A New Tracheostomy Procedure

To the Editor:

In a recent issue of CHEST (July 2004),1 Ferraro et al suggested using a pediatric uncuffed endotracheal tube that was 4 mm in the inner diameter to ventilate patients during either percutaneous dilatational tracheostomy (PDT) according to Ciaglia et al2 or translaryngeal tracheostomy according to Fantoni and Ripamonti.3 This suggestion limits the risk of hypoventilation and allows the whole procedure to proceed under direct vision using a flexible bronchoscope that is inserted parallel to the pediatric tube. Having used PDT for several years in our respiratory ICU, and despite the favorable results presented in this interesting report, we are not prone to adopt the procedure reported on by Ferraro et al for the following reasons.

The suggested procedure requires the extubation of the patient before PDT or translaryngeal tracheostomy, which may be unsafe in some patients with respiratory failure and may be associated with an additional and unacceptable risk of difficult reintubation, even if ventilating the tube exchanger might help. Moreover, the suggested procedure uses an uncuffed tracheal tube, which may promote the inhalation of pharyngeal secretions and gastric content. Finally, hypoventilation is not strictly avoided, as attested in Table 2 in the article by Ferraro et al.

In our respiratory ICU, we routinely use the PDT procedure under intermittent endoscopic monitoring and have observed that the technique of Ciaglia et al2 using a one-step dilator is always possible without extubating the patient. This requires a careful transillumination of the tip of the cuffed tracheal tube with a flexible bronchoscope that is briefly inserted into the tube. This localization may be repeated during the procedure and allows a safe puncture of the trachea without puncturing the cuff and without a significant risk of hypoventilation.

Antoine Cuvelier, MD, PhD
Luis Carlos Molano, MD
Jean-François Muir, MD, FCCP
Rouen University Hospital
Rouen, France

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To the Editor:

We appreciate the interest of Dr. Cuvelier and coworkers in our study that was published in CHEST (July 2004).1 We agree that the use of transillumination by the bronchoscope may generally allow correct needle placement for percutaneous tracheostomy; but this is not in contrast with our technique.

Since 1985, when Ciaglia introduced his percutaneous dilatational tracheostomy technique, a separate operator has been used to maintain the placement of the withdrawn endotracheal tube with the cuff just above the vocal cords. This way of airway management is risky because accidental extubation, transfixation of the tube, and deflation of the cuff can happen. Serious complications, including emphysema, pneumothorax, and death, can result from the loss of the airway, but this technique has been used successfully by Cuvelier et al. Further, there is much evidence in the literature about the dangers of interference between bronchoscopy and ventilation.5–7 For this reason, Cuvelier et al use “intermittent endoscopic monitoring” to protect against hypoventilation. There is then a real risk of tracheal damage during the dilation phase and tracheostomy tube placement phase, which are both carried out without the aid of an endoscopic view.

Our technique maintains continuous airway control (ie, a patent and secure airway by orotracheal intubation at the level of the carina), a continuous endoscopic view (independent from ventilation), and continuous gas passage from the glottis (translaryngeal open ventilation in pressure-controlled ventilation tube) during the entire procedure. Our technique avoids airway loss, paratracheal cannulation, posterior tracheal wall damage, emphysema (subcutaneous and/or mediastinal), hypoxia, and the inhalation of biological liquid (eg, blood or pharyngeal secretions). To accomplish this, we never extubate the patient, and we change the endotracheal tube only by means of the correct and safe use of a tube exchanger without laryngoscopy.1

Fausto Ferraro, MD, PhD
Università degli Studi di Napoli
Naples, Italy

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Fausto Ferraro, MD, PhD
Università degli Studi di Napoli
Naples, Italy
Correspondence to: Fausto Ferraro, MD, Dipartimento di Scienze Anestesiologiche, Chirurgiche e dell’Emergenza, “Servizio di Terapia Intensiva”, II Università degli Studi di Napoli, Via Pansini, 5, Pad 17, 80131 Napoli, Italy; e-mail: fausto.ferraro@unina2.it

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