

## Temporomandibular Joint Ankylosis - A Case Report

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### ABSTRACT

Temporomandibular Joint (TMJ) ankylosis is a condition in which condylar movement is limited by a mechanical problem in the joint ("true ankylosis") or by a mechanical cause not related to joint components ("false ankylosis"). True ankylosis may be bony or fibrous. In bony ankylosis, the condyle or ramus is attached to the temporal or zygomatic bone by an osseous bridge. In fibrous ankylosis a soft tissue (fibrous) union of joint components occurs; the bone components appear normal. False ankylosis may result from conditions that inhibit condylar movement, such as muscle spasm, myositis ossificans, or coronoid process hyperplasia. Most unilateral cases are caused by mandibular trauma or infection. The most common cause of bilateral TMJ ankylosis is rheumatoid arthritis, although in rare cases bilateral fracture may be the cause. Here we report a case of TMJ ankylosis in a 30 year-old male patient showing most of the characteristic features of this condition.

**Key words:** Temporomandibular, Mechanical, Muscle, Spasm.

### INTRODUCTION

Temporomandibular joint (TMJ) Ankylosis involves fusion of the mandibular condyle to the base of the skull. When it occurs in a child, it can have devastating effects on the future growth and development of the jaws and teeth. Furthermore, in many cases it has a profoundly negative influence on the psychosocial development of the patient, because of the obvious facial deformity, which worsens with growth. Trauma and infection are the leading causes of ankylosis<sup>1</sup>. However, in a young patient a joint injury may not be noticed immediately. The first sign of a significant problem may be increasing limitation of jaw opening, usually noticed by the dentist. Pain is uncommon.

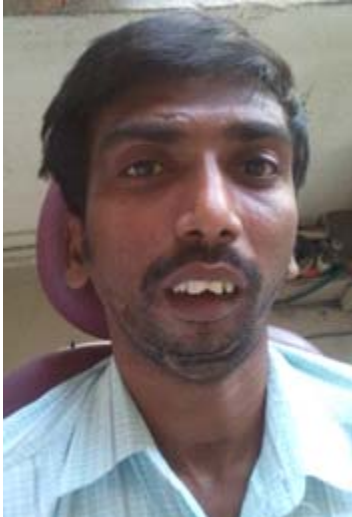
Early diagnosis and treatment are crucial if the worst sequelae of this condition are to be avoided. Optimal results can be achieved only after a complete assessment and development of a longterm treatment plan.

### Case Report

A 30-year-old male patient reported to our department with a chief complaint of difficulty in opening his mouth with a history of difficulty in eating food and habit of mouth breathing. There was no history of a forceps delivery. There was a trauma 22 years back. He gave a history of surgical treatment of the problem in 1992, 1996 and 2000 in different hospitals. He admitted that he did not follow up the exercises said to him after the surgeries. There was

no relevant history of ear infection, weight loss, drug history and family history.

On general physical examination he was of medium built, his height was 5.5 feet and his weight 57 kg. His gait was normal. There was no sign of icterus, pallor and anaemia.



**Fig.1: Extra oral view of the patient with retrognathic mandible**



**Fig. 2: Shows increased over jet and scar of previous surgery in the inferior border of mandible**

On extra oral examination, there was obvious facial asymmetry, deficient growth of mandible (fig1). Prominent antgonial notch present on both side of face. Retrognathic mandible (fig 2) with TMJ movements restricted. An extra oral hypertrophic scar was seen on the right side cheek.

Intraoral examination revealed mouth opening was restricted to 2mm. Occlusion is seen on the right side. (fig 3) There was discolouration of 42 with a periapical abscess(fig 4). He gave a history of extractions of 32, 33, 34, 35, 36, 37.



**Fig. 3: Shows occlusion in the right side**



**Fig.4 shows recession in lower anteriors and periapical abscess in relation to 42**

On the basis of clinical examination, the patient was diagnosed as having bilateral temporomandibular ankylosis for which the differential diagnoses included condylar tumour muscle spasm and fracture of mandible.

Other diagnosis included non vital tooth with periapical abscess and localised periodontitis, in lower anteriors.

The orthopantomogram (fig.5), revealed prominent antgonial notch on both sides and narrow joint spaces. Patient was not willing to undertake CT scan.

A proper treatment plan was explained to the patient but he was not willing to undergo any further surgical management. However, he was explained that unless surgical approach along with physiotherapy is done the condition cannot be resolved. Few mouth opening exercises were taught to him and he was referred to department of oral and maxillofacial surgery for further management.



