

Anesthesiology 2003; 98: 1070–6.

4 Huda W, Khan RM, Ahmad M, Singh M. Yet another bend in the wand! *Anesth Analg* 2003; 96: 627–8.

5 Crosby E. The Trachlight - A few more lessons. *Can J Anesth* 1999; 46: 297.

Another technique to facilitate insertion of the ProSeal™ laryngeal mask airway

To the Editor:

I am writing further to Dr. Laurence W. Lee's correspondence regarding the use of a Satin-Slip® stylet to facilitate ProSeal insertion.¹ I have been using a variation of this reported technique for several years now and it is a slight refinement of Dr. Lee's description. The portion of the stylet that is not advanced into the gastric port (esophageal lumen) can be bent 180° back onto itself to form a short arm. The short arm is advanced into the ventilation port. The configuration of the stylet is now akin to the stylet used for double lumen tube insertion for lung isolation procedures. The advantages of this configuration are that it resists rotation of the ProSeal on its short axis (avoiding direction into a pyramidal fossa), prevents the stiff stylet from inadvertently protruding beyond the gastric port distal outlet, and finally, allows the stylet ProSeal to be bent into the same curve as an intubating laryngeal mask airway if the operator prefers that method of insertion.

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Reference

- 1 Lee LW. Insertion of the LMA ProSeal™ using the Satin-Slip® intubating stylet. *Can J Anesth* 2007; 54: 81–2.

Extension of a shortened endotracheal tube

To the Editor:

Changing an endotracheal tube (ETT) in critically ill patients with severe airway edema is challenging and potentially life threatening. We describe an alternative to tube exchange for an ETT that was too short in length.

A 170 cm tall pregnant 35-yr-old female at 30 weeks gestation was involved in a motor vehicle acci-

dent. Although initially awake, her condition deteriorated. Awake intubation using direct laryngoscopy by attending anesthesiologists was successful on the third attempt with a 7.0-mm internal diameter (ID) tube; the Cormack grade was 3. The ETT was cut below 26 cm for unknown reasons.

Emergency laparotomy confirmed placental abruption, fetal death and upper abdominal bleeding. Splenectomy and packing was done. Despite these procedures and massive transfusion, the patient continued to hemorrhage and experienced three episodes of pulseless electrical activity. The following day she was profoundly edematous but obeyed commands.

On the chest radiograph, the ETT was 4.6 cm above the carina but could not be advanced because the connection was at the patient's lips. A periodic air leak was noted and the possibility of tube exchange was considered. Redundant tubing in the mouth was ruled out by direct examination of the oral cavity and bronchoscopy. A tracheotomy was considered but neck edema and cervical spine precautions would have made the procedure challenging. It was decided not to use tube exchange catheter because of upper airway edema, unintentional tracheobronchial injury and possible inability to re-insert an ETT.¹ Attempts to pass an ETT beside the existing tube via a bronchoscope² were considered unlikely to be successful. Another option, telescoping a second ETT over the existing tube, was proposed.

A 9.5-mm ID ETT could easily telescope over a 7.0-mm tube. Securing the tubes together was accomplished by use of nylon ties applied by a cable tie gun. Once secured, the tubes could not be pulled apart. In the operating room, with a difficult airway cart and Sander's jet ventilator present, preparation for tracheotomy was made. After preoxygenation, the connector of the existing tube was removed. A tube exchange catheter was placed in case of inadvertent removal and to serve as a 'stent' to prevent tube compression during nylon tie placement. The *in situ* tube was lubricated and a cut upper half of a 9.5-mm ETT was easily advanced and secured by nylon ties (Figure). The procedure was well tolerated. Final positioning was performed under bronchoscopic guidance. No further airway leak occurred. The added extension was shortened to match the length of suction catheters.

The patient's course in the intensive care unit was complicated but she was successfully extubated from the ventilator and hybrid tube on day 15. Subsequent follow-up found no deficits except unilateral hearing impairment.

