

Post Traumatic TMJ Ankylosis in Unaddressed Bilateral Condylar Fractures: A Case Report

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ABSTRACT

Temporomandibular joint (TMJ) ankylosis is a severe disabling state characterized by fusion of the mandibular condyle with the glenoid fossa, disc, and/or eminence, resulting in sternly restricted mouth opening and considerably abridged mandibular movements. Other clinical features include facial deformities, malocclusions and obstructive sleep apnea. Various treatment protocols exist for management of TMJ ankylosis. However, the standard management of TMJ ankylosis involves the surgical removal of the ankylotic mass where other symptoms are not corrected. Our case report presents an operated case of pan-facial trauma where the bilateral condylar fractures were not addressed by open reduction and internal fixation leading to ankylosis of the TMJ. Through second surgery, we chose to make the patient free of maxillo-mandibular fixation and restart aggressive physiotherapy to prevent any re-ankylosis from developing.

Keywords: TMJ, Ankylosis, Bilateral condylar fractures, Re-ankylosis, Physiotherapy

INTRODUCTION

TMJ ankylosis is the bony or fibrous union of the TMJ [1]. It leads to progressive difficulty in mouth opening which is the main complaint of the individual. Other clinical features include facial deformities, malocclusions and obstructive sleep apnea [2]. Among various etiology very commonly is trauma to the TMJ, mainly of condyle of the mandible [3]. It has been hypothesized that post traumatic ankylosis can develop either due to intra-capsular hematoma [4] or extra-capsular hematoma [5]. However, each hypothesis has flaws and no definitive hypothesis exists that can describe the pathogenesis of post-traumatic ankylosis. Various treatment protocols exist for management of TMJ ankylosis. However, the standard management of TMJ ankylosis involves the surgical removal of the ankylotic mass. This procedure only addresses the condition of restricted mouth opening of the patient while other symptoms are not corrected. Our case report presents a case of pan-facial trauma where open reduction and internal fixation was done but bilateral condylar fractures was not addressed. Patient developed TMJ ankylosis bilaterally and thus underwent management in the Department of Oral and Maxillofacial Surgery, KGMU, Lucknow for the same.

CASE REPORT

A 28-year-old male reported to our department with the chief complaints of gradual reduction in mouth opening following history of trauma 4 years back in the year 2019. Patient had suffered a from road traffic accident for which he was operated by open reduction and internal fixation (ORIF) in the year 2019. Patient was apparently asymptomatic 1 year back when he noticed gradual reduction of moth opening. On extra-oral examination there was no facial asymmetry, and patient profile showed a normal chin position (**Figure 1**). Palpation of the TMJ revealed that both condylar movements were absent. Antegonial notch was non-palpable bilaterally. Intraoral exam revealed mouth opening (10 mm) without and jaw deviation on opening or closing (**Figure 2**).

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Figure 1. Extraoral Clinical photographs showing no facial asymmetry and normal chin position.



Figure 2. Mouth opening of the patient when presented to our department.

From the above findings a provisional diagnosis of TMJ ankylosis was made. Diagnostic NCCT 3D face was done and final diagnosis of Post traumatic bilateral TMJ ankylosis was made. NCCT 3D reconstruction revealed multiple mini-

plate system indicative of a pan-facial trauma in the past. Ankylotic mass was observed bilaterally along with mini-plates over the multiple facial buttresses (**Figure 3**).

