sophisticated airway management algorithms already in place.

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Tracheal intubation using the Bonfils intubation fibrescope in patients with a difficult airway

To the Editor:

We read, with interest, the report by Byhahn *et al.*¹ in which they compare using a Bonfils intubation fibrescope (BIF) to using direct laryngoscopy, to facilitate tracheal intubation in patients with a simulated difficult airway. In our view, selecting a laryngoscopic intubation under general anesthesia as a control group tends to obscure the purpose and clinical significance of the study. If the authors' intent was to determine whether the BIF was a more effective intubating device for patients with a known difficult airway, compared to other instruments, perhaps a study design involving awake intubation should have been considered. According to the American Society of Anesthesiologists' difficult airway algorithm² awake intubation is the safest option for patients with a known difficult airway. Furthermore, a fiberoptic bronchoscope (FOB) may be a more suitable control device, since awake fiberoptic intubation is often regarded as a cornerstone in the management of a known difficult airway. If the study had been designed to assess the usefulness of the Bonfils for managing an unanticipated difficult airway, perhaps the lightwand should have been considered as

FIGURE The Bonfils retromolar intubation fibrescope™ with a 1.2-mm working channel (Bonfils 10031 B, Karl Storz Endoscopy, Tuttlingen, Germany) (Panel A). To spray lidocaine in the airway using the “spray as you go” technique, an oxygen tubing and a Luer-locked syringe prefilled with lidocaine are connected to the working channel of the Bonfils (Panel B) or an epidural catheter is placed in the working channel of the Bonfils (Panel C) by a triple stopcock.

a control device, rather than a laryngoscope for direct laryngoscopy. The lightwand intubating technique has been recommended as the first-line option in patients whose lungs can be ventilated, but who have a failed laryngoscopic intubation.³

It appears that the study design used a BIF without a working channel. We draw attention to the existence of a commercially available, adult version BIF with a 1.2-mm working channel (Figure – Panel A). We often use this Bonfils with a working channel for patients with a known difficult airway, to perform the awake intubation by the “spray as you go” technique (Figure – Panels B and C), which is similar to the technique using a FOB. Compared to administering lidocaine in the airway via the tube adapter of the BIF,⁴ spraying lidocaine via a thin working channel is more effective for topical airway anesthesia, due to a more accurate direction of lidocaine stream to the targeted sites and less drug wastage. Compared to an intubation technique using a combination of the Macintosh laryngoscope and the Bonfils, as reported in this study, we prefer to use a midline

approach without assistance of a direct laryngoscope, as previously reported by Halligan and Charters,⁵ for the following reasons: 1) A laryngoscopic blade placed in the midline interferes with the maneuverability of the Bonfils in the oral cavity and pharynx, especially for the patient with limited mouth opening; 2) Insertion and withdrawal of the laryngoscope adds to the complexity of the intubation procedure; 3) Direct laryngoscopy increases the risk of upper airway trauma, particularly in the patient with a difficult airway. To decrease the risk of airway trauma, moreover, we recommend that the BIF tip be positioned at the laryngeal aperture, rather than below the glottis, before advancing the endotracheal tube into the trachea.

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Reply:

We thank Dr. Liao and colleagues for their comments

regarding our recently published clinical study on the subject of endotracheal intubation in patients with a simulated difficult airway, in which we compare direct laryngoscopy by means of a standard Macintosh blade, to using the rigid Bonfils intubation fibrescope.¹ The Bonfils intubation fibrescope represents a reliable alternative to managing the unanticipated difficult airway in anesthetized patients.² We were able to demonstrate that the Bonfils intubation fibrescope was associated with a higher success of endotracheal tube placement, compared to direct laryngoscopy,¹ in patients with a standardized airway challenge created by application of a rigid cervical immobilization collar. The Bonfils intubation fibrescope used in our study did not have a suction channel. As pointed out by Dr. Liao et al., the manufacturer also provides a version with a small-bore suction channel. However, the availability of this device is very limited.³ Despite the fact that the research group of Carin Hagberg recently demonstrated the feasibility of using the Bonfils intubation fibrescope for awake tracheal intubation,³ in our view, awake oral insertion of this device should not be considered as a general alternative to flexible fibroscopy that is still considered the gold standard for managing the anticipated difficult airway. Even if the rigid Bonfils intubation fibrescope is used by experienced physicians and with due caution, it still bears some risk of airway injury that may be higher than that associated with a flexible fibrescope.

Finally, Dr. Liao and colleagues were cautious about recommending advancement of the tip of the Bonfils intubation fibrescope through the glottic aperture, as we described. We agree that the risk of tracheal injury could increase with this technique, and a high level of experience with the device should be acquired before it is advanced through the glottis. However, advancing the Bonfils through the glottic area minimizes the chance of inadvertent tube misplacement into the esophagus, and also decreases the risk of arytenoid injury during tracheal tube advancement, especially when this maneuver is performed without staff assistance. So long as the tip of the fibrescope remains within the circular cartilaginous area of the larynx, the risk of injury should be low, as compared to advancing the Bonfils device further into the trachea, which we do not recommend.

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Extender for the size 4 ProSeal laryngeal mask airway

To the Editor:

Since the introduction of the ProSeal laryngeal mask airway¹ (PLMA; Laryngeal Mask Company, San Diego, CA, USA) in 2000, we have followed a strict size selection guideline choosing size 4 masks for women, and size 5 masks for men. Based on our experience and common practice with the Classic LMA, we have made this our standard practice. For eight years, in more than 3,500 patients, we have adhered to this rule for selecting the PLMA size.

We have recently reassessed this practice in response to our strong clinical impression that the larger dimensions of the cuff and drain tube of the size 5 mask contribute to greater problems with partial airway obstruction. We have noticed particular problems using the size 5 masks in elderly men. As previously described, the PLMA can compress the laryngeal inlet by a variety of means, including elevation of the cricoid cartilage, medial rotation of the arytenoid cartilages, and inward pressure on the aryepiglottic folds.^{2,3} Using a maximum minute ventilation test to assess airway patency in all of our patients, we have encountered problems most frequently with the size 5 mask in men.

Unfortunately, since the overall length of this airway device is relatively short, using the smaller size 4 PLMA in adult male patients is not a simple matter. The size 4 PLMA frequently inserts so deeply in male patients that the entire integral bite block lies within the mouth, and the flange for the 15-mm airway connector locates at the teeth.⁴ In this situation, it is difficult, if not impossible, to tape and secure the

FIGURE Part A shows the straight connector attached to a size 4 ProSeal laryngeal mask airway (PLMA). Part B illustrates use of the size 4 PLMA in a male patient. The small arrow points to the flange of the 15-mm airway adapter adjacent to the patient's teeth. Tape is applied over the maxillae and directly to the extender device to secure the PLMA.

PLMA with inward pressure.⁵ As demonstrated in the Figure, to overcome this obstacle we have recently begun attaching a “straight connector” (Straight T Adapter, Disposable #73385 General Electric Healthcare Finland Oy, Helsinki, Finland) to the 15-mm airway port before insertion of the PLMA. In this case, it is a simple matter to tape across the patient's maxilla and around the straight connector, following insertion of the size 4 PLMA. As demonstrated in the Figure, the flange of the PLMA can be situated opposite the teeth, while the tape is easily wrapped around the extra length provided by the straight connector. This practice makes the use of a size 4 PLMA in men a relatively uncomplicated matter.

Finally, we comment on design features found in the new disposable Supreme LMAs (Laryngeal Mask