CORRESPONDENCE

Anesthesiology
1998; 88:1683
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Lippincott-Raven Publishers

Safer Endotracheal Tube Exchange Technique

To the Editor.—We read with interest the letter to the editor describing the conversion of a nasal to an orotracheal intubation using an endotracheal tube exchanger in a patient with a proven difficult airway.1 Even though this endotracheal tube exchange was successfully performed and no desaturation occurred, a safer endotracheal tube exchange technique was previously described with a flexible fiberoptic bronchoscope instead of an endotracheal tube exchanger.2 We are concerned about the above reading for the following reason.

1. If an existing nasal endotracheal tube must be exchanged to an oral endotracheal tube, why not place a small diameter tube exchanger like a #11 Cook airway exchange catheter (Cook Critical Care, Bloomington, IN) orally alongside the existing nasal endotracheal tube.3 Under uninterrupted ventilation and before disconnection of the nasal endotracheal tube, correct intratracheal positioning of this airway exchange catheter can be verified by CO2 detection or fiberoptic bronchoscopy via the nasal endotracheal tube. A second small diameter tube exchanger can then be placed through the nasal endotracheal tube before pulling the nasal endotracheal tube back into the posterior pharynx. Should the advancement of the oral endotracheal tube prove to be unsuccessful (which does occur), then it may be possible to readvance the old nasal endotracheal tube, which is still sitting in the posterior pharynx, into the trachea. The letter writer’s technique, pulling a tube exchanger through the pharynx from a nasal path to an oral path, all in the absence of a secured endotracheal tube, seems to be unnecessary and dangerous airway manipulation.

2. It is not clear why, in a patient with a proven difficult oral intubation, a successfully placed nasal endotracheal tube needed to be converted to an oral endotracheal tube. Nasal endotracheal tubes in awake patients are better tolerated than oral endotracheal tubes. Further, extubation of a patient with a proven difficult airway, using a small diameter tube exchanger to maintain airway access, may be safer via the nasal route because reintubation depends less on patient cooperation.4-5 Patients with difficult airways while under optimized conditions in the operating room, asleep and relaxed, who require reintubation after a trial of extubation frequently are now distressed and uncooperative. This renders the oral route to the airway more problematic, if not impossible, even if a tube exchanger is in place.

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(Accepted for publication January 8, 1998)

An Alternative Method for Conversion of a Nasal to an Orotracheal Intubation

To the Editor.—We read with great interest the description by Dr. Cooper of his conversion of a nasal to an orotracheal intubation using an endotracheal tube changer via a flexible endotracheal ventilation tube exchanger from the nasal passage into the oropharynx with two Magill forceps (Anesthesiology 1997; 87:717-8). The technique seems rather cumbersome, traumatic, and perhaps a bit risky. Although it is easy to thread a flexible tube exchanger through an endotracheal tube, it lacks the rigidity needed to thread the replacement tube over the catheter. In addition with the pulling by the Magill forceps, one would have to be concerned about the possibility of the catheter being inadvertently pulled out of the trachea and of losing control of the airway in a patient in whom the glottis could not be directly visualized. A similar situation occurred at our institution during which a conversion of a nasal to an orotracheal intubation became necessary.

Briefly, the patient was an unhemetced 28-year-old man who pre-
sent to the trauma emergency department after a motorcycle accident. He was unconscious and unresponsive at the scene. A hard cervical collar was placed. Orotracheal intubation was difficult. He was then nasally intubated at the accident site with a 7.0-mm cuffed endotracheal tube. He presented to the emergency department with a Glasgow Coma Scale (GCS) score of 6. A head computed tomography scan without contrast revealed a left zygoma fracture, fracture at the tip of the C5 spinous process, and a mid-internal capsular bleed on the right side. On hospital day six he developed sinusitis on the right side. The decision was made to intubate the patient with an oral endotracheal tube. The patient was given intravenous glycopyrrolate, 0.2 mg. Amnesia was afforded by intravenous midazolam, 2 + 2 mg. Finally, skeletal relaxation was attained with rocuronium, 50 mg (0.6 mg/kg). The fiberoptic scope was passed through an 8.0-mm cuffed endotracheal tube. The tip of the scope was then guided through the Ovassapian airway, and the existent nasotracheal tube was followed into the trachea. The nasotracheal tube was then withdrawn by an assistant. The tracheal rings and carina were reidentified, and the new tube was passed over the fiberoptic scope into the trachea. The entire procedure from setup to completion required 15 min, and the actual conversion took less than 1 min. The patient was extubated 5 days later without complications.

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(Accepted for publication February 9, 1998)

In Reply—Drs. Tapnio and Viegas are correct—the conversion seems cumbersome—but it was not traumatic and probably no more risky than alternative approaches. This author has had considerable experience using the endotracheal ventilation catheter (ETVC)® (CardioMed Supplies, Gormley, Ontario) for reintubation. The majority of these have involved unsuccessful extubations or replacement of a defective or inappropriate endotracheal tube. Additional experience using the ETVC® as a stylette, acquired since the forenamed publication, has confirmed that it is at least as successful as intubation over a flexible bronchoscope. In addition it offers the advantage of permitting oxygen insufflation or jet ventilation during reintubation or tube exchange. If Drs. Tapnio and Viegas have experience with this tube exchange, they would have found it to be too flexible. I would be very interested to learn of this.

I agree that if the glottis could be visualized by oral bronchoscopy, the method described by Tapnio and Viegas would have been simpler to perform. Unfortunately in our case it was not possible to direct the fiberoptic posterior to the epiglottis using the oral route. Although an Ovassapian (Williams, Patel, or Berman) airway was not attempted, it is probable that this would not have circumvented the problem of an epiglottis apposed to the posterior pharyngeal wall. A vigorous jaw thrust, and possibly sitting the patient upright, might have facilitated oral fiberoptic intubation.

Drs. Hartmannsgruber and Rosenbaum propose the placement of a #11 Cook airway exchange catheter (CAEC) orally. If it was not possible to place an endotracheal tube orally, why should it be easier to place the CAEC? I agree that uninterrupted oxygenation is advantageous in a critically ill patient, but this patient's oxygen needs were satisfactorily met by insufflation. There have been no published clinical trials comparing tube exchangers. The suggestion that the CAEC is a superior device is conjectural.

They raise an important point: why was a successfully placed nasal tube converted to an oral tube. This is not a free ride for intubation. Nasal tubes are frequently better tolerated than oral tubes and may be associated with less laryngeal injury, although such intubations are commonly complicated by sinusitis. The decision to perform a nasal-to-oral conversion was largely predicated on the concern about bacteria associated with hypertrophic obstructive cardiomyopathy. Had the conversion been unsuccessful, it would have been difficult to defend. Their point is well taken.

Having performed more than 400 extubations using a tube exchanger, the first 202 of which have been described, I cannot accept Hartmannsgruber and Rosenbaum's contention that either extubation or reintubation of the difficult airway is safer via the nasal route. Tube exchangers are more easily secured and better tolerated when nasally placed. I agree that the reintubation of such patients can be problematic, and even with a tube exchanger in place, expert airway management is required.

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Reference


(Accepted for publication February 9, 1998)