

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 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, Fibrous ankylosis, Trauma*

INTRODUCTION:

The 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 involve the temporomandibular joint, muscles of mastication and associated structures¹. 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 jaw¹ [18]. Ankylosis is a Greek word which means 'stiff joint'². 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]⁵ [17].

Ankylosis of TMJ is most commonly associated with trauma, local or systemic infection, systemic diseases such as Rheumatoid arthritis, psoriasis, ankylosing spondylitis². 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 distress³. 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 for 7 years. The patient gives a history of trauma to
33 the facial skeleton due to a car accident 7 years back. Patient-related a history of progressive
34 restriction of mouth opening after the accident. History of pain in right ear region and aggravated
35 while opening and closing mouth. No history of any other systemic illness or relevant medical
36 history. No family history of congenital disorders. No par functional habits were reported. No history
37 of any facial skeletal fracture.

38 On Extraoral 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 Patients 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 tomography [fig 4], which revealed a 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 inter-positional
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 bone¹. 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
55 hypomobility of joint³ [19]. It can also be primarily due to congenital defect or secondary to
56 infections (otitis media or heterogeneous infection), post-surgical malunion, trauma or systemic
57 conditions like ankylosing spondylitis, rheumatoid arthritis etc³.

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 ankylosis⁷. 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 joint².

64 Ajike and Omisakin reviewed 26 cases of ankylosis in 9 years with a mean age at
65 presentation as 14.9 years with female predilection¹². Hameed et al., in their study, found gender
66 distribution to be 60.4% males and 39.6% females¹³. Gupta et al., in their study, found that the most
67 common age group for TMJ ankylosis was 11-15 years¹⁴. 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 the affected side. Inability to open the jaws, absent condylar movements on the affected side. In
71 Unilateral ankylosis, the lower jaws shifts towards the affected side on the opening of the mouth.
72 Flatness or fullness on the affected side. Crossbite on the ipsilateral side. Class II malocclusion on
73 the affected side.

74 Radiographic evaluation is essential and critical in evaluating and treating patients with TMJ
75 ankylosis⁶. The use of computed tomography is helpful to define the extent of ankylosis as well as
76 the relationship of ankylotic mass to important associated structures^{5,9}.

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

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

89
90 Treatment should be initiated as soon as the condition is diagnosed with the main objective
91 of re-establishing joint function and harmonious jaw function¹⁶. The surgical plan for enhancing
92 mouth opening included inter-positional gap arthroplasty followed by physiotherapy. It is of prime
93 importance that physiotherapy is taken into consideration to improve the mouth opening further and
94 prevent re-ankylosis.

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

99

100 **CONCLUSION:**

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

106 **Consent Disclaimer:**

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

109 Ethical: NA

110 **Legends:**

111 Fig1: patient's extraoral view showing limited mouth opening

112 Fig2: patients right lateral profile

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

115 Fig 4 CT image showing obliteration of right TMJ space

116 Fig 5: Image showing resection of the ankylosing mass

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

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Fig 1

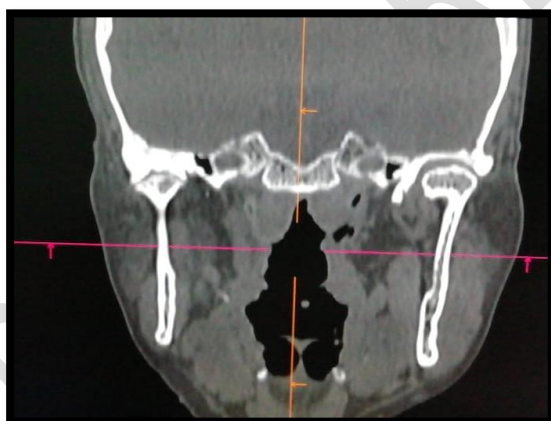
Fig 2



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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