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CASE REPORT

Management of temporomandibular joint ankylosis

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ABSTRACT

Temporomandibular Joint (TMJ) ankylosis is a pathologic condition caused by fusion of the mandible to the mandibular fossa by bony or fibrous tissue. It is extremely disabling as it interferes with mastication, speech, oral hygiene and other day to day activities. It can also be life threatening when struggling to acquire airway in emergencies. In this case report we present 2 cases of TMJ ankylosis, the first Case is of a 10 year old female, where Gap arthroplasty was done to enable normal mouth opening. The second case is Final correction of severe Facial deformity due to TMJ ankylosis in a 24 year old female. ***Conclusion****: It is important that TMJ Ankylosis is identified and corrected at an early age so as to prevent complications in future, to create awareness about TMJ disorders and their complete management. TMJ ankylosis normally requires multiple surgeries at different stages so as to obtain optimum results and to let the patient lead a normal life.*

Keywords*: TMJ, Ankylosis, Retrognathia, Gap Arthroplasty, Orthognathic Surgery, Distraction Osteogenesis*

INTRODUCTION

35% - 90% Temporomandibular Joint (TMJ) ankylosis occurs during first and second decade of life.[1] There are multiple factors that cause TMJ ankylosis, such as trauma, arthritis, infection, previous surgeries, congenital deformities, idiopathic cause.[2] Most common cause is Maxillofacial trauma (13-100%).[3] The management of TMJ ankylosis includes restoration of normal anatomy, form, function, occlusal stability. Aggressive surgical resection of minimum 1.5cm of the ankylotic mass followed by aggressive Physiotherapy.[4] The most common protocol followed is Kaban protocol, which involve wide exposure, aggressive resection (15-20mm), unilateral or bilateral coronoidectomy (if mouth opening is less than 35mm), insertion of temporalis muscle and reconstruction with costochondral graft.

Case Report 1

A 10 year old girl presented to our centre with zero mouth opening since the age of 4 years. CT scan revealed complete ankylosis between left mandibular condyle and mandibular fossa leading to complete obliteration of TM Joint without involving sigmoid notch **(Figure 1)**.

Figure 1 Left TMJ Ankylosis, zero mouth opening

Tracheostomy was performed. The left TMJ was approached via Pre-auricular incision. The ankylosed mass was excised taking care of Internal Maxillary artery which was immediately medial to the ankylosed condyle **(Figure 2)**.

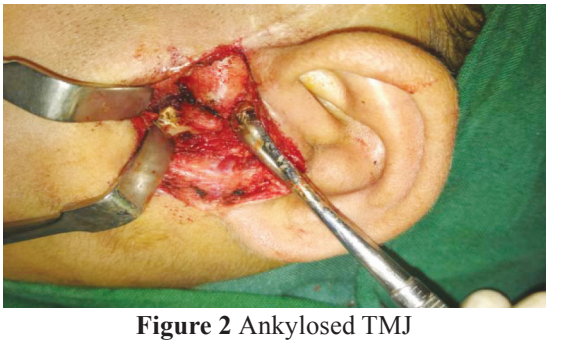

Figure 2 Ankylosed TMJ

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A gap arthroplasty of more the 2cm was performed (**Figure 3**) along with left unilateral coronoidectomy, adequate mouth opening of 30mm was achieved. Patient was reviewed after 3 months. Mouth opening was found to have increased as compared to immediate post op. (**Figure 4**).

