

Content available at: <https://www.ipinnovative.com/open-access-journals>

Indian Journal of Clinical Anaesthesia

Journal homepage: www.ijca.in

Letter to Editor

Managing the immobile mandible: Pediatric fiberoptic intubation in TMJ ankylosis

Sonal Khatavkar¹, Rajesh Kawale¹, Ishan Girish Garud^{1*}

¹Dept. of Anaesthesiology, Dr. D.Y Patil Medical College, Hospital, and Research Centre, Dr. D.Y Patil Vidyapeeth, Pune, Maharashtra, India



ARTICLE INFO

Article history:

Received 15-07-2024

Accepted 08-10-2024

Available online 20-01-2025

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

Dear Editor,

Temporomandibular joint (TMJ) ankylosis, marked by the abnormal fusion of joint components, leads to significant limitations in mouth opening, impairing mastication, speech, and overall quality of life.¹ A recent survey revealed an unexpectedly high prevalence of TMJ ankylosis in children, with an incidence of 0.46 per 1000 in the 3–15-year age group.² Trauma during birth or early childhood is frequently cited as a leading cause.

In our recent case, we encountered a case of TMJ ankylosis in a child developed following a fall at age 3, leaving the patient unable to open his mouth, emphasizing the need for timely functional and aesthetic intervention. Pediatric patients with TMJ ankylosis present unique challenges for anesthetic management, especially given the anticipated difficult airway. While awake fiberoptic intubation is often the safest approach in adults, this is rarely feasible in children, leading to the use of fiberoptic intubation under deep sedation as an alternative. We present the anesthetic management of a 5-year-old male with complete TMJ ankylosis and an inability to open his mouth for 1.5 years (Figure 1). The patient's history included a fall from a bike at age 3, without associated loss of consciousness or ENT bleeding.

Preoperative systemic examinations were normal. On the day of surgery, the patient was kept nil per oral for four hours. Preoperative preparation included DNS infusion, glycopyrrolate (0.004 mg/kg IV), and nebulization with 4% lignocaine and dexmedetomidine (1 mcg/kg) to attenuate pressor responses and facilitate airway management. Xylometazoline drops were administered nasally to constrict nasal blood vessels. Upon arrival in the operating room, ketamine (1 mg/kg IV) was used to provide sedation while preserving airway reflexes. All ASA standard monitors were applied, and oxygen was delivered via nasal prongs. The patient was premedicated with midazolam (0.2 mg/kg IV), and a transtracheal block was administered using 2% preservative-free lignocaine. A 2.8 mm fiberoptic bronchoscope was introduced through the right nostril, and lignocaine 2% was sprayed using the spray-as-you-go (SAYGO) technique. Once the carina was visualized, a 4.5 mm cuffed flexometallic tube was passed successfully. Confirmation of appropriate tube placement was achieved through auscultation and EtCO₂ monitoring. General anesthesia was induced with fentanyl (2 mcg/kg), propofol (2 mg/kg), and atracurium (0.5 mg/kg). The patient was ventilated using pressure control mode with Sevoflurane and an O₂ to air ratio of 1:1 to achieve the desired MAC. Throughout the procedure, the patient remained hemodynamically stable. After surgery, the patient was reversed with glycopyrrolate (0.008 mg/kg) and

* Corresponding author.

E-mail address: igarud777@gmail.com (I. G. Garud).

neostigmine (0.05 mg/kg), and extubation was performed uneventfully.

