

### UNILATERAL TEMPOROMANDIBULAR JOINT ANKYLOSIS – REPORT OF A CASE

#### 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 interpositional 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, Fibrous ankylosis, Trauma*

#### INTRODUCTION:

Temporomandibular joint is a unique, complex, diarthrodial synovial joint which provides both hinging and gliding movements. Disorders involving temporomandibular joint involves several clinical conditions that involves the temporomandibular joint, muscles of mastication and associated structures<sup>1</sup>. 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<sup>1</sup>. Ankylosis is a Greek word which means 'stiff joint'<sup>2</sup>. 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 fusion of articular components[osseous ankylosis]<sup>5</sup>.

Ankylosis of TMJ is most commonly associated with trauma, local or systemic infection, systemic diseases such as Rheumatoid arthritis, psoriasis, ankylosing spondylitis<sup>2</sup>. 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<sup>3</sup>. Here we describe a case of unilateral fibrous ankylosis of TMJ in a 58 year old female patient.

30 **CASE REPORT:**

31 A 58 years old female patient reported to the Department of Oral Medicine and Radiology  
32 with a chief complaint of reduced mouth opening since 7 years. Patient gives a history of trauma to  
33 facial skeleton due to a car accident 7 years back. Patient related a history of progressive restriction  
34 of mouth opening after the accident. History of pain in right ear region and aggravated while  
35 opening and closing mouth. No history of any other systemic illness or relevant medical history. No  
36 family history of congenital disorders. No para functional habits were reported. No history of any  
37 facial skeletal fracture.

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

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

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

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

51 **DISCUSSION:**

52 TMJ ankylosis is a bony or fibrous union of the condyle of the mandible, and mandibular  
53 fossa of temporal bone<sup>1</sup>. The most common etiological factor for TMJ ankylosis is trauma which can  
54 lead to intraarticular hematoma along with scarring and formation of excessive bone leads to hypo  
55 mobility of joint<sup>3</sup>. It can also be primarily due to congenital defect or secondary to infections  
56 (otitis media or heterogeneous infection), post-surgical malunion, trauma or systemic conditions like  
57 ankylosing spondylitis, rheumatoid arthritis etc<sup>3</sup>.

58 Limited movement of the mandible may reflect a TMJ disorder or disorder of masticatory  
59 muscles. TMJ ankylosis may be classified according to site [intra /extra articular], type of tissue  
60 involved [bony, fibrous /fibro-osseous tissue] and based on degree of fusion [complete/ incomplete].  
61 Kazanjian also classified it as true/false ankylosis<sup>7</sup>. True ankylosis results in osseous or fibrous

62 adhesion between surfaces of TMJ, within the limits of the articular capsule. False ankylosis results  
63 from diseases that are not directly related to the joint<sup>2</sup>.

64 Ajike and Omisakin reviewed 26 cases of ankylosis in a span of 9 years with a mean age at  
65 presentation as 14.9 years with female predilection<sup>12</sup>. Hameed et al., in their study, found gender  
66 distribution to be 60.4% males and 39.6% females<sup>13</sup>. Gupta et al., in their study, found that the most  
67 common age group for TMJ ankylosis was 11-15 years<sup>14</sup>. In all the above studies, trauma was the  
68 most frequent aetiology similar to our case.

69 Clinically, in unilateral ankylosis there is obvious facial deformity, deviation of chin towards  
70 affected side. Inability to open the jaws, absent condylar movements on affected side. In Unilateral  
71 ankylosis, the lower jaws shifts towards the affected side on opening of the mouth. Flatness or  
72 fullness on affected side. Cross bite on ipsilateral side. Class II malocclusion on affected side.

73 Radiographic evaluation is essential and critical in evaluating and treating patients with TMJ  
74 ankylosis<sup>6</sup>. The use of computed tomography is helpful to define the extent of ankylosis as well as  
75 the relationship of ankylosis to important associated structures<sup>5,9</sup>.