It is unfortunate that this problem arose since there is no compelling reason to cut endotracheal

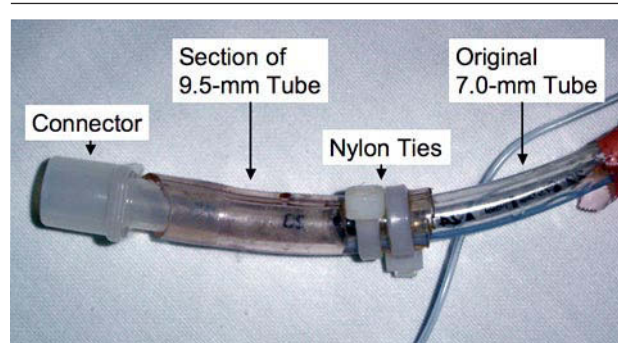


FIGURE Tube connection. Picture of extended endotracheal tube shortly after extubation of the patient's trachea on day 15.

tubes.³ The added dead space or airway resistance is negligible. Although longer tubes are more likely to be inserted deeply or bend, these problems are easily rectified. Creation of a longer ETT was achieved through the connection of two tubes by a cut ETT connector.^{4,5} These cases used the combined tubes for a short period of time. It is questionable whether the cut ETT connector could be secured for long-term use. To our knowledge, this is the first description of a telescoping technique to lengthen an *in situ* ETT. This technique may prevent the need to replace a tube that is too short, especially when the risks of tube exchange are substantial. We suggest telescoping of a tube over the first only after all alternative options have been considered and complete discussion with all staff have been conducted.

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References

- 1 Benumof JL. Airway exchange catheters: simple concept, potentially great danger. *Anesthesiology* 1999; 91: 342–4.
- 2 Rosenbaum SH, Rosenbaum LM, Cole RP, Askanazi J, Hyman AI. Use of flexible fiberoptic bronchoscope to change endotracheal tubes in critically ill patients. *Anesthesiology* 1981; 54: 169–70.
- 3 Moyser LV. To cut or not to cut. *Anaesthesia* 1993; 48: 832.
- 4 Muraika L, Heyman JS, Shevchenko Y. Fiberoptic tracheal intubation through a laryngeal mask airway in a child with Treacher Collins syndrome. *Anesth Analg* 2003; 97: 1298–9.
- 5 Holzman RS. A tracheal tube extension for emergency tracheal reanastomosis. *Anesthesiology* 1989; 70: 170–1.

Retrograde intubation with epidural catheter and Cook airway exchange catheter

To the Editor:

Direct laryngoscopy remains the technique of choice to facilitate tracheal intubation. Alternative intubation techniques are required whenever an airway is deemed difficult or when tracheal intubation is unsuccessful. The retrograde intubation (RI) technique is an option for controlling the airway and is listed on the American Society of Anesthesiology difficult airway algorithm.¹

We use a new technique for RI that utilizes an epidural kit (Braun, Bethlehem, PA, USA) and an 86-cm long Cook airway exchange catheter (CAEC) (Cook Critical Care, Bloomington, IN, USA), which are both commonly found in an anesthesia work room. In preparation, 20 cm of the CAEC are cut off the caudal end making it just short of a gum elastic bougie. Under standard monitoring, the patient is positioned supine with the neck in the neutral position or slightly extended. The patient's airway is topicalized with local anesthesia, and sedation may be titrated to effect while sterile solution is applied to the neck. Next, the cricothyroid membrane is punctured with a 17G epidural needle in a 45° angle with the bevel pointing rostrally. An epidural catheter (EC) is used for retrograde passage into the oral cavity. Pulling out the tongue and using a Magill forceps usually helps to retrieve the EC. The caudal end of the EC must be secured with a clamp or by an assistant. The EC is then threaded through the central lumen of the shortened CAEC and is secured at the rostral end once it appears. The CAEC is guided over the EC through the vocal cords. Pulling out the tongue and cricoid pressure may facilitate tracheal intubation. Once the CAEC stops because the EC prevents further passage, the EC is released at the rostral end and the CAEC is inserted carefully further into the trachea. Breath sounds through the CAEC may be heard, if the patient is still breathing spontaneously. An endotracheal tube (ETT) is then guided over the CAEC into the trachea. Laryngoscopy may facilitate this passage.