Airtraq optical laryngoscope intubation in a 5-month-old infant with a difficult airway because of Robin Sequence

Sirs—We report the successful use of the Airtraq optical laryngoscope for management of a difficult airway in an infant with Robin Sequence.

Micrognathia, retrognathia, limited mouth opening, and glossoptosis are features of Robin Sequence—a pattern of facial malformation that may be found as an isolated anomaly or as part of multiple congenital anomaly syndromes. The malformation makes direct visualization of the glottic opening by laryngoscopy extremely difficult or impossible (1). If endotracheal intubation is deemed necessary for anesthesia, fiberoptic-assisted intubation under spontaneous breathing has been recommended by many as the technique of choice (2). New intubating devices such as the Airtraq optical laryngoscope provide potentially valuable alternate approaches to the difficult airway in both adults and children.

A 5-month-old, 4.8-kg infant, born at 33-week gestation (corrected age 3 months) was presented for management of severe gastroesophageal reflux. He was scheduled for laparoscopic Nissen fundoplication and insertion of a percutaneous endoscopic gastrostomy feeding tube. The infant was born with facial dysmorphism including severe micrognathia, retrognathia, and cleft palate (Robin Sequence). Chromosome analysis demonstrated a duplication of chromosomes 2 and 7. Previously, at 4 months age, the child had undergone a magnetic resonance image (MRI) scan under general anesthesia. Laryngoscopy at that time revealed a difficult airway with a Cormack–Lehane grade 3b view of the larynx. Intubation attempts were discontinued, and the MRI was performed under spontaneous breathing inhalational anesthesia using a laryngeal mask.

For the laparoscopic Nissen procedure, endotracheal intubation was deemed necessary. Anesthesia was induced i.v. with propofol and rocuronium in contrast to the standard approach of inhalation induction and intubation under spontaneous breathing. Because insertion of and ventilation using a laryngeal mask was known to be easy, the risk of severe aspiration outweighed the risk of a failed airway. Bag mask ventilation was easily performed. Direct laryngoscopy using a Miller 1 blade, augmented by external laryngeal manipulation resulted in a Cormack–Lehane grade 3b view (tip of retroverted epiglottis only) and percent of glottic opening (POGO) score seen was 0%. An Airtraq size 0 (infant) preloaded with a 3.0-mm ID microcuff endotracheal tube was inserted into the oropharynx. The infant size version of the Airtraq at that time revealed a difficult airway with a Cormack–Lehane grade 3b view of the larynx. Intubation attempts were discontinued, and the MRI was performed under spontaneously breathing inhalational anesthesia using a laryngeal mask.

The Airtraq optical laryngoscope (Prodol, Vizcaya, Spain), similar in design to a submarine periscope, reflects an image of the glottic opening transferred from the distal tip of the blade through a series of lenses, prisms, and mirrors to a proximal viewfinder. The exaggerated curvature of the blade provides a glottic view without requiring alignment of the oral, pharyngeal, and tracheal axis. One channel of the Airtraq contains the optical components and a parallel, second channel acts as a conduit for the endotracheal tube. The infant size version of the Airtraq accommodates endotracheal tubes from 2.5 to 3.5 mm ID. For intubation, the Airtraq is inserted into the mouth in midline over the centre of the tongue, and the tip is positioned in the vallecula. Once the view of the glottis has been centered in the viewfinder, the tracheal tube is guided by the conduit through the vocal cords. The tracheal tube is then separated from the Airtraq by moving it laterally, and the device is removed.

The Airtraq has been shown to provide superior intubating conditions when compared with direct laryngoscopy in normal and difficult manikin airways (3). In normal human adults, the Airtraq also provides similar or superior intubating conditions when compared with direct laryngoscopy (4). Two cases describing successful use of the Airtraq in morbidly obese patients undergoing emergency cesarean delivery have been described (5). To date, no pediatric airway case reports describing the use of the Airtraq have been published. By demonstrating its utility in an infant with Robin Sequence, the current report demonstrates the potential of this device for management of the difficult pediatric airway.

References