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Tracheal Intubation Using the Airtraq® in Morbid Obese Patients Undergoing Emergency Cesarean Delivery

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THE Airtraq® (Prodol Meditec S.A., Vizcaya, Spain), a new disposable intubating device, was designed to provide a view of the glottis without alignment of the oral and pharyngeal axes. The Airtraq® laryngoscope (AL) has recently been used in patients with normal airways[1] and in simulated difficult airways,[2] but no study has assessed its performance in difficult airway patients. After training on a manikin, five senior staff anesthesiologists covering the obstetric anesthesia unit of our university hospital performed the clinical learning process with the AL. Because of its efficiency in the case of difficult tracheal intubation, the AL was incorporated into our emergency difficult airway management algorithm as a second-step airway device in the case of failed tracheal intubation using a standard Macintosh laryngoscope. We report two cases of emergency cesarean delivery parturients in whom the trachea was rapidly intubated using the AL after failed direct laryngoscopy. We discuss the place of the AL in a difficult airway management algorithm in parturients.

Case Reports

Emergency cesarean delivery was decided during end-stage labor because of fetal acute cardiac rhythm abnormality (sustained fetal bradycardia) in one patient (aged 29 yr; body mass index, 38 kg/m^2) and disproportion (aged 34 yr; body mass index, 44 kg/m^2) for the second. Emergency induction of general anesthesia was the most realistic anesthesia technique for both informed patients, who had received oral ranitidine (400 mg) when they entered the labor room. The younger parturient, with a normal upper airway clinical evaluation (classified as Mallampati II; thyromental distance, 5.5 cm; interincisor distance, 4 cm), had firmly rejected epidural catheter placement for labor analgesia. Although we used a specifically designed needle set, spinal anesthesia attempts performed in the operating room failed for the other patient, who was classified as Mallampati III (IV in the operating room evaluation) with a 3.5-cm interincisor distance. With the surgeon installed and ready for operative delivery, the Sellick maneuver was applied in both women breathing 100% oxygen just before general anesthesia was induced with 3 mg/kg thiopental and 1 mg/kg succinylcholine. Direct laryngoscopy performed with a Macintosh metal blade showed Cormack grade 3 and 4, and tracheal insertion of a gum elastic bougie failed in both patients. Three minutes after loss of consciousness, the AL equipped with a video camera inserted into the pharynx provided an entire glottis view and video-endoscopy of the tube entering the trachea. The Sellick maneuver was maintained until capnography confirmed tracheal intubation. The times to optimal glottis view and to securing the airway (measured on video recording clips), defined as the time elapsing holding the AL to the best glottis exposition and inflation of the tube cuff, were of 10 and 14 s and 21 and 23 s, respectively. The lowest arterial oxygen saturations were 96% and 93%. Newborns of 3.7 and 5.5 kg had activity, pulse, grimace, appearance, and respiration scores of 9 and 10, respectively. The operating room tracheal extubation and postanesthesia care unit care of both parturients were unremarkable.

Discussion

We report two cases of rapid tracheal intubation with the AL after failed direct laryngoscopy in morbidly obese parturients undergoing emergency cesarean delivery.

Maternal obesity is known to be associated with an increased risk of adverse pregnancy outcome, including an augmented emergency cesarean delivery rate.[3] However, the specific anesthesia-related risk associated with increased general anesthesia requirement rate in obese parturients is not discussed. Indeed, failures of neuraxial block placements were described in morbid obese parturients with a potential risk of difficult airway management. Levy[4] has recently proposed the safest and most effective approaches for the management of mother and baby in the emergency cesarean delivery situation. The author defined anesthetic options and recommended general anesthesia in the case of a true category 1 emergency (our first case) or if neuraxial regional analgesia has failed (our second case) but stated that the "traditional" rapid sequence induction (thiopental, succinylcholine, cricoid pressure, intubation) was probably not the safest approach to general anesthesia for cesarean delivery. If we all agree that unrecognized esophageal intubation is directly linked to the tracheal intubation technique, we believe that this dramatic complication cannot be attributed to rapid sequence induction, but rather to the inefficiency of the method used to intubate the trachea, *i.e.*, standard direct laryngoscopy, particularly in the difficult airways of parturients. Indeed, rapid sequence induction was recently demonstrated to reduce the incidence of difficult tracheal intubation and complications in emergency situations.[4] There are only

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two validated airway devices allowing visualization of the glottis without alignment of oral and pharyngeal axes: the LMACTrach (SEBAC, Pantin, France) and the AL. We have used the LMACTrach to intubate difficult airway patients in the operating room,[5] but the mean time to securing the airway was almost 3 min. On the other hand, we observed that the AL in association with rapid sequence induction resulted in a short delay ($\leq$ 1 min in most cases) to secure the emergency difficult airways. Then, we selected a low threshold for using the AL in obstetric emergency anesthesia. We decided that after 2 min of failed tracheal intubation using direct laryngoscopy, rescue AL tracheal intubation should be attempted. After 6 months, this algorithm has been applied by the obstetric anesthesia team; 69 parturients underwent emergency cesarean delivery during general anesthesia, and 2 required the AL. We are now considering placing the AL as a primary airway management device in the case of emergency cesarean delivery in women showing predictive difficult airway factors at labor or operating room clinical evaluation.

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