



**RETROGRADE INTUBATION OF PAEDIATRIC DIFFICULT AIRWAY WITH TMJ ANKYLOSIS.**

<b>Dr. R. J. Karthiga</b>	Post Graduate
<b>Dr. R. Ramsesh Manohar</b>	Assistant Professor
<b>Dr. V. Divya</b>	Post Graduate
<b>Dr. R. Lakshmi*</b>	Head Of The Department, Department Of Anaesthesia , Saveetha Medical College Hospital, Thandalam, Chennai. *Corresponding Author

**ABSTRACT**

Temporomandibular joint (TMJ) ankylosis is a restriction of movements caused by intracapsular fibrous adhesions, fibrous ankylosis and osseous ankylosis of TMJ joint. Trauma is the main cause of TMJ ankylosis. The anaesthetic management of paediatric patient with TMJ ankylosis is highly difficult task because child will be anxious with limited mouth opening. Hereby we are presenting a case of 12 year old child with TMJ Ankylosis with severely restricted mouth opening(<3mm) posted for release of the ankylotic mass with distraction osteogenesis and interpositional graft placement using dermis fat. Fiberoptic nasotracheal intubation is the gold standard method of securing airway but in resource limited setting we have described a retrograde intubation using COOK retrograde intubation set with the help of guide wire and bougie for securing airway after giving sedation with fentanyl, ketamine, transtracheal block and airway nebulisation with 4% lidocaine. Spontaneous ventilation was maintained till securing the airway. The airway was secured without any complications. Post op mouth opening was adequate, hence patient was extubated uneventfully.

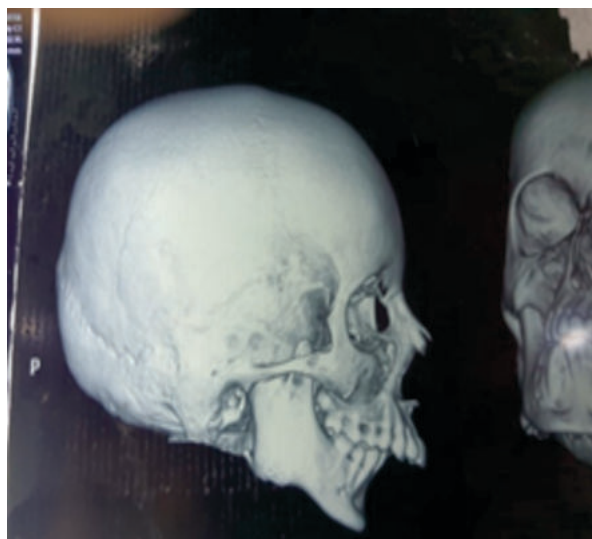
**KEYWORDS :** Retrograde intubation, TMJ Ankylosis, Difficult Airway.

**INTRODUCTION**

Temporomandibular joint (TMJ) ankylosis is a restriction of movements caused by intracapsular fibrous adhesions, fibrous ankylosis and osseous ankylosis of TMJ joint. Trauma is the main cause of TMJ ankylosis. The anaesthetic management of paediatric patient with TMJ ankylosis is highly difficult task because child will be anxious with limited mouth opening.

**CASE REPORT**

We are presenting a case of 12 year old child with TMJ Ankylosis with severely restricted mouth opening (<3mm) and retrognathic mandible (Figure 1) posted for release of the ankylotic mass with distraction osteogenesis and interpositional graft placement using dermis fat. Fiberoptic nasotracheal intubation is the gold standard method of securing airway but in resource limited setting we have described a retrograde intubation using COOK retrograde intubation set(Figure -2).



**Fig 1: CT Picture Showing TMJ Ankylosis With Retrognathic Mandible**



**Fig 2: COOK Retrograde Intubation Set**

After giving sedation with fentanyl, ketamine ; superior laryngeal nerve block and transtracheal block were performed and airway nebulisation with 4% lidocaine was done. Cricothyroid cartilage was palpated. Under aseptic precautions Cook's retrograde intubation needle was attached to syringe containing saline. Needle was advanced through the cricothyroid membrane. Syringe was aspirated to check for the presence of air bubbles and position in trachea was confirmed .With the bevel of the needle facing cranially guide wire was passed through it (Figure-3)and was brought out through the oral cavity(Figure-4).