76 The principal surgical methods include simple gap arthroplasty, interpositional arthroplasty  
77 and total joint replacement with prosthesis. A seven step protocol has been developed for the  
78 treatment of TMJ ankylosis

- 79 1. Aggressive resection of bony or fibrous ankylosis mass.
- 80 2. Dissection and stripping of temporalis muscle, scar release from the ramus and ipsilateral  
81 coronoidectomy.
- 82 3. Contra lateral Coronoidectomy and stripping of the masseter, medial pterygoid and temporalis  
83 muscle.
- 84 4. New joint lining is constructed.
- 85 5. Reconstruction of the condyle with costochondral graft.
- 86 6. Rigid fixation of the graft.
- 87 7. Early mobilization and aggressive physiotherapy.<sup>15</sup>

88  
89 Treatment should be initiated as soon as the condition is diagnosed with the main objective  
90 of re-establishing joint function and harmonious jaw function<sup>16</sup>. The surgical plan for enhancing  
91 mouth opening included interpositional gap arthroplasty followed by physiotherapy. It is of prime  
92 importance that physiotherapy is taken into consideration to improve the mouth opening further and  
93 prevent re-ankylosis.

94 In the present case, chewing exercises were started on the second day after surgery, which  
95 significantly increase the degree and ease of mouth opening. In the present case there is significant  
96 improvement in the anterior- posterior position of the mandible and noticeable **increase in mouth**  
97 opening since the release of ankylosis.

98

## 99 **CONCLUSION:**

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

## 105 **Consent Disclaimer:**

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

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## 109 **Legends:**

110 Fig1: patient's extra oral view showing limited mouth opening

111 Fig2: patient's right lateral profile

112 Fig3: panoramic radiograph showing lack of structural organisation and reduced joint space on the  
113 right side

114 Fig 4 CT image showing obliteration of right TMJ space

115 Fig 5: Image showing resection of the ankylosing mass

116 Fig 6: mouth opening after six months: 35 mm

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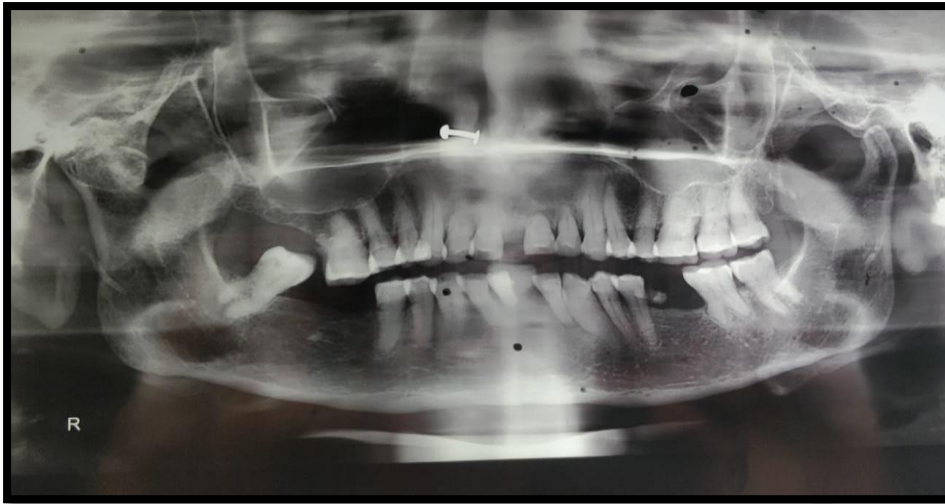
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Fig 1



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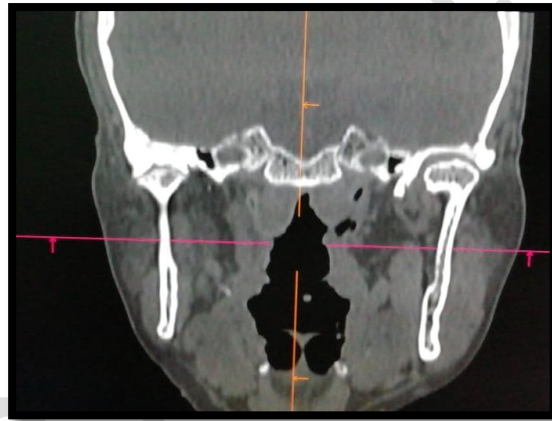
Fig 2



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Fig 3



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Fig 4



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Fig 5



Fig 6

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UNDER PEER REVIEW