IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 12 Ver. VII (December. 2016), PP 105-108
www.iosrjournals.org

Unilateral Tmj Ankylosis in A Child-An Enduring Case For Surgeon And Anesthetist.

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Abstract: *Temporomandibular joint ankylosis is an anticipated difficult surgery especially when it is performed in children and same is in the intubation scenario too.TMJ ankylosis creates a difficult situation on the operating table for a surgeon. When it comes to anesthetist the awake fiber optic intubation is the safest approach to secure an airway in such a case. This is a case of unilateral temporomandibular joint ankylosis scheduled for interpositional arthroplasty. But due to non-availability of adequate sizedfiber optic scope, a flexible ureteroscope to facilitate nasotracheal intubation was used.For the interpositional arthroplasty a costocondral graft was used for this case.*

Keywords: *TMJ ankylosis, Gap Arthroplasty. Difficult airway, Fiber optic intubation,*

I. 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].

II. Case Report

A 4year old male child of 10Kgs weight with retrognathia and ankylosis of the left temporomandibular joint was scheduled for interpositional arthroplasty and coronoidectomy with costochondral graft. He was apparently normal till 10 months of age, 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 0.5cm and there was mandibular hypoplasia with deviation of mandible to the left with fullness of cheek and temporomandibular joint region. Decrease in growth of mandible can be clearly noticed. 3D CT showed mandibular hypoplasia, flattening of left mandibular condyle with erosion, reduced TMJ space and shallow left glenoid fossa.

Airway difficulty in this case was due to restricted mouth opening, mandibular hypoplasia, retrognathia and reduced mandibular space with overcrowding of soft tissues. Facial asymmetry could also alter the position of the larynx [2, 3]. It is unlikely to visualize any part of the larynx by direct laryngoscope and perform conventional tracheal intubation, if the mouth opening is less than 25mm [4]. The idea of using an ureteroscope to assist fibreoptic 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 SpO_2. 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 22guage IV access was secured and 5 $\mu g.Kg^{-1}$ glycopyrrolate and 0.02 $mg.Kg^{-1}$ of midazolam were administered. A 9 F 60cms long flexible ureteroscopewas used to facilitate nasotracheal intubation and a

4.5 mm inner diameter uncuffed portex tube was railroaded in to the trachea over the scope. 2 $mg.Kg^{-1}$ propofol and 2$\mu g.Kg^{-1}$ fentanyl and 0.1$mg.Kg^{-1}$ vecuronium were administered after confirmation of satisfactory $ETCO_2$ 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 i.e. Alkayat Bramley incision was given. 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 region of the 5^{th} rib on the right side of chest was identified and incised. Skin, superficial fascia and pectoralis muscle was dissected. Costocondral graft was taken from the site and is fixed with condyle using 8mm screws. Meanwhilethe graft site was closed by performing layer by layer suturing via 5-0 vicryl for muscle, fascia and 3-0 silk for skin. The mean maximal inter incisal opening increased to 3cm 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 6^{th} postoperative day.(Figure No- 1 – 27.)

III. Conclusion

In this era of rapid technological advances the history of surgery has given us clues to try novel techniques in difficult scenarios. TMJ ankylosis leads to painless chronic progressive limitation of mouth opening. Ankylosis in a growing child adversely affects the growth and development of jaws, impairs mastication and oral hygiene, predisposes to dental caries, produces micrognathism, facial asymmetry, bird face deformityand adds burden on the child's tender psyche.[6,7] Performing a corrective surgery for mandibularasymmetry is a challenging and enduring for both surgeons and the anesthetic as the costochondral graft has the potential to grow and correct the mandibular asymmetry and the very limited mouth opening and tracheal size respectively.[6]

References

[1]. Mansour A. Qudah, Muawia A. Qudeimat, Jasser Al-Maaita. Treatment of TMJ ankylosis in Jordanian children – a comparison of two surgical techniques. Journal of Cranio Maxillary surgery 2005;33(1):30-36

[2]. T Sahoo, Y Patil, R Patel, L Dewoolkar. Anaesthetic Management ofa Child with Temporomandibular Joint Ankylosis with Extrahepatic Portal Vein Obstruction for Ankylosis Release. The Internet Journal of Anesthesiology 2007; 16(1).

[3]. Dr. Ramesh s. Fiberoptic airway management in adults and children. Indian.J. Anaesth 2005; 49 (4): 293-299.

[4]. T. Kawasaki, T. Sata, C.Kawasaki, M.Ogata and A.Shigematsu. Airway management of a child with Temporomandibular Joint Ankylosis following otitis media. Anesthesia 2002;57(3): 294-295

[5]. L. Calder. Murphy P. A fiber-optic endoscope used for nasal intubation. Anesthesia 1967; 22:489-91. Anesthesia 2010; 65: 1133-1136.

[6]. Bob rishi raj, Leiand R. Mc Fadden. Treatment of Temporomandibular Joint Ankylosis: A case report. J Can Dent Assoc 2001; 67(11):659-63.

[7]. N D Shashikiran, S V V Redder Patil, G Yavagal. Management of temporo mandibular joint ankylosis in growing children. J Indian soc pedod prev dent 2005; 23:35-7.