**Fig. 5: Shows prominent antignonial notch on both left and right sides**

### DISCUSSION

Ankylosis is a condition in which condylar movement is limited by a mechanical problem in the joint ('true' ankylosis) or by mechanical cause not related to joint components ('false' ankylosis).

The causes are inflammatory destruction of synovial lining of the joint.

Inflammation may result from, primary infection of joint, extension from neighbouring infection such as otitis media, mastoiditis, osteomyelitis of mandible, blood-borne infection from several sources, trauma to the joint, rheumatoid diseases like rheumatoid arthritis, ankylosing spondylitis and Reiter's syndrome, and Hemarthrosis (such as those occurring in haemophiliacs).

Children are more prone to ankylosis because of greater osteogenic potential and an incompletely formed disc. Ankylosis frequently results from prolonged immobilization following condylar fracture<sup>5</sup>.

Moreover in case of TMJ ankylosis, an appropriate worldwide accepted protocol is to be

administered which includes surgical intervention, elaborate resection early mobilization and aggressive physiotherapy for at least six months to one year postoperatively<sup>6</sup>.

Early aggressive postoperative physiotherapy has been recognized as an essential aid for the prevention or treatment of TMJ hypomobility or ankylosis.

The biological and physiological basis for increasing the range of motion using dynamic exercise in restoring normal functions after surgery and prolonged immobilization has been well documented in trauma, orthopaedic and physical therapy literature. The potential benefits of TMJ opening and closing exercises are improved muscle vascularity, increased muscle mass and protein metabolism, decreased muscle fatigue and increased strength, reversal of the atrophic and degenerative changes within the joints and restoration of the normal internal fibrous structure anatomy<sup>8</sup>.

Interpositional Gap Arthroplasty is a highly effective and safe surgical management option for TMJ ankylosis with acceptable immediate and long term outcome, particularly when temporalis fascia and muscle are used for adults and costochondral grafts with fascia interposition used for children<sup>9</sup>. A seven step protocol has been developed for the treatment of TMJ ankylosis: -

- 1) Aggressive resection of the Ankylosis segment,
- 2) Ipsilateral coronoidectomy,
- 3) Contralateral coronoidectomy when necessary,
- 4) Lining of the joint with temporalis fascia or cartilage,
- 5) Reconstruction of the ramus with a costochondral grafts
- 6) Rigid fixation of the graft and
- 7) Early mobilization and aggressive physiotherapy<sup>10</sup>.

### CONCLUSION

Ankylosis of the TMJ is a serious health compromising condition of children and growing teenagers, which prevents normal feeding habits,

impairs speech and causes facial deformity and affects social life; but with early proper diagnosis, and when adequate surgical intervention is carried

out on time, with good patient cooperation and with an intensive follow-up, the prognosis is good.

#### REFERENCES

1. Treatment of Temporomandibular Joint Ankylosis: A Case Report *Bob Rishiraj, Leland R. McFadden, J Can Dent Assoc* **67**(11): 659-63s (2001)
2. Treatment of Temporomandibular joint ankylosis: A Case Report *Geetanjali Mandlik et al. Scientific Journal* **2**: (2008)
3. Textbook of Oral Radiology 6<sup>th</sup> edition, *White and Pharoah*. Diagnostic imaging of temporomandibular joint, page no 500.
4. Principles and practice of oral radiologic interpretation, H.M Worth TH, The Temporomandibular joint page no, 663-665.
5. Ankylosis of Temporomandibular joint in children *A Case report Indian Soc Pedod Prev Dent*, **27**(2): 116-120 (2009).
6. Temporomandibular Joint Ankylosis with incidental findings of Odontogenic Keratocyst and Mucous Retention Cyst: Report of a Case. *Pawan Motghare, Aarti Bedia, Sumit Bedia, Sangeeta Bhattacharya IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* **4**(2): 27-33 (2013).
7. Management of Temporomandibular joint ankylosis in growing children. *Shashukiran ND, Reddy SVV, Patil R. Yavagal C. J Indian Soc Pedo Prev Dent* 35-37 (2005).
8. Design, Manufacture and clinical evaluation of a new TMJ exerciser. *Chun-Li L, Yu-Chan K, Lun-Jou L. Biomed Eng Appl Basis Comm* **17**: 135-140 (2005).
9. Temporomandibular joint ankylosis: Experience with interposition gap arthroplasty. *Iram A, Muhammad J, Muhammad J, Shah MG. J Ayub Med Coll, Abbottabad* **17**: 67-69 (2005).
10. Bony ankylosis of the temporomandibular joint: Case report of a child treated with Delrin Condylar implants. *Westermarck AH, Sindet-Pedersen SS, Boyne PJ. J Oral Maxillofacial Surg* **48**: 861-5 (1990).