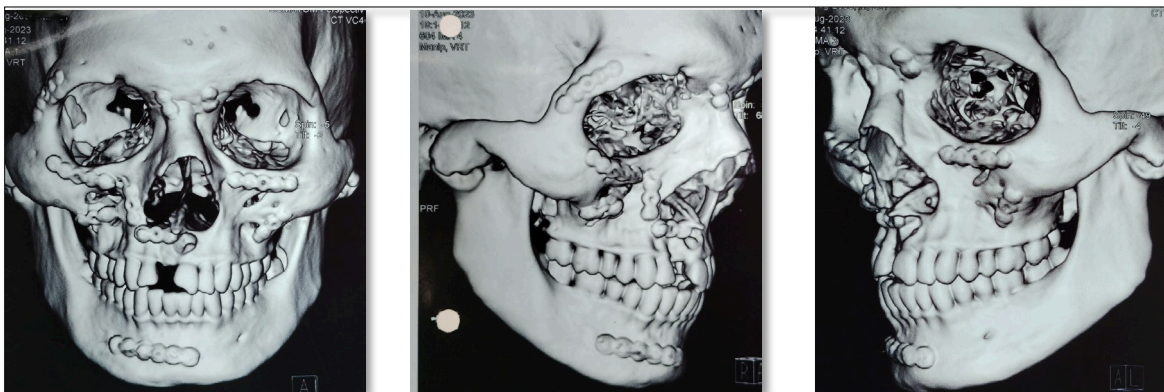


Figure 3. NCCT 3D reconstruction illustrates mini-plates with bilateral ankylosis.

According to the coronal sections it was a Sawhney's Type IV on right side and Type III on left side (**Figure 4**).

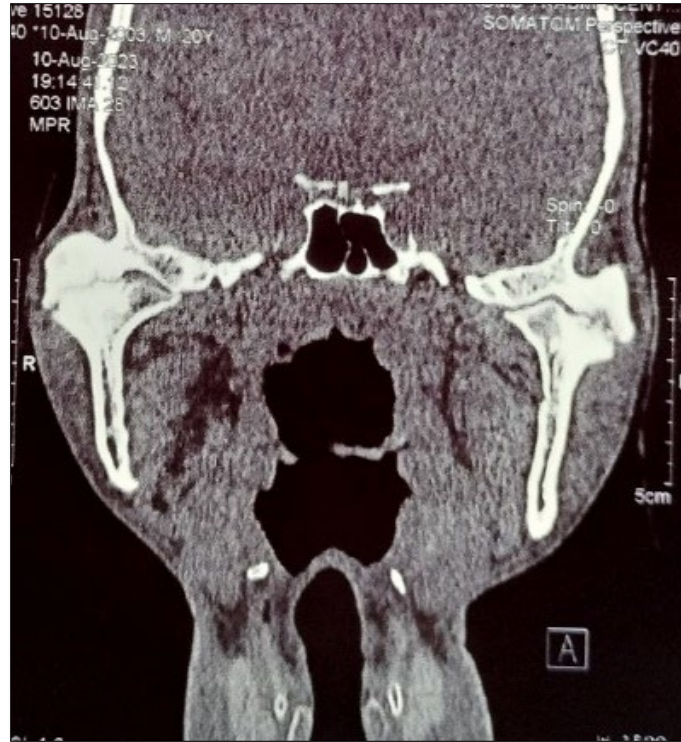


Figure 4. Coronal section demonstrates Sawhney’s Type IV on right side and Type III on left side.

According to the axial section it was classified as El Hakim et al Type IV bilaterally (Figure 5).

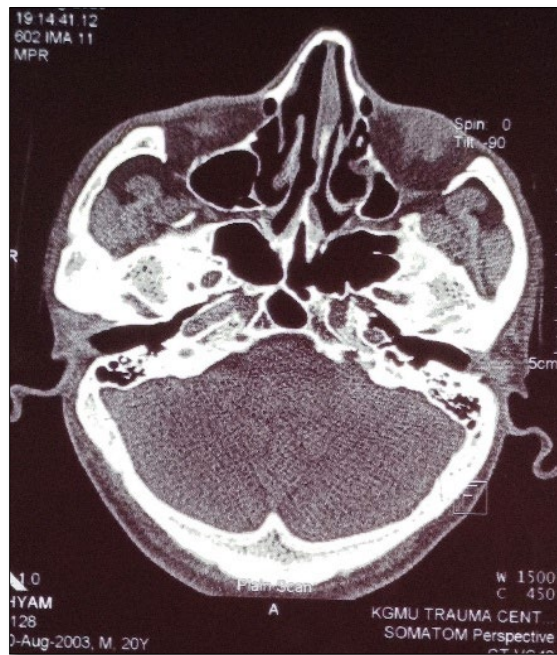


Figure 5. El Hakim et al Type IV bilaterally.

