

# Endotracheal intubation under local anesthesia and sedation in an infant with difficult airway

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## Abstract

Management of the difficult airway in an infant is a challenge for the anesthesiologist. A 10-month-old infant presented to an otolaryngologist with nasopharyngeal mass since birth, which had increased rapidly in size in the last 1 month and was hanging through the cleft palate into the oropharynx. The infant was scheduled for excision of the nasopharyngeal mass through a maxillary approach and the tongue mass through an oral approach under general anesthesia. This case report describes endotracheal intubation performed successfully under sedation and local anesthesia in an infant with a nasal mass protruding through the cleft palate into the oropharynx.

**Key words:** Pediatric airway, difficult airway, pediatric intubation

## Introduction

Airway management of infants with difficult airways is a challenge for anesthesiologists. Predicting a difficult airway and conducting radiological assessment are not easy. Devices to manage difficult airway in an infant are not many. We present the anesthetic management of an infant with a difficult airway, scheduled for excision of a nasopharyngeal mass hanging through the cleft palate into the oropharynx.

## Case Report

A 10-month-old infant presented to the otolaryngologist with an oropharyngeal mass since birth which had increased rapidly in size in the last 1 month. The infant had history of difficulty in sucking since birth and had to be spoon-fed despite which regurgitation of milk occurred. On examination,

the patient was found to have a cleft palate and a mass sized  $3 \times 2$  cm arising from the nose, deviating the nasal septum to the right, and bulging into the oral cavity through the defect in the hard palate. There was also a  $2 \times 2$  cm irregular, firm, non-pulsatile swelling on the dorsum of the tongue [Figure 1]. Computerized tomography (CT) scan of the area confirmed the findings and revealed that the mass was abutting the tongue, but the intervening planes were maintained. Magnetic resonance imaging (MRI) of the brain showed a normal study. A tentative diagnosis of teratoma with cleft palate was made.

The infant was scheduled for excision of the nasopharyngeal mass through a maxillary approach and the tongue mass through an oral approach under general anesthesia (GA).



**Figure 1:** Intraoperative photograph of infant showing the oropharyngeal mass

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On preanesthetic evaluation, the infant was found to be underweight for age (3.5 kg) and had delayed milestones of development. It was difficult to keep the patient supine for long, and even in the upright position, a grunting sound was heard which was also conducted all over her chest. All other investigations were normal. Her mandibular contour, mouth opening, and neck movement were normal. Her cardiovascular system, including echocardiography, was normal. There was anticipated difficulty in airway management due to the oropharyngeal mass and a high-risk consent was taken.

Due to the apprehension of loss of airway on induction of GA, endotracheal intubation was planned under local anesthesia. The otolaryngologist was asked to be prepared for an emergency tracheostomy in case endotracheal intubation was not possible. In the operation theater, pulse oximetry and cardiac monitoring were started and an intravenous (IV) line secured without GA. The position of the infant was kept supine with the head-up tilt on the operation table. Since the child had been successfully sedated for CT scan and MRI, we decided to give the same sedation that had been used for these procedures, i.e. midazolam 0.7 mg, promethazine 2 mg, and pentazocine 2.5 mg administered slowly IV, followed by glycopyrrolate 0.75 mg IV. The infant was very cooperative with this sedation. A nasal catheter was inserted into the right nostril and oxygen flow was started at 2 l/min. Local anesthesia was achieved with 2 ml lignocaine 1% solution sprayed with a pediatric laryngotracheal mucosal atomizer device (MADgic, LMA, San Diego, CA, USA)<sup>[1]</sup> into the oropharynx and over the back of tongue after opening the mouth of the child. Flexible fiberoptic intubation was attempted by the author with a pediatric fiberoptic (2.5 mm), but nothing could be visualized except the overhanging mass which kept moving due to the repeated swallowing by the child. The procedure was abandoned and it was decided to proceed with direct laryngoscopic intubation. Using a Magill's blade, direct laryngoscopy was performed by the conventional midline approach, but only the tumor mass could be seen in the oropharynx and the laryngeal inlet could not be visualized despite a backward, upward, right (BURP) maneuver. A second attempt was made with the same laryngoscope using the right molar approach. This time the laryngopharynx was seen, and on application of the BURP maneuver, the posterior rim of the glottis was visualized. Tracheal intubation was done successfully using a 3.5-mm ID endotracheal tube mounted over a stylet in the first attempt and it was confirmed by capnography. GA was induced with oxygen, nitrous oxide, and sevoflurane thereafter, and maintained in a routine manner. The surgery and anesthesia were uneventful.

## Discussion

The airway management of this infant was difficult as the patient had an oropharyngeal mass occupying almost the entire naso- and oropharynx and was causing airway obstruction in the supine position. Induction of GA in this patient could have precipitated complete airway obstruction. Administering sedation for airway management in an infant with a difficult airway is also fraught with danger as it can cause airway obstruction and hypoxemia. Since this infant had been successfully sedated and managed by a combination of drugs for CT scan and MRI, we decided to administer the same combination of drugs.

LMA placement followed by fiberoptic intubation under local anesthesia has been reported in an infant with difficult airway,<sup>[2]</sup> but an LMA could not have been placed because the oropharyngeal space was occupied by the mass. We attempted fiberoptic intubation, but were not successful as the intraoral mass was in the midline and kept moving with the swallowing motion. Laryngoscopic intubation under local anesthesia with sedation is a prescribed technique for adults with difficult airways, but there are few descriptions of this procedure in infants in literature.

Endotracheal intubation by itself was difficult in this infant. Conventional laryngoscopy by the midline approach failed as the tumor obstructed the view. Molar approach has been shown to facilitate laryngeal view when there are problems in midline visualization.<sup>[3]</sup> In this technique, the laryngoscope is introduced through the right angle of mouth and the tip is directed to the midline into the vallecula. The author has successfully used this approach earlier.<sup>[4]</sup> Further, the BURP maneuver<sup>[5]</sup> also contributed to the successful endotracheal intubation.

To conclude, this case report illustrates that local anesthesia with sedation can be used for laryngoscopic intubation in infants with difficult airway. It also demonstrates the successful use of molar approach to intubation, which is not widely practiced.

## References

1. Xue FS, Yang QY, Liao X. Topical anaesthesia of the airway using Trachlight™ and MADgic® atomizer in patients with predicted difficult tracheal intubation. *Br J Anaesth* 2007;99:920-1.
2. Carenzi B, Corso RM, Stellino V, Carlino GD, Tonini C, Rossini L, *et al.* Airway management in an infant with congenital centrofacial dysgenesis. *Br J Anaesth* 2002;88:726-8.
3. Henderson JJ. The use of paraglossal straight blade laryngoscopy in difficult tracheal intubation. *Anaesthesia* 1997;52:552-60.
4. Saxena KN, Nischal H, Bhardwaj M, Gaba P, Shastry BV. Right molar approach to tracheal intubation in a child with Pierre

Robin syndrome, cleft palate, and tongue tie. Br J Anaesth 2008;100:141-2.

5. Knill RL. Difficult laryngoscopy made easy with a "BURP". Can J Anaesth 1993;40:279-82.

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