LARYNGEAL MASK AIRWAY AS A TRANSITION TO ENDOTRACHEAL INTUBATION PERFORMED WITH A GLIDESCOPE® IN A NEONATE WITH TREACHER COLLINS SYNDROME OUTSIDE OF THE OPERATING ROOM

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BACKGROUND

We report the successful use of a laryngeal mask airway (LMA) for resuscitation of a newborn with Treacher Collins Syndrome (TCS) and as a transition to endotracheal intubation. We also report the successful endotracheal intubation using a GlideScope® in the same patient after failed attempts of fiberoptic intubation (FOI) using a fiberoptic bronchoscope. LMA use should be a part of the pediatric residency’s core curriculum and routinely taught to pediatric providers. Anesthesia departments could play a central role in implementing this training. More studies are needed to compare the suitability and advantages of various devices used in the management of the neonatal difficult airway.

CASE REPORT

A newborn with TCS was born via repeat elective cesarean section under combined spinal-epidural anesthesia at 37 weeks of gestation to a mother with a history of scleroderma and paternal history of TCS. The pregnancy and anesthetic course were otherwise uncomplicated. The newborn was handed to the neonatologist and was placed under a radiant warmer, dried and briefly stimulated. Since spontaneous respiratory effort was absent, bag and mask ventilation with 100% FiO2 was initiated. However, the ventilation was deemed to be ineffective. Due to bradycardia and ineffective ventilation, intubation was attempted via direct laryngoscopy (DL) using a conventional laryngoscope (Miller 0 blade). After unsuccessful intubation attempts bag and mask ventilation were continued, however still ineffective. Upon the anesthesiologist’s suggestion, a size 1 LMA (Ambu® AuraOnce™) was obtained from the anesthesia cart and successfully inserted. This led to the establishment of effective ventilation: chest rise was observed, bilateral breath sounds were audible, and heart rate increased above 100.

Apgar scores were 1, 2, and 9 at 1, 5, and 10 minutes respectively and the patient weighed 2345 grams. The patient was transported to the Neonatal Intensive Care Unit (NICU) with the LMA in place.

In the NICU, intubation attempts by the ENT team using a fiberoptic bronchoscope were unsuccessful. Therefore, ventilation was continued with the use of an LMA. As soon as the pediatric anesthesiologist became available, laryngoscopy with a GlideScope® Cobalt blade 1 was attempted and revealed a Cormack-Lehane grade 1 view. An uncuffed endotracheal tube (ETT) size 3.5 was passed on the second attempt after adjusting the curvature of the stylet. Correct positioning of the ETT was confirmed with end-tidal CO2 and a fiberoptic bronchoscope. Consequently, the ENT team in the NICU performed a tracheostomy.

Anesthesia departments could take an initiative and become leaders in teaching LMA use. This would help to further the advancement of the anesthesiologists’ role beyond the operating room and promote the reputation of our specialty.

At present, multiple tools are available for the management of a difficult airway in the neonatal population, such as special laryngoscopes (Trueview by Truphatek, Bullard by Gyrus ACM, AirTraq etc), fiberoptic bronchoscopes by various manufacturers (Olympus, Karl Storz, etc), various videolaryngoscopy devices (GlideScope® Cobalt by Verathon, C-MAC® by Karl Storz, etc). Nevertheless, little literature exists comparing this armamentarium. Although awake fiberoptic intubation may remain a preferred technique in the operating room for an adult patient with a difficult airway, this may not apply to a pediatric patient or to settings outside of the operating room. We illustrate the successful use of videolaryngoscopy (GlideScope® Cobalt) in NICU settings, when FOI attempts were not successful. We recommend videolaryngoscopy be strongly considered in neonates with a difficult airway. However, the superiority of one device over the other and feasibility in the neonatal population is yet to be determined. A clear strategy on management of a neonatal difficult airway outside of the operating room needs to be developed for every institution.

DISCUSSION

TCS is a congenital disease resulting from malformation of the first and second brachial arches, leading to an array of mandibulo-facial anomalies. These abnormalities may present a significant challenge in the airway management to even the most skilled practitioners.

We demonstrated the successful use of an LMA for neonatal resuscitation and as a bridge to endotracheal intubation. Despite the recommendation of the Neonatal Resuscitation Program (NRP) that an LMA should be considered in the cases of unsuccessful facemask ventilation and tracheal intubation, the use of an LMA is neither routinely taught nor practiced by most NICU or pediatric teams beyond NRP courses. Furthermore, LMAs may not be readily available throughout labor and delivery (L&D) units or NICUs. Insertion of an LMA is a simple procedure that requires minimal training. LMAs have become pivotal tools in daily anesthetic practice. We propose that NICU personnel receive routine training with pediatric anesthesiologists on LMA placement in a controlled setting and that LMA size 1 be available as a part of routine setup throughout L&D and NICU units.

REFERENCES