[8]. Dimitroulis G. Condylar injuries in growing patients. Aust Dent 1997;42:367-71

[9]. Chidzonga MM. Temporomandibular joint ankylosis: Review of thirty two cases. Br J Oral Maxillofacial Surg 1999; 37:123-6.

[10]. Long X, Li X, Cheng Y, Yang X, Qin L, Qiao Y, et al. Preservation of disc for treatment of traumatic temporomandibular joint ankylosis. J Oral Maxillofacial Surg 2005; 63:897‑902.



1.Preoperative photograph 2. Pre-operative 3DCT 3.Postoperative pic 1^{st} week.

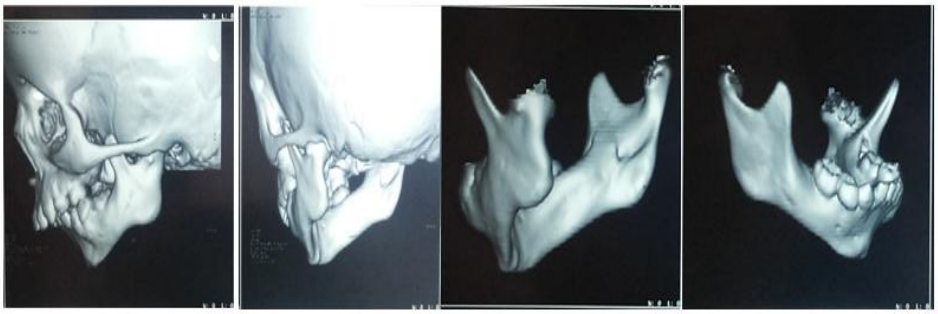

Fig. 4-7. Pre operative 3DCT Scan

Fig. 8-11. Surgical procedure of harvesting costocondral graft

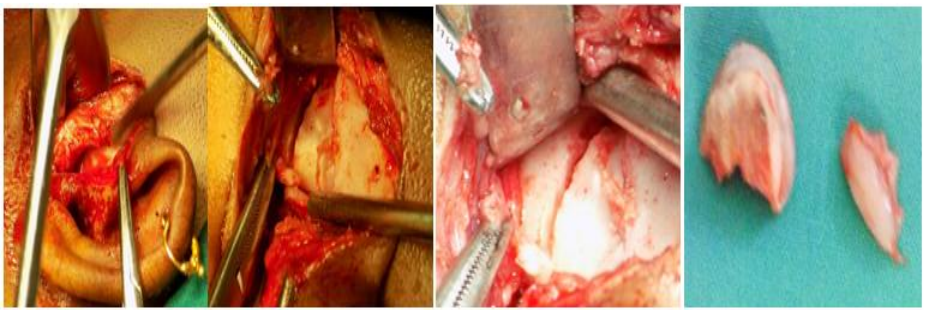

Fig. 12-15. Removal of ankylotic mass

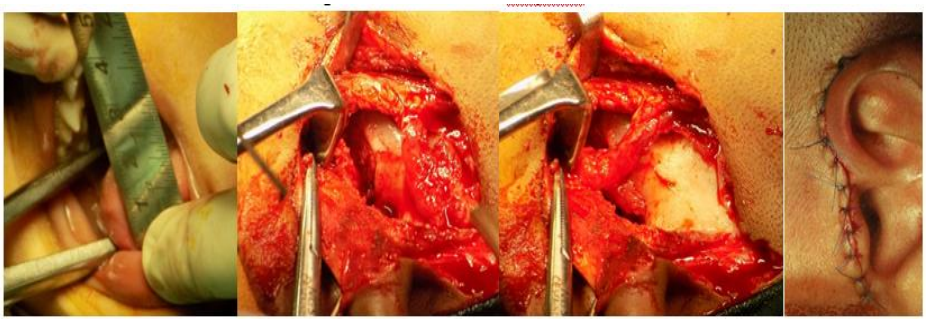

Fig.16-19. Fixation of the interpositional graft.

Fig.20-23. Post-operativephotographs

Fig.24-25. Post-operativeocclusion and mouth opening

Fig.26. Post-operative OPG

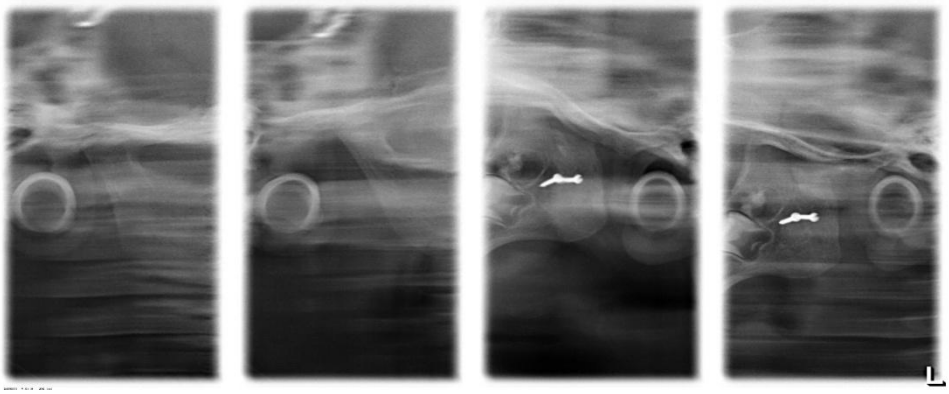

Fig.27. Post-operative TMJ Tomography