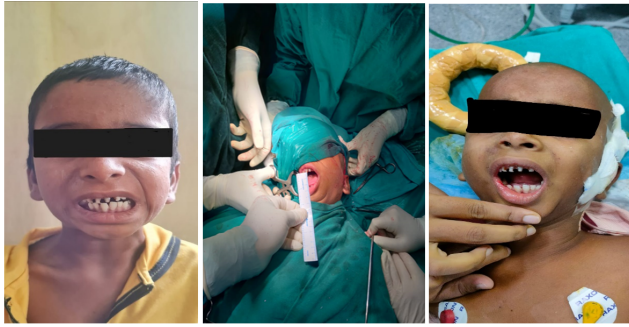


Figure 1: Child with TMJ ankylosis

Airway management in pediatric patients presents distinct challenges due to anatomical and physiological differences limiting safe apnea duration before hypoxemia and bradycardia occur. Bilateral TMJ ankylosis complicates anesthetic care due to the severely restricted mouth opening, which precludes direct laryngoscopy. The difficulty is further compounded by associated mandibular hypoplasia and the risk of obstructive sleep apnea. In our case, although mandibular hypoplasia was present, there were no reported obstructive breathing issues. In pediatric anesthesia, inhalational induction is often the preferred approach due to its perceived safety and the potential to maintain spontaneous respiration. However, TMJ ankylosis severely restricts airway management options, necessitating alternative approaches such as nasal intubation (blind or fiberoptic-assisted), retrograde intubation, or even tracheostomy. The chosen strategy depends on the patient's age, clinical status, cooperation, and available expertise and equipment. In most cases, inhalational induction precedes intubation attempts if mask ventilation is confirmed as adequate. Additionally, a fully equipped difficult airway cart should always be prepared for emergency scenarios, including tracheostomy. Fiberoptic bronchoscopy in pediatric patients requires maximum vigilance due to the limited airway space. Maintaining spontaneous ventilation during fiberoptic intubation is a priority, requiring sedatives that minimally impact respiratory drive, such as ketamine, dexmedetomidine, or midazolam. Dexmedetomidine is particularly effective for pediatric fiberoptic bronchoscopy due to its minimal effects on respiratory function.³ In the presence of TMJ

ankylosis, the risk of airway obstruction is heightened by increased opposition of oropharyngeal structures and reduced muscle tone.⁴ A 2020 editorial in *Pediatric Anesthesia* emphasized the importance of a cognitive shift in managing pediatric airways, particularly challenging ones.⁵ Managing a difficult pediatric airway demands expertise, thorough planning, and readiness to manage complications such as bleeding, trauma, laryngospasm, and hypoxemia.

Effective team coordination is crucial in these scenarios, directly affecting patient outcomes. This case demonstrates the effective use of fiberoptic bronchoscopy in managing a difficult pediatric airway, highlighting the importance of specialized techniques and thorough preoperative assessment. Successful outcomes in such challenging cases rely on meticulous planning, interdisciplinary collaboration, and proficiency in advanced airway management techniques to ensure safety and optimal care for pediatric patients with TMJ ankylosis.

1. Conflict of Interest

None.

References

1. Movahed R, Mercuri LG. Management of temporomandibular joint ankylosis. *Oral Maxillofac Surg Clin North Am.* 2015;27(1):27–35.
2. Gupta VK, Mehrotra D, Malhotra S, Kumar S, Agarwal GG, Pal US, et al. An epidemiological study of temporomandibular joint ankylosis. *Natl J Maxillofac Surg.* 2012;3(1):25–30.
3. Tobias JD, Tulman DB, Bergese SR. Dexmedetomidine Applications During Fiberoptic Tracheal Intubation of the Patient With a Difficult Airway. *ICU Director.* 2013;4(5):232–41.
4. Wahal R. Temporo-mandibular joint ankylosis – The difficult airway. *J Oral Biol Craniofac Res.* 2015;5(2):57–8.
5. Baker PA, Greif RT. Learning, unlearning and relearning. *Paediatr Anaesth.* 2020;30(3):204–6.

Author's biography

Sonal Khatavkar, Professor

Rajesh Kawale, Professor

Ishan Girish Garud, Resident

Cite this article: Khatavkar S, Kawale R, Garud IG. Managing the immobile mandible: Pediatric fiberoptic intubation in TMJ ankylosis. *Indian J Clin Anaesth* 2025;12(1):169-170.