



## **Unilateral Temporomandibular Joint Ankylosis– Report of a Case**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors MCS, DAT, MC, GC and PSF studied the case and evaluated. Authors MCS and DAT designed the case study and wrote the first draft of the manuscript. All authors managed the literature searches. All authors read and approved the final manuscript.*

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**Case Report**

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### **ABSTRACT**

Ankylosis of TMJ is the bony or fibrous fusion of articular components of joint. Ankylosis of TMJ can lead to facial deformity, which worsens with growth, having a negative influence on the psychological development of the patient. The present case report is of a 58-year-old female patient who reported with an inability to open mouth which was diagnosed as unilateral bony ankylosis. This case was treated by interposition gap arthroplasty followed by physiotherapy. Since TMJ ankylosis may go unnoticed for a long time, early intervention is mandatory for proper growth and function of the mandible.

**Keywords:** *Temporomandibular joint; bony ankylosis; trauma.*

## 1. INTRODUCTION

The temporomandibular joint is a unique, complex, diarthrodial synovial joint which provides both hinging and gliding movements. Disorders of Temporomandibular joint include several clinical conditions that involve the joint, muscles of mastication and associated structures [1]. Temporomandibular joint ankylosis is one of the types of the temporomandibular joint disorder that leads to restriction of mouth opening from partial reduction to complete immobility of jaw [1] [2]. Ankylosis is a Greek word which means 'stiff joint' [3]. American Academy of Orofacial pain [AAOP] defined ankylosis of TMJ as restriction of movements due to intracapsular fibrous adhesions, fibrous changes in capsular ligaments [fibrous ankylosis] and osseous mass formation resulting in the fusion of articular components [osseous ankylosis] [4,5].

Ankylosis of TMJ is most commonly associated with trauma, local or systemic infection, systemic diseases such as Rheumatoid arthritis, psoriasis, ankylosing spondylitis [3]. Depending upon the severity and age of presentation, the patient manifests with trismus, compromised mandibular growth, malocclusion and facial deformity which may influence aesthetics, oral hygiene, mastication and speech leading to psychological distress [6]. Here we describe a case of unilateral Bony ankylosis of TMJ in a 58-year-old female patient.

## 2. CASE REPORT

A 58 years old female patient reported to the Department of Oral Medicine and Radiology with a chief complaint of reduced mouth opening for 7

years. The patient gives a history of trauma to the facial skeleton due to a car accident 7 years back. Patient-related a history of progressive restriction of mouth opening after the accident. History of pain in right ear region which aggravated while opening and closing mouth. No history of any other systemic illness or relevant medical history. No family history of congenital disorders. No parafunctional habits were reported. No history of any facial skeletal fracture.

On Extraoral examination, there was no facial asymmetry [Fig. 1, Fig. 2]. Deviation of the mandible to the right side while opening mouth. No clicking sounds were heard on opening, closing and lateral movements. Tenderness was present on palpation of the right side of TMJ with limited maximum interincisal mouth opening [20 mm]. The profile of the patient appeared convex.

Patients blood profile showed that she was anaemic with haemoglobin being 7 gm%. Rheumatoid factor test was done to rule out rheumatoid arthritis and was negative.

Radiographic examination comprised of panoramic radiograph [Fig. 3] and computed tomography [Fig. 4], which revealed lack of structural organisation, wide condylar head on right side and obliteration of right TMJ space.

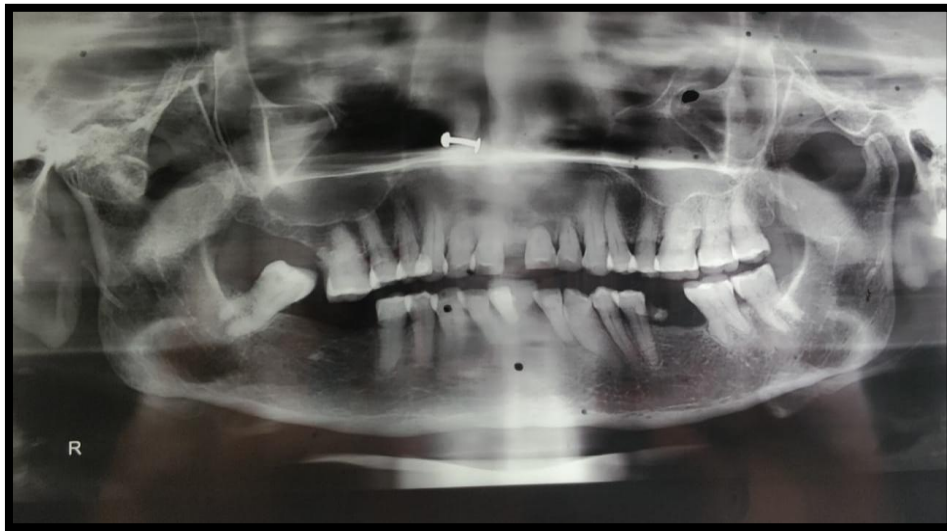
Based on clinical as well as radiographic findings, a diagnosis of unilateral true right bony ankylosis was confirmed. The surgical plan for enhancing mouth opening included interpositional gap arthroplasty followed by physiotherapy [Fig. 5]. After three months, the mouth opening was increased to 35 mm [Fig. 6].



