

CASE REPORT

Cystic Teratoma of Face and Scalp - Management of Difficult Pediatric Airway by Modification of Conventional Technique

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ABSTRACT

Management of pediatric difficult airway has always been a challenge to the anesthesiologist. Effective airway management includes proper assessment of the airway, anticipation of difficulties, good preparation & team work. We present a unique case of 6-week-old infant posted for excision of a large cystic teratoma of face and scalp where the airway was secured effectively by using the retro-molar intubation and modification of conventional technique of ventilation and laryngoscopy.

Key words: Cystic teratoma; Paediatric difficult airway; Retromolar intubation

INTRODUCTION

Significant differences exist between the pediatric and adult airway.[1] Paediatric difficult airway poses a great challenge even to an experienced anesthesiologist. Various devices like fiberoptic bronchoscope, video laryngoscopes and supraglottic airway devices are available to manage the difficult airway.[2] However, limited availability of these devices in developing countries makes managing such patients more challenging. So, we present a case report where the airway was secured effectively by performing retro-molar intubation with slight modification of conventional technique of ventilation and laryngoscopy in a six-week-old infant posted for excision of a large cystic teratoma of left side of face and scalp.

CASE REPORT

A 6-week-old child, weighing 6 kg was posted for excision of a large cystic teratoma of face and scalp

under general anaesthesia. She was a full-term baby with birth weight of 3 kg. The child had a large swelling of the face and scalp extending till chin. By virtue of the size of the swelling, the oro-nasal anatomy was distorted and the head kept drooping to one side. The nostrils looked apparently normal but further examination was not possible because of the extent of the swelling. The size of oral cavity was reduced and the tongue was grossly displaced to the opposite side. All this gave a double face appearance to the child (Fig. 1). There was no history of snoring or noisy breathing. No other congenital abnormality was present.

Preoperative echocardiography and all blood investigations were within normal limits. A written informed high-risk consent was obtained from the parents. As appropriate sized fiberoptic bronchoscope and video-laryngoscope were not available, it was decided to proceed with spontaneous ventilation with inhalational induction followed by check laryngoscopy and endotracheal intubation. Difficult airway

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cart was kept ready and pediatric surgeon was on standby for emergency tracheostomy.



Figure 1 showing the teratoma of face and scalp

Inside the operation theatre, all ASA standard monitors were attached and child was premeditated with intravenous injection of midazolam 0.3mg. Supports were placed on the sides of swelling to keep the face in central position. The child was pre-oxygenated with face mask placed upside down to provide a good seal and perform effective ventilation. Anesthesia was induced with sevoflurane in 100 % oxygen. After induction, a shoulder block was placed and head was held in air to achieve adequate neck extension. Miller laryngoscope was introduced using the right molar approach. The glottis was visualized, but the endotracheal tube (ETT) could not be negotiated. A left lateral head rotation was given to align the laryngeal axis with oral axis and airway was secured using 3.5 ETT. After confirmation of ETT placement, injection atracurium was given. Anesthesia was maintained with nitrous oxide with oxygen and sevoflurane. Surgery lasted for two hours and blood loss was 100 ml, which was suitably replaced. After completion of surgery, neuromuscular blockade was reversed and trachea extubated. Rest of the hospital stay was uneventful and child was discharged on post-operative day 9.

DISCUSSION

Pediatric airway has always been a challenge to an anesthesiologist. Assessment includes proper history from the parents, thorough physical examination and relevant investigations. Various devices like fiberoptic bronchoscope, video laryngoscope and supraglottic airway devices are present to manage the airway. In our institute, appropriate sized pediatric fiberoptic bronchoscope and video-laryngoscope were not available at the time, therefore we formulated three anesthetic plans for this case. Plan A was

spontaneous ventilation with inhalational induction followed by check laryngoscopy and intubation. Plan B included the insertion of supraglottic device. Plan C included the surgical tracheostomy if plan A and plan B failed.

Our patient got successfully intubated as per our plan A because following modifications were made to the conventional technique of ventilation and laryngoscopy –

1. Side neck support to keep the face in neutral position.[3]
2. Inverted face mask technique with gauze piece to achieve good seal and effective ventilation.[4]
3. Retromolar intubation to overcome the mass impingement on to the tongue and oral cavity. [5] In this approach laryngoscope was inserted into the oral cavity along the groove in between the tongue and tonsil at a point beyond the molar teeth. The advantage with this technique is that it is quick to perform and ETT does not come into the surgical field, especially useful in oral surgeries.
4. Left lateral rotation of the head improved glottis visualization as the tongue was moved out of the way and the laryngeal and oral axis were more aligned which facilitated the insertion of ETT.[6]

The choice of anesthesia in adults with difficult airway is awake fiberoptic intubation which is not always possible in pediatric patients as they require deep sedation or general anesthesia before the fiberoptic can be done. However, Bryan et al. reported the successful fiberoptic intubation in a 3-week-old child with the use of ketamine and midazolam after they performed local anesthesia with 2% viscous lignocaine for tongue and 2% lignocaine through epidural catheter for the vocal cords.[7] The standard approach for a difficult pediatric airway is the use of FOB with spontaneous ventilation.[8] However requirement of technical expertise with the availability of these devices precludes their use in infant population.[9] To the best of our knowledge, this is the first case report where retromolar intubation along with modifications in the conventional technique of ventilation and laryngoscopy were used successfully to manage the difficult pediatric airway.

To conclude, some simple modifications of conventional techniques along with the use of simple and familiar devices can help in successfully securing the airway without complications and without fiberoptic or video laryngoscope.

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