Patient was operated under general anesthesia. Ankylosis release was done via bilateral osteo-antrectomy through a

Modified Alkayat Bramley incision (Figures 6a,b & Figures 7a,b).



Figure 6a. Right side Alkayat Bramley.



Figure 6b. Right side ankylotic mass exposed.



Figure 7a. Left side Alkayat Bramley.

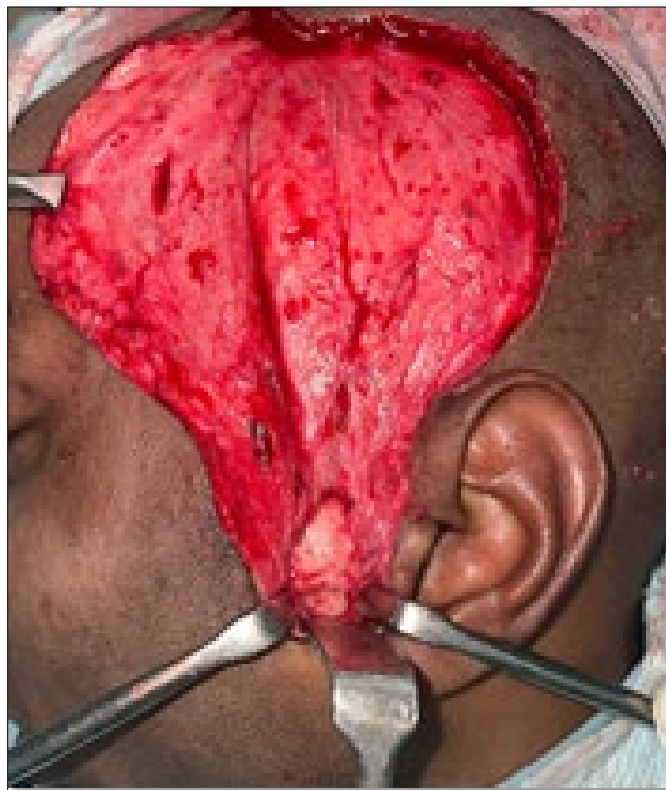


Figure 7b. Left side ankylotic mass exposed.

Following ankylosis release mouth, opening of 40 mm was achieved (Figure 8) and interpositional arthroplasty was done with temporalis fascia flap (Figure 9).



Figure 8. Intraoperative mouth opening of 40 mm was achieved.