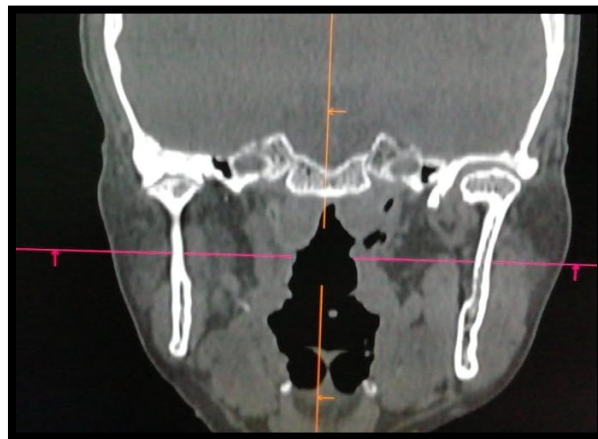
Fig. 1. Patient's extraoral view showing limited mouth opening



Fig. 2. Patients right lateral profile



**Fig. 3. Panoramic radiograph showing lack of structural organisation and reduced joint space on the right side**



**Fig. 4. CT image showing obliteration of right TMJ space**



**Fig. 5. Image showing resection of the ankylosing mass**



**Fig. 6. Mouth opening after six months: 35 mm**

### 3. DISCUSSION

TMJ ankylosis is a bony or fibrous union of the condyle of the mandible, and mandibular fossa of temporal bone [1]. The most common etiological factor for TMJ ankylosis is trauma which can lead to intraarticular hematoma along with scarring and formation of excessive bone which finally leads to hypomobility of joint [6,7]. It can also be primarily due to congenital defect or secondary to infections (otitis media or heterogeneous infection), post-surgical malunion, trauma or systemic conditions like ankylosing spondylitis, rheumatoid arthritis etc [6].

Limited movement of the mandible may reflect a TMJ disorder or disorder of masticatory muscles. TMJ ankylosis may be classified according to site [intra /extra articular], type of tissue involved [bony, fibrous /fibro-osseous tissue] and based on degree of fusion [complete/incomplete]. Kazanjian also classified it as true/false ankylosis [8]. True ankylosis results in osseous or fibrous adhesion between surfaces of TMJ, within the limits of the articular capsule. False ankylosis results from diseases that are not directly related to the joint [3].

Ajike and Omisakin reviewed 26 cases of ankylosis in 9 years with a mean age at presentation as 14.9 years with female predilection [9]. Hameed et al., in their study, found gender distribution to be 60.4% males and 39.6% female [10]. Gupta et al., in their study, found that the most common age group for TMJ ankylosis was 11-15 years [11]. In all the above studies, trauma was the most frequent aetiology similar to our case.

Clinically, in unilateral ankylosis, there is obvious facial deformity, deviation of chin towards the affected side [12] Inability to open the jaws, absent condylar movements on the affected side. In Unilateral ankylosis, the lower jaws shifts towards the affected side on the opening of the mouth. Flatness or fullness on the affected side. Crossbite on the ipsilateral side. Class II malocclusion on the affected side [13,14].

Radiographic evaluation is essential and critical in evaluating and treating patients with TMJ ankylosis [15]. The use of computed tomography is helpful to define the extent of ankylosis as well as the relationship of ankylotic mass to important associated structures [4, 16].

The principal surgical methods include simple gap arthroplasty, inter-positional arthroplasty and total joint replacement with a prosthesis. A

seven-step protocol has been developed for the treatment of TMJ ankylosis.

1. Aggressive resection of the bony or fibrous ankylotic mass.
2. Dissection and stripping of the temporalis muscle, scar release from the ramus and ipsilateral coronoidectomy.
3. Contralateral Coronoidectomy and stripping of the masseter, medial pterygoid and temporalis muscle.
4. The new joint lining is constructed.
5. Reconstruction of the condyle with costochondral graft.
6. Rigid fixation of the graft.
7. Early mobilization and aggressive physiotherapy [17].

Treatment should be initiated as soon as the condition is diagnosed with the main objective of re-establishing joint function and harmonious jaw function [18]. The surgical plan for enhancing mouth opening included inter-positional gap arthroplasty followed by physiotherapy [19]. It is of prime importance that physiotherapy is taken into consideration to improve the mouth opening further and prevent re-ankylosis.

In the present case, chewing exercises were started on the second day after surgery, which significantly increases the degree and ease of mouth opening. In our case, there is a significant improvement in the anterior-posterior position of the mandible and noticeable increase in mouth opening.

### 4. CONCLUSION

TMJ ankylosis is one of the most frequent pathologies concerning facial skeleton. Patients afflicted with this condition bear problem ranging from limited mouth opening to psychological distress. It poses functional as well as an aesthetic problem. Since TMJ ankylosis goes unnoticed for a long period, early intervention is mandatory, which helps to restore physical, psychological and emotional health of the patient.

### CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

### ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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