain; dysfunction was the second most common reason.

**Table 1. Pre & Post Operative Mouth Opening (in mm.)**

	N	Mean	Std Dev	T Value	P Value*
Pre Operative	20	18.65	4.452	12.659	0.000
Post Operative 1 Month	20	31.85	3.937		
Pre Operative	19	17.32	6.092	10.352	0.000
Post Operative 6 Month	19	32.89	8.711		
Pre Operative	18	15.06	8.355	6.913	0.000
Post Operative 12 Month	18	29.41	14.4		

\*Paired't test

Preoperative inter-incisal mouth opening mean was 18.65 with standard deviation 4.452.

Inter-incisal mouth opening at one month Postoperative follow up mean was 31.85, and Post Operative 6 Month was 3.89 and at 12 month follow up mean inter incisal mouth opening was 29.41. Table 3 shows improvement in mouth opening. On comparison pre and post operative mouth opening there was significant difference.

**Table 2. Pre & Post Operative Pain**

	N	Mean	Std Dev	T Value	P Value*
Pre Operative	20	9.4	0.9403	6.658	0.000
Post Operative 1 Month	20	3.8	3.488		
Pre Operative	19	8.842	2.34	12.293	0.000
Post Operative 6 Month	19	0.8947	1.629		
Pre Operative	18	8.333	3.162	11.126	0.000
Post Operative 12 Month	18	0.1111	0.4714		

\*Paired't test

Pre operative pain mean value was 9.4 with standard deviation 0.9403 and at one month follow up 3.8 at 6 month was 0.8947 and 12 month follow up was 0.1111. Table 4 shows decrease in pain as compared to pre operative and postoperative follow up.

**Table 3. Pre & Post Operative Deviation**

	N	Mean	Std Dev	T Value	P Value*
Pre Operative	20	2.35	2.412	4.728	0.000
Post Operative 1 Month	20	0.35	0.8751		
Pre Operative	19	2.368	2.477	4.110	0.000
Post Operative 6 Month	19	0.1053	0.4588		
Pre Operative	18	2.222	2.463	3.743	0.002
Post Operative 12 Month	18	0.08333	0.2572		

\*Paired't test

Pre operative deviation mean value was 2.35 and at one, six, and 12 months follow up was 0.35, 0.1053, 0.08333 respectively shows improvement in deviation as shown in table 5

**DISCUSSION**

Orofacial pain including TMDs is a common problem that if miss diagnosed or improperly treated, may lead to chronic pain and major personal crises for the patient. The potential complexity of these disorders can make traditional assessment and management of patient difficult. The variability of pain within and among individuals in terms of description, severity, location, and progression, which is frequently coupled with behavioral or psychosocial factors, may lead to diagnostic confusion in the clinician. Furthermore, symptoms such as tinnitus, parasthesia and sensitive teeth which are occasionally associated with orofacial pain also lead to misdiagnosis. Thus the frequently overlapping signs and symptoms exhibited by orofacial pain patient can be confusing, often resulting in multiple or vague diagnoses instead of a more specific differential diagnoses.

Several possible contributory factors such as bruxism, postural habits, or emotional factors may also complicate patient evaluation and if neglected can lead to inadequate or transient treatment outcome. If orofacial pain continues without resolution, emotional and psychosocial problems such as depression, anxiety and lifestyle disturbances may also occur. Failure to consider each of these factors during the diagnostic process can lead to incorrect diagnoses, inadequate treatment regimens and development of a pain syndrome.

Internal derangement of TMJ is one of the important cause of TMJ pain dysfunction. There are various nonsurgical and surgical procedures and methods for treatment of pain and dysfunction due to Internal derangement of TMJ.

**CONCLUSION**

We conclude that surgical treatment for internal derangement of the TMJ is required, this technique is effective to improve pain and mouth opening without complications. Although this study has a short follow up period and small sample size.

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