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Case report of placing modified neo condyle in bilateral temporomandibular joint ankylosis in a child

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Abstract

Temporomandibular joint ankylosis is a foreseen troublesome surgery particularly when it is performed in children and same is in the intubation situation as well. TMJ ankylosis makes a troublesome circumstance on the working table for a specialist. With regards to anesthetist the conscious fiber optic intubation is the most secure way to deal with secure an airway route in such a case. Here presents an instance of respective bilateral temporomandibular joint ankylosis planned for interpositional arthroplasty. A satisfactory estimated fiber optic intubation was utilized to encourage nasotracheal intubation and the resected condylar mass was changed to frame a neo condyle for the interpositional arthroplasty in one side and a temporalis myofascial flap was utilized on the contralateral side. By this method the second surgical site was avoided to take interpositional graft.

Keywords: TMJ ankylosis, Interpositional arthroplasty, difficult airway, fiber optic intubation, neo condyle

Introduction

Temporomandibular joint is the cornerstone of craniofacial integrity. Temporomandibular joint (TMJ) is a synovial articulation between the mandible and mandibular fossa of the temporal bone. It plays a crucial role in mouth opening. Ankylosis of TMJ involves fusion of the mandibular condyle to the base of the skull and is associated with trauma (13-100%), infection (0-53%), systemic disorders like ankylosing spondylitis, rheumatoid arthritis or psoriasis and can even be idiopathic [1].

Case Report

A 6 year old male child with reduced mouth opening and ankylosis of the bilateral temporomandibular joint was scheduled for interpositional arthroplasty with temporal myofascial flap. He was apparently normal 6 months back when he had a trauma due to fall from the height while playing in the terrace after which he developed progressive restriction of mouth opening which resulted in poor intake of solid food. There was no history of birth trauma, otitis media or any other infections. History and examination did not reveal any congenital anomalies. Clinically the mean maximal incisal opening was 10 mm and mild fullness of cheek and temporomandibular joint region. CT Scans and OPG were showing fusion in joints bilaterally. 3D CT confirmed the provisional diagnosis with a clear picture of TMJs showing a bony ankylosis on the left side and fibrous ankylosis in the right side including reduced TMJ space and shallow glenoid fossa. Airway difficulty in this case was due to restricted mouth opening. Facial asymmetry could also alter the position of the larynx in few cases [2, 3]. It is unlikely to visualize any part of the larynx by direct laryngoscopy and perform conventional tracheal intubation, if the mouth opening is less than 25mm [4]. The idea of using an Fiberoptic scope to assist Fiberoptic intubation was borne out of the history of introduction of Fiberoptic assisted tracheal intubation. Dr. Peter Murphy, then a Senior Registrar at the National Hospital for Nerve diseases in Queen square, London first conceived the idea of using Fiberoptic technology for securing the airway [5] and he was indeed the first person to secure the airway using this technology and the first to describe the technique which was published in "Anesthesia" [5]. He used a choledochoscope to achieve success with this technique. As the instrument had a fitting that allowed still photography, he was able to obtain