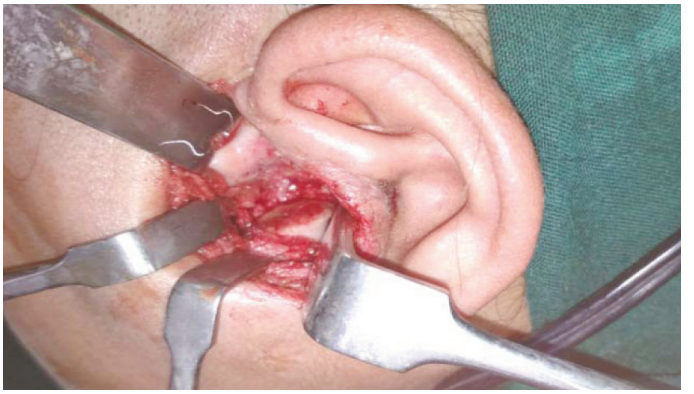

Figure 3 Gap Arthroplasty

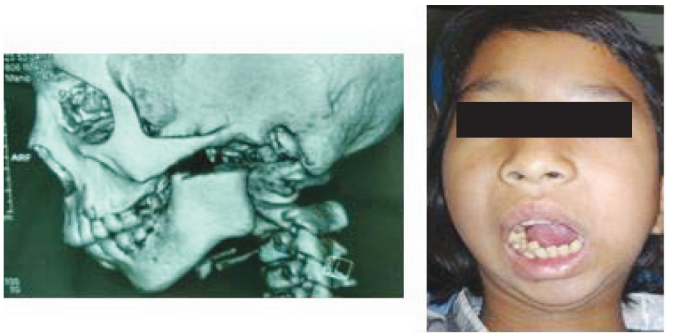

Figure 4 3 Months Post mouth Opening of 30mm

Case Report 2

A 24 year old girl reported to our centre with severe lower facial deformity. She presented with mandibular deviation towards right side.The patient was treated for bilateral TMJ ankylosis in 2014. Patient underwent Orthodontic decomposition for her dental malalignment for a period of one year, which was complicated due to previous non planned extraction of teeth. The lateral Cephalometric and Grummons analysis indicated a mandibular asymmetry of 8mm. The maxilla was in normal position. We performed a differential advancement Bilateral Sagittal Split Osteotomy (BSSO) wherein the mandible was rotated towards left side and advancement Genioplasty (**Figure 5**) to correct her facial asymmetry (**Figure 6**).

Figure 5 Bilateral Split Sagittal Osteotomy and Genioplasty

Figure 6 Correction of facial asymmetry

DISCUSSION

According to Kaban protocol resection and interposition of temporalis muscle and costochondral grafting should be performed. But in our first case, since the sigmoid notch was not involved, we went ahead with minimal exposure and aggressive gap arthroplasty without interpositional material as suggested by Ahmed et al in their cohart study.[5]

Treatment of TMJ ankylosis presents with significant challenge to a surgeonas there no consensus on a standard protocol to treat the condition. Primarily there are three treatment modalities: gap arthroplasty, interpositional arthroplasty and articular reconstruction. Another difficulty in the management is various degrees of facial deformity that may arise from TMJ ankylosis.

Moss and Salentijn stated in 1969 that the muscular matrix around the mandible may affect the results of any treatment. Early treatment restores the mandibular mobility and subsequently improves facial growth and remodelling thus reducing the facial asymmetry or Retrognathia.[6]

Facial asymmetry is also a significant complication of TMJ ankylosis. In cases of severe facial asymmetry Distraction Ontogenesis can be performed in order to achieve the desired lengthening of the mandible. In our case there was a facial deviation of 8mm along with chin asymmetry. In cases where less than 10mm discrepancy Bilateral Split Sagittal Osteotomy (BSSO) can be performed to correct mandibular asymmetry. BSSO was first described by Schuchardt, in which three osteotomies were utilized to weaken the bone for later controlled chisel-driven splitting in the sagittal plane.[8] BSSO is a well-established surgical means for the correction of mandibular dysgnathia. Various modifications of the procedure are well-established.[7] The modification of Obwegeser and Dal Pont and the modification of Hunsuck and Epker are the most commonly applied in clinical practice.

The main complication include, Neurovascular damage of the inferior alveolar nerve causing paraesthesia (4.8%-15.2%).[9] Bad split (3%) and infection. It is also important to achieve good dental occlusion for stable results.

CONCLUSION

TMJ ankylosis requires multidisciplinary approach for holistic treatment and good final outcome. It requires early identification and close cooperation between a maxillofacial surgeon and orthodontist. If proper management is done in early age, these patients can lead a normal life.

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Author declaration: I Dr. Rahul Gogoi, declare that there is no conflict of interest regarding the above case reports.

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