

Breaking the Jawlock Surgical Management of Temporomandibular Joint Ankylosis in Pediatric Patient: A Rare Case Report

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Abstract:

Introduction: Temporomandibular joint ankylosis is pathological condition of the joint, manifested by limitation to total failure of the movement of TMJ usually resulting post trauma or surgery, local infection, and rarely found in pediatric patient with approximately one percent in prevalence. Temporomandibular joint (TMJ) forms the very cornerstone of craniofacial integrity and its ankylosis in a growing child may cause problems in daily food intake, speech, appearance, and oral hygiene is affected to a major extent. Here we present a rare case of temporomandibular joint ankylosis in pediatric patient that emphasizing on challenging diagnostic process.

Case report: A 2.5-years-old boy patient with chief complaint of limitation mouth opening. The complaint was initially experienced 1 year ago, there was difficulties in mastication, impairment of speech, and facial asymmetry on clinical examination. 3D Head CT Scan revealed a destruction of the right condyle with ankylosis at the base of the skull.

Case management: Gap arthroplasty at the right temporomandibular joint utilizing preauricular approach technique was performed. Coronoidectomy at right coronoid bone was performed to release the ankylosis based on protocol treatment of ankylosis. Adjuvant treatment the patient was consulted to Medical Rehabilitation Department for mouth opening exercise.

Conclusion: Temporomandibular joint ankylosis is rare occurred in pediatric patient, Gap arthroplasty is a highly recommended treatment for ankylosis at TMJ in pediatric due to its effectiveness and it's advantage to increase patient's life quality, but has nerve paralyze as side effect then need mouth opening exercise to increase the range and control rapidly for the facial asymmetry.

Keyword: *Gap Athroplasty, Anklyosis, Pediatric*

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Introduction

Temporomandibular joint (TMJ) ankylosis is an extremely disabling affliction that causes problems in mastication, digestion, speech, appearance and hygiene.[1] TMJ ankylosis usually occurs after trauma,

surgical intervention, local infection in the ear, or due to other systemic infection and diseases. Major facial asymmetry and limited mouth opening causes several functional limitations such as difficulty in

mastication and poor oral hygiene, which may lead to other sequelae, and finally can lead to psychosocial disability.[2]

Temporomandibular joint (TMJ) ankylosis in children is a challenging problem. Surgical correction is technically difficult and the incidence of recurrence after treatment is high. Gap arthroplasty is highly recommended for ankylosis in TMJ.[3]

This case report, an interesting case of a ankylosis temporomandibular joint in a 3 years old boy patient is described who

presented with limitation of mouth opening and facial asymmetry then was performed gap arthroplasty and coronoidectomy.

Case

A 3-year-old patient was reported to Oral Maxillofacial Department with chief complaint of limitation of mouth opening and facial asymmetry. Based on clinical examination limitation mouth opening approximately 1mm. Patient profile show facial asymmetry to the right side.



Figure 1. Profile and intra oral photo.

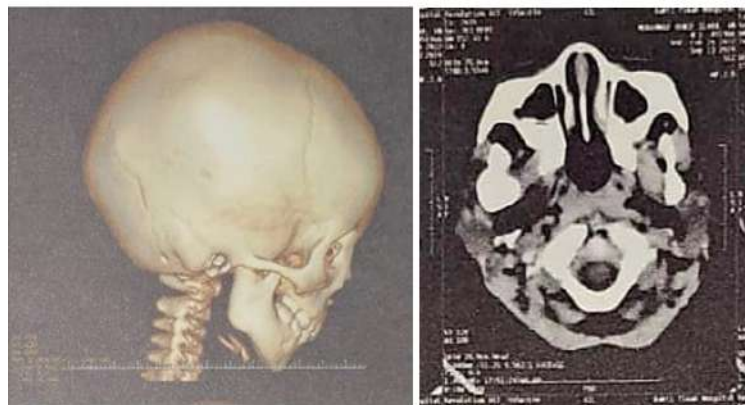


Figure 3. Head CT scan

According head CT Scan examination, visible asymmetry of mandible bone with submental deviated to the right side. 3D Head CT Scan revealed a destruction of the right condyle with ankylosis at the base of the skull.