The first photograph of the trachea using this technique and included it in his paper [5]. Written informed consent was taken after explaining the potential complications and the possibility of a tracheostomy. Standard monitoring was established which included ECG, NIBP and SpO₂. Xylometazoline drops were instilled into both nostrils to facilitate nasal mucosal vasoconstriction. An inhalational induction was planned and the child was anaesthetized with 8% sevoflurane in 100% oxygen and adequacy of mask ventilation was confirmed. A 22 gauge IV access was secured and 5 µg.Kg-1 glycopyrrolate and 0.02 mg.Kg-1 of midazolam were administered. A long flexible Fiberoptic scope was used to facilitate nasotracheal intubation tube was railroaded in to the trachea over the scope. 2 mg.Kg-1 propofol and 2µg.Kg-1 fentanyl and 0.1mg.Kg-1 vecuronium were administered after confirmation of satisfactory ETCO₂ waveform and bilateral equal air entry. 1% sevoflurane in 50:50 nitrous oxide and oxygen were used for anesthetic maintenance. We were prepared to perform an emergency tracheostomy. Standard scrubbing and draping of the patient is done. A preauricular incision was given on the right side. Skin, superficial fascia, superficial muscular aponeurotic system were dissected. Ligation of transverse facial artery was done. The joint space was identified and about 1 cm. of ankylotic mass was removed to differentiate between the temporal bone and zygomatic arch using a no. 702 straight fissure bur. Now the ankylotic mass was reshaped to form a noe condyle as shown in the figure and bone wax was applied to facilitate its proper movement in the glenoid fossa and simultaneously hamper the growth of bone. With a 4 hole miniplate and 6 mm screws the neo condyle was secured with the rest of ramus. On the right side Alkatay Bramley incision was taken to open the fibrosed joint and the mass obliterated joint space was cleared and temporalis myofascial flap was kept for reducing the chances of further ankylosis. The mean maximal inter incisal opening increased to 35 mm after the surgical procedure. The surgical site is also closed respectively. The child was extubated following reversal of residual neuromuscular blockade. Further postoperative course was uneventful. The child was advised jaw stretching exercises, aggressive physiotherapy from third postoperative day till 3 weeks and was discharged on the 6th postoperative day. (Figure No- 1 – 7.)



Fig 1: Preoperative Extra Oral photograph



Fig 2: Preoperative Intra Oral photograph

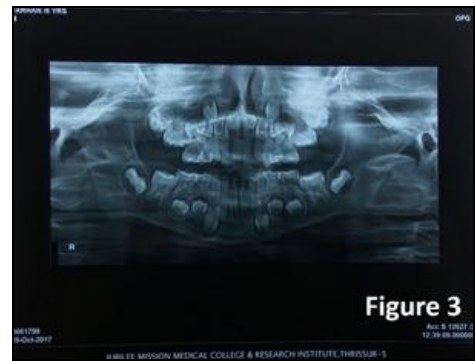


Fig 3: Preoperative OPG

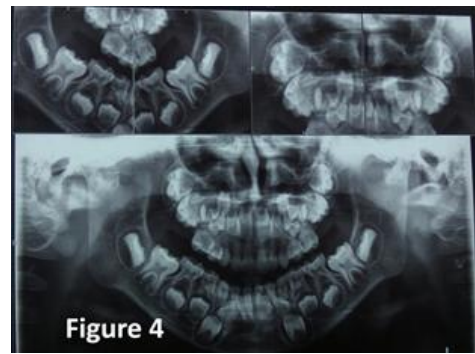


Fig 4: Preoperative OPG Views



Fig 5: Preoperative 3DCT Scan



Fig 6: Preoperative CTS can

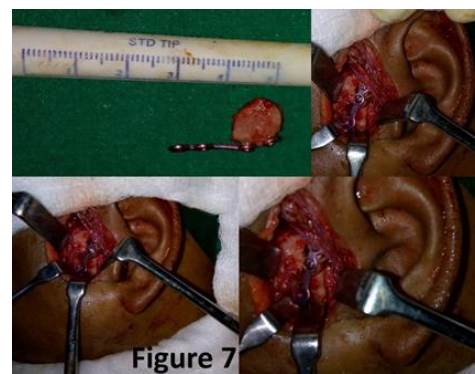


Fig 7: Intra Operative Pics of Neo Condyle.

Conclusion

In this time of quick mechanical advances the historical backdrop of surgery has given us pieces of information to attempt novel methods in troublesome situations. TMJ ankylosis prompts easy interminable dynamic restriction of mouth opening. Ankylosis in a developing tyke antagonistically influences the development and improvement of jaws, weakens mastication and oral cleanliness, inclines to dental caries, produces micrognathism, facial asymmetry, fowl confront deformation and includes trouble the child's delicate psyche. Performing a remedial surgery for mandibular asymmetry is a testing and persisting for the specialists and the unions utilized can possibly develop and revise the mandibular asymmetry and the exceptionally restricted mouth opening and tracheal size separately.

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