Bilateral TMJ ankylosis, anesthetic and surgical challenge- case report

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Abstract
Bilateral Temporomandibular Joints ankylosis brings extensive limitations on the patient quality of life. Surgical treatment is frequently necessary associated with a continuous rehabilitation. To avoid iatrogenic injuries and potential complications, anatomy of this region, must be thoroughly known by operating surgeon.

Key words: Temporomandibular Joints, Ankylosis, Temporalis myofacial grafting.

Introduction
Ankylosis of temporomandibular joint (TMJ) is an intracapsular union of the disc-condyle complex to temporal articular surface that restricts mandibular movement, including the fibrous adhesions or bony fusion between condyle, disc, glenoid fossa, and articular eminence [1]. Mandibular Hypomobility results from a variety of disorders affecting TMJ and surrounding structures. TMJ ankylosis is more commonly associated with trauma (13–100%), local or systemic infection (10–49%), or systemic diseases (100%), such as ankylosing spondylitis, rheumatoid arthritis, and psoriasis. However, it can also occur as a result of TMJ surgery, congenitally or secondary to severe rheumatoid arthritis or to tumors in the area of TMJ [2]. It is generally classified on the basis of location, type of tissue involved and extent of its fusion [3]. TMJ ankylosis in the pediatric patient often leads to facial deformities, difficulty in chewing and swallowing, speech problem, poor oral hygiene [4]. Facial asymmetry develops if only one side is affected. Disturbances of facial and mandibular growth and acute compromise of the airway invariably result in physical and psychological disability [5]. Severity of ankylosis is diagnosed clinically by evaluating the degree to which mouth opening is restricted. X-rays, CT scans, or MRI tests determine the abnormality in the bony or soft tissue formations in the joint [6]. The treatment of TMJ ankylosis is challenging, because of technical difficulties, frequent complications and high incidence of recurrence [7]. Team approach is required for resolving functional, cosmetic, psychological or social problems associated with ankylosis. The arthroplasty results not only in adequate mouth opening but also re-establish jaw movements in the TMJ ankylosis patients. Important consideration in the management of this condition is to restore the dental occlusion along with the prevention of re-ankylosis during subsequent time.

Case Report
15 years old male patient, reported to the clinic of oral and maxillofacial surgery, with chief complaint of inability to open mouth since the age of 2 years. Patient had left ear infection at the age of 1.5 years after which parents noticed reduction and painful mouth opening with complete cessation of jaw activity at the age of 2 years. Clinically patient had straight mentohyoid angle and facial fullness on right side. There was accentuation of antegonial notch on right side. Radiological evaluation determined that there was Nelson’s grade II ankylosis on left side where as grade III ankylosis with involvement of coronoid on the right side. Patient was screened for any other developmental or acquired anomalies, after which he was prepared for surgery. Fiberoptic nasal intubation was considered, but could not lead to satisfactory intubation, therefore tracheostomy was performed. Bilateral Temporalis Interpositioning grafts was placed after excision of...
ankylotic mass to achieve 4 cm of intra operative mouth opening. Bilaterally minivac drains were secured and closure was commenced. Active physiotherapy was commenced at 5<sup>th</sup> post op day and tracheostomy was removed uneventfully on 12<sup>th</sup> post op day. Patient is kept under follow up as his mandibular anatomy is severely distorted along with severe canting of maxilla on left side. On every post op follow up, Orthopentamograph (OPG) x-ray shall be taken to monitor the development pattern and signs of recurrence of the disease.

Fig 1: Before surgery not able to open mouth

Fig 2: more than 1 cm opening after surgery

Fig 3: X ray suggestive of Ankylosis with bony deformity
Fig 4: showing ankylosis with bony and dental deformity.

Discussion
Untreated TMJ ankylosis in children results in significant adverse consequences. Facial asymmetry progressive worsens because of the hypo-mobility and abnormal muscle function. Longer the duration of hypo-mobility, the more severe will be the muscle atrophy and facial asymmetry. In addition, secondary elongation and hypertrophy of the coronoid process occurs, further restricting jaw motion. The prognosis for a favorable outcome with treatment is inversely related to the number of years of ankylosis. Therefore treatment of ankylosis should be done as soon as it is feasible to expect patient co-operation. Usually children more than the age of 3 years are candidates of ankylosis release. Most frequently reported operation include gap arthroplasty, interpositional arthroplasty, excision and joint reconstruction with autogenous or alloplastic material. The choice of surgery depends upon various factors, including age, medical status, growth potential, recurrence potential, possibilities of grafting and advantages and disadvantages of various interpositional and reconstructive materials [8]. In patients treated with gap arthroplasty average increase in mouth opening was 32mm, and the results were considered satisfactory. In our case, mouth opening intra-operatively was 4.2cm and passive mouth opening 12th day post operative was measured to be 1.5cm. Patient is advised active physiotherapy for 8 months with regular monthly follow up. Post operative OPG will be done to evaluate the progress [9].

Conclusion
Multidisciplinary team approach is required for better outcome for treatment of bilateral TMJ ankylosis. Long term follow up with active physiotherapy can ascertain good and uneventful healing and ultimately success of the treatment.

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