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Trachlight® – More practical solutions to commonly encountered problems

To the Editor:

Over the past few decades, light-guided intubation using the principle of transillumination has proven to be an effective, safe and simple technique. A lighted stylet uses the principle of transillumination of the soft tissues of the anterior neck to guide the tip of the endotracheal tube into the trachea. This technique takes advantage of the anterior or more superficial location of the trachea in relation to the esophagus.

Several tips have been suggested in the literature for improving the success of Trachlight® -guided intubation. These include lifting the tongue with the thumb of the nondominant hand or having an assistant pull the tongue while the intubator continues to provide a jaw thrust, lubricating the wand and the stylet,¹ dimming operating room lights, using smaller size endotracheal tubes, inserting the wand side-on, or providing at least a 90° bend to the wand.² Others have suggested gauging the appropriate “bent length” by measuring the distance from the thyroid prominence to the angle of the mandible.³ Patients with buck teeth may benefit from the addition of another bend to the wand at the level of the buck teeth.⁴

Following repeated use, the internal rigid stylet sometimes assumes a “snake-like” bend that poses difficulty in retraction of the wand. In such situations, it has been suggested that the stylet be straightened, if possible, before reuse, failing which it needs to be disposed.⁵ We have also encountered a similar situation leading to difficulty in withdrawing the wand along with the rigid internal stylet after successfully negotiating the endotracheal tube-Trachlight® assembly into the trachea. We have noticed that the snake-like bend of the stylet poses a problem when it crosses the endotracheal tube connector, which happens to be not only the narrowest, but also the most rigid portion of the endotracheal tube-connector assembly. We have successfully overcome “hold up” at this level by separating the endotracheal tube connector

from the endotracheal tube prior to withdrawal of the wand-stylet assembly. The distal 90° bent portion of the wand-stylet assembly is the other point at which difficulty is encountered during withdrawal of the stylet, especially in the pediatric age group due to the small size of the tube and its connector. Our suggestion provides a solution to this problem also. We therefore recommend that the connector be routinely separated from the endotracheal tube to facilitate smooth removal of the stylet and possibly prolong the life of the stylet. We have applied this technique of removal of the endotracheal tube connector to aid in Trachlight®-guided oral intubation using the Ring Adair Elwyn (Mallinckrodt Medical, Athlone, Ireland) tube also.

In obese individuals, the midline tissues of the neck may be obscured by folds of fat arising either from a double-chin above, or from the anterior chest wall below, posing difficulty in appreciation of the circumscribed glow in front of the neck. Dimming the operating room lights and placing a support under the shoulder to extend the neck often improves success of Trachlight®-guided intubation in obese patients. We have found that having an assistant retract the fold of fatty tissue down and away from the neck so as to avoid formation of skin folds over the neck helps in shortening the time to obtain the classical well-circumscribed midline glow.

Since its introduction in 1959, the lightwand has proven its utility in several clinical situations. Our experience gleaned from the use of the Trachlight® for more than 350 intubations has prompted us to share some of the practical solutions that we have used to overcome problems that we have commonly encountered during its use.

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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 pyriform 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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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