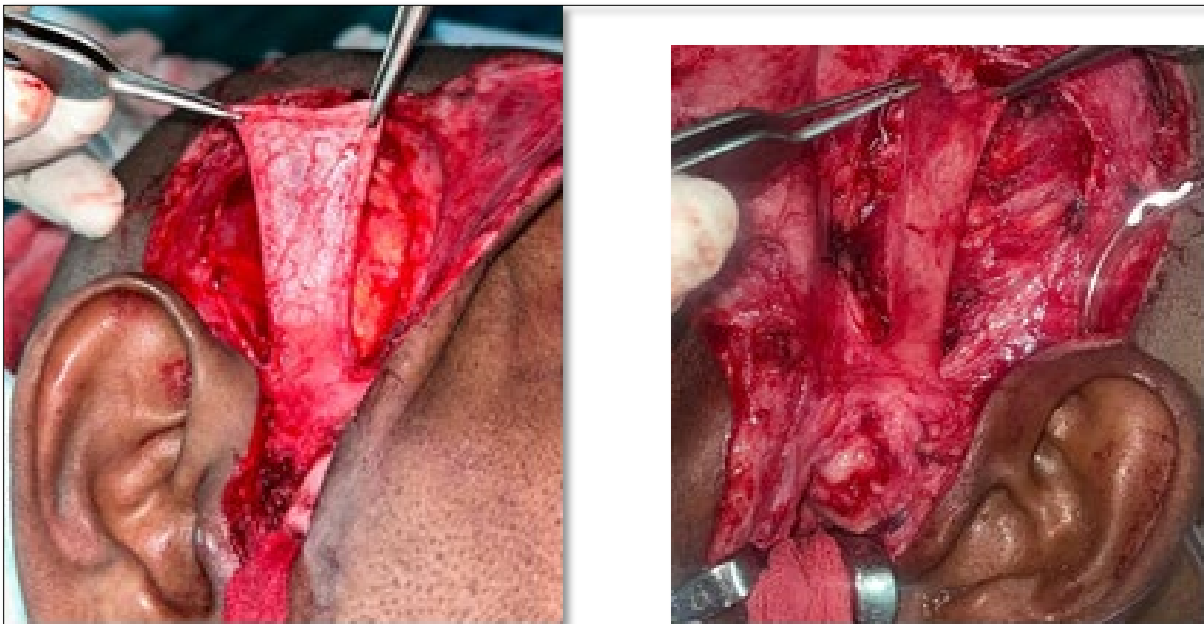


Figure 9. Right Interpositional arthroplasty.

Adequate hemostasis was achieved, a No.14 Romovac drain was placed and the incision was closed in layers. Patient was extubated and proper post-operative care and aggressive physiotherapy was done in the following days. For the initial two weeks despite aggressive mouth opening patient has

deranged occlusion. Hence maxilla-mandibular fixation was done for two weeks which greatly benefitted the patient. This was followed by continuation of aggressive mouth opening exercises. Mouth opening achieved was 27mm after two months (Figures 10a, b, c).



Figure 10a. Extra-oral photographs after 2 months of surgery.



Figure 10b. Occlusion after 2 months.



Figure 10c. Mouth opening-27mm.

DISCUSSION

Post traumatic TMJ ankylosis can occur in both adults and children. In children it causes growth disturbances [6,7] while in adults it causes reduced mouth opening, poor oral hygiene, diet, speech and also causes psychological issues [8]. In the above case report we saw a case of bilateral TMJ ankylosis where patient's chief complaint was reduction in mouth opening. Our case report presents an operated case of pan-facial trauma where the bilateral condylar fractures were not addressed by open reduction and internal fixation leading to ankylosis of the TMJ.

It has been reported in literature that when a top to bottom approach is performed for Lefort fractures with concomitant condylar fractures then it may often be possible to leave the concomitant bilateral condylar fractures un-addressed [9]. In our case report possibly, a top to bottom approach was taken, while posterior facial height was maintained using the zygomatico-maxillary buttresses and thus the condyles were not addressed. Hence the patient developed TMJ ankylosis. Thus, our case report presents with a unique scenario. Although, we cannot delve into the past to find out the exact approach taken by the previous surgeon we can only hypothesize, and look forward to address the patient's chief complaint.

Meticulous follow up was needed in this case as patient had to be placed on maxillomandibular fixation using Erich Arch bar as patient complained of deranged occlusion. This is commonly seen in bilateral ankylosis release cases in the immediate post-operative period. Once the patient got habituated to a stable occlusion, as it was in the pre-operative period, we chose to make the patient free of maxillo-mandibular fixation and restart aggressive physiotherapy to prevent any re-ankylosis from developing.

CONCLUSION

A second surgery is always demanding and is a great ordeal for the patient and the surgeon. Afflictions like TMJ ankylosis of the post-traumatic etiology causes psychosocial issues coupled with economic overburden. Intraoperatively we must ensure adequate removal of ankylotic mass and on-table adequate mouth opening. Proper post-operative care and follow up is also crucial in such patients. All these factors will prevent the re-ankylosis to happen which is a dreaded complication.

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