Case Management

Gap arthroplasty and right coronoidectomy under general anesthesia was performed to

correct ankylosis in TMJ with incision at pre auricular region. The fascia was incised, and the lateral pterygoid muscle was dissected to joint. Gap arthroplasty at condyle was performed then following with coronoidectomy at right side. Mouth opening was checked and show the result approximately 2cm

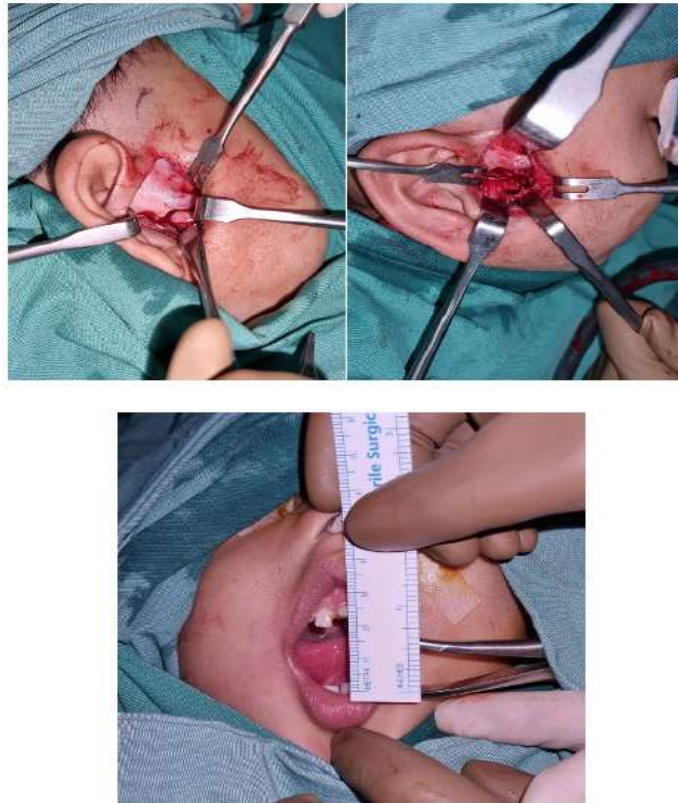


Figure 4. Intraoperative

POD 7, there was increase number of mouth openig approximately 2.5 cm. The patient was consulted to Medical Rehabilitation Dept. for further treatment. Facial assymetry was corrected, and there was no nerve paralyze



Figure 7. Post operative day 7

Discussion

Several studies have shown that children who undergo earlier intervention in the case of congenital ankylosis experience more growth of the mandible as compared to children who undergo surgery at a later age and their postoperative mandibular growth rate is nearly the same as that observed in normal adults.[4] According to Laskin, one of the key principles in the management of TMJ ankylosis is to do surgical intervention as early as possible. Early detection and intervention is necessary to minimize the severity of the restriction of facial growth, risk of facial asymmetry, and development of psychological stress. Thus, it prevents all psychosocial and functional complications and helps a child to grow up as a healthy individual. Gap arthroplasty is a term given to surgical procedure that helps to release ankylosed chunk, causing a gap between the temporal bone and ramus of the mandible. However, now with the use of various interposition grafts, it is better termed as interpositional arthroplasty. Prevention of re-ankylosis must always be considered while releasing the ankylosis. Autogenous temporalis myofascial flap is a preferred option in the case of interpositional arthroplasty due to its proximity to the surgical site. Other techniques such as total joint replacement with the help of costochondral grafts or distraction osteogenesis to restore the ramus–condyle unit have also been reported.[5] Distraction osteogenesis is a preferred technique in contemporary practice as it leads to increase in mandibular length and height with minimal complications. Patients undergoing distraction osteogenesis have reduced chances of re-ankylosis and in patients with severe micrognathia, distraction osteogenesis causes improvement in posterior airway space naturally.[6]

The 7-step protocol consists of 1) aggressive excision of the fibrous and/or bony ankylotic mass, 2) coronoidectomy on the affected side, 3) coronoidectomy on the

contralateral side, if steps 1 and 2 do not result in a maximal incisal opening greater than 35 mm or to the point of dislocation of the unaffected TMJ, 4) lining of the TMJ with a temporalis myofascial flap or the native disc, if it can be salvaged, 5) reconstruction of the ramus condyle unit with either distraction osteogenesis or costochondral graft and rigid fixation, and 6) early mobilization of the jaw. If distraction osteogenesis is used to reconstruct the ramus condyle unit, mobilization begins the day of the operation. In patients who undergo costochondral graft reconstruction, mobilization begins after 10 days of maxillo-mandibular fixation. Finally (step 7), all patients receive aggressive physiotherapy. A case series of children with ankylosis treated using this protocol is presented.[7]

Conclusions

Ankylosis TMJ in pediatric patient is rare and uncommon disease. However, less cases have been reported and its treatment has been systematized. Proper examination and radiography is crucial things to get right diagnose and treatment plan. Gap arthroplasty is common treatment to perform because it can decrease recurrence of disease. Complication, for the example paralysis must be accounted for during treatment cause the anatomy of condyle near with facial nerve. Facial asymmetry and limitation of mouth opening must be correct with surgical and therapy from medical rehabilitation department

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