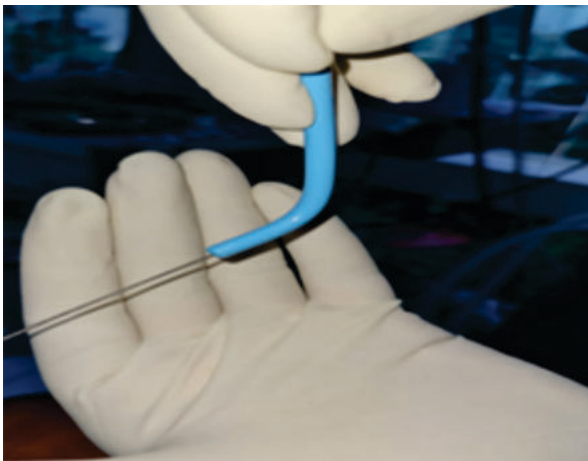
**Fig 3: Guide Wire Being Passed Through The Needle**



**Fig 4: Guide Wire Being Brought Out Through The Oral Cavity**

Tracheal end of the guide wire was secured and bougie was passed over the cranial end of guide wire (Figure-5). As soon as the bougie hit the trachea 5 size ET tube was advanced over bougie and was railroaded (Figure-6). Once ET tube was felt in trachea, guide wire was removed first followed by bougie. Tube position was confirmed by 5 point auscultation and capnography. Propafol and muscle relaxants were given. Intraoperatively vitals were stable. Post op mouth opening was adequate.

Hence patient was extubated uneventfully.



**Fig 5: Bougie Passed Over The Cranial End Of Guide Wire**



**Fig 6: ET Tube Advanced Over Bougie And Railroaded.**

## DISCUSSION

Patients with limited mouth opening (LMO) are often associated with difficult intubation. Retrograde intubation is an alternative technique of establishing definitive airway in these patients when blind nasal intubation fails and fiberoptic bronchoscope is not available. In retrograde intubation technique, there are two parts: "guidance" consists of retrograde insertion of a catheter from the larynx to the mouth or nose, and the "blind" part is the insertion of endotracheal tube into trachea without visualization of vocal cords. Hence, it is perhaps better described as Guided blind intubation or trans-laryngeal intubation. Several modifications of this technique have been made since its introduction almost 55 years ago by Butler and Cirillo, to secure difficult airways in both elective and emergency cases.

## CONCLUSION

In conclusion, retrograde nasotracheal intubation is an effective and useful technique for airway control in patients with LMO and with a very minimal risk potential.

## REFERENCES

1. Tiwari T, Sharma B, Rajput SK. A case report of retrograde intubation as rescue procedure in unanticipated difficult airway: an old technique still relevant in low resource settings. *Med Gas Res.* 2022 Oct-Dec;12(4):158-160. doi: 10.4103/2045-9912.337998. PMID: 35435428; PMCID: PMC9074973.
2. Reena. Retrograde intubation: largely ignored technique in difficult airway algorithms. *Ain-Shams Journal of Anesthesiology.* 2021 Apr 21;13(1):36.
3. Vadepally AK, Sinha R, Kumar AVSSS. Retrograde intubation through nasal route in patients with limited mouth opening undergoing oral and maxillofacial surgery. *J Oral Biol Craniofac Res.* 2018 Jan-Apr;8(1):30-34. doi: 10.1016/j.jobcr.2017.08.002. Epub 2017 Aug 25. PMID: 29556460; PMCID: PMC5854561.
4. Marchello, Vincenzo MDa; Corso, Ruggero M. MDb,; Piraccini, Emanuele MDb; Del Gaudio, Alfredo MDa; Mincoletti, Giuseppe MDa; Cattano, Davide MD, PhDc. The retrograde tracheal intubation technique for difficult airway management: old but still working. *Journal of Head & Neck Anesthesia* 3(2):p e16, May 2019. | DOI: 10.1097/HN9.0000000000000016
5. Dhara SS. Retrograde tracheal intubation. *Anaesthesia.* 2009;64 (10): 1094-104.
6. Linnet, Sharon; Hemanth, Natham; Samantaray, Alok; Rao, M. Hanumanth. Retrograde nasal intubation for an anticipated difficult intubation. *Journal of Clinical and Scientific Research* 11(Suppl 1):p S30-S33, June 2022. | DOI: 10.4103/jcsr.jcsr\_109\_20
7. DHARA SS. RETROGRADE INTUBATION—A FACILITATED APPROACH. *BJA: British Journal of Anaesthesia.* 1992 Dec;69(6):631-3.
8. Burbulys D, Kiai K. Retrograde Intubation. *Emergency Medicine Clinics of North Am.*
9. Tüfek A, Uçan MC, Tokgöz O, Çelik F, Ağaçaayak S. Evaluation of retrograde intubation in patients with limited mouth opening. *Journal of Anesthesia.* 2013 Aug 1;27(4):631-2. erica. 2008;26(4):1029-41.
10. Benumof JL. Management of the difficult airway. With special emphasis on awake intubation. *Anesthesiology* 1991;75:1087-110.