

CORRESPONDENCE

rupture is low, the consequences may be devastating. We also believe that fiberoptic intubation in the anesthetized patient presents minimal risk, may have fewer complications than direct laryngoscopy, and does not require prior consent.

Any maneuver that significantly deviates from the standard of care should be performed only after obtaining patient consent. This includes awake fiberoptic intubation and all retrograde techniques. Likewise, repeated airway manipulations with different devices on the same patient requires prior consent.⁶ To reduce patient risk due to inexperience, residents should be supervised constantly during all airway manipulations performed for teaching purposes. We also believe that prior training in a simulated environment may improve patient safety further.

Our purpose in writing is not to impede the training of residents in these important skills. We ask simply whether the anesthesia community agrees that patient consent is necessary when teaching some, but not all, airway management skills. We hope this letter will stimulate a fruitful discussion.

Gregory Allen, M.D., F.R.C.P.C.

W. Bosseau Murray, M.B., M.D.

Simulation Development and Cognitive Science Laboratory
Department of Anesthesia
The Pennsylvania State University
PO Box 850
Hershey, Pennsylvania 17033

References

1. Benumof JL: Management of the difficult adult airway—With special emphasis on awake tracheal intubation. *ANESTHESIOLOGY* 1991; 71:769–78

2. ASA Task Force on Management of the Difficult Airway: Practice guidelines for management of the difficult airway. *ANESTHESIOLOGY* 1993; 78:597–602

3. Koppel JN, Reed AP: Formal instruction in difficult airway management: A survey of anesthesiology residency programs. *ANESTHESIOLOGY* 1995; 83:1343–6

4. Caplan RA, Posner KL, Ward RJ, Cheney FW: Adverse respiratory events in anesthesia: A closed claims analysis. *ANESTHESIOLOGY* 1990; 72:828–33

5. Cooper SD, Benumof JL: Teaching management of the airway: The UCSD Airway Rotation, Airway Management: Principles and Practice. Edited by Benumof JL. St. Louis, Mosby, 1996, pp 903–10

6. Goldberg JS, Bernard AC, Marks RJ, Sladen RN: Simulation technique for difficult intubation: Teaching tool or new hazard? *J Clin Anesth* 1990; 2:21–6

7. Schaefer HG, Marsch SCU, Keller HL, Strebel S, Anselmi L, Drewe J: Teaching fiberoptic intubation in anaesthetised patients. *Anaesthesia* 1994; 49:331–4

8. Cole AFD, Mallon JS, Roblin SH: Resident training: Fiberoptic vs. laryngoscopic intubation (abstract). *ANESTHESIOLOGY* 1994; 81:A1240

9. Marsch SCU, Aeschbach A, Schaefer HG: Teaching awake fiberoptic intubation in patients without specific medical indication (abstract). *ANESTHESIOLOGY* 1995; 83:A1014

10. Wright IH, Posner KL, Kendall-Gallagher D, Cheney FW: Usage and efficacy of the fiberoptic bronchoscope in a teaching hospital (abstract). *ANESTHESIOLOGY* 1994; 81:A1252

11. Parmet JL, Metz S, Miller F, Pharo G, Rosenberg H: Airway Awareness Week: A method of teaching alternative airway techniques (abstract). *ANESTHESIOLOGY* 1995; 83:A1123

12. Johnson C, El-Ganzouri AR: Teaching fiberoptic laryngoscopy and intubation, *Clinical Management of the Airway*. Edited by Roberts JT. Philadelphia, Saunders, 1994, pp 253–60

(Accepted for publication May 2, 1996.)

Anesthesiology
1996; 85:438–9

© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

In Reply:—We appreciate the thoughtful comments made by Allen and Murray. We agree that the consent issue is an important one and was well presented by Allen and Murray. We do not ask the patients who will be anesthetized by the airway rotation residents for special consent to perform airway maneuvers because all of the airway methods we use are well established/accepted, and our teaching methods greatly minimize risk.¹ However, we stress that experienced faculty must be present during performance of the airway maneuvers and that the judgment of the faculty be strictly followed at all times. One very important element regarding faculty judgment is the absolute avoidance of inappropriate force or roughness at any time. In addition, the supervising faculty continually evaluates the impact of the teaching process on the patient; this means that all teaching plans are inherently flexible and may be aborted/changed at any time. We estimate that approximately 10% of the time, the teaching plan is

altered, based on online observation of the teaching process/patient response (the observations may indicate increased risk or, conversely, the observations may indicate that the procedure is simply too easy and there is little learning benefit to be gained by following the procedure to completion).

In 4 yr, (approximately 1,000 faculty/airway rotation resident cases), we have had only three adverse outcomes, and two of the three adverse outcomes were the same. In two cases, intubation through the self-sealing fiberoptic bronchoscope diaphragm on an intubating anesthesia mask caused a piece of the blue diaphragm to be carried into the trachea.² In both cases, the complication was recognized immediately by the faculty, and the blue piece of diaphragm was removed from the trachea by an alligator clamp passed through the working channel of a fiberoptic bronchoscope. We no longer intubate through the self-sealing fiberoptic diaphragm just for

CORRESPONDENCE

teaching purposes. In the third case, an improperly sterilized laryngeal mask airway (cleaned in Cidex) caused perilaryngeal edema, necessitating emergent conventional laryngoscopic intubation. The patient suffered no long-term morbidity, and the improper LMA cleaning procedure was identified and rectified immediately.

It is possible that new complications with new equipment may occur in the future, but this possibility applies to all clinical situations. We believe we use accepted methods very carefully, so that the risk of these methods does not require special consent.

Jonathan L. Benumof, M.D.
Professor of Anesthesia

Sheila D. Cooper, M.D.
Assistant Clinical Professor of Anesthesia

Anesthesiology
1996; 85:439
© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

Tracheal Intubation through the Laryngeal Mask Airway

To the Editor:—The use of a 5-mm Mallinckrodt Microlaryngeal tube has been recommended for tracheal intubation through the laryngeal mask.¹ I consider that, for this purpose, the 6-mm Mallinckrodt reinforced tracheal tube (Mallinckrodt, Athlone, Ireland) is a better choice than the 5-mm microlaryngeal tube.

The length of the 6-mm reinforced tracheal tube is 33 cm. When the tracheal tube is inserted as far as possible into the laryngeal mask, the distance between the proximal edge of the tracheal tube cuff and the grill of the mask is 8 cm. Therefore, the cuff of the tracheal tube is unlikely to lie between the vocal cords when the tracheal tube is passed through the laryngeal mask, because the mean distance between the grille of the mask and the glottis is 3.6 cm in males and 3.1 cm in females.²

When a size 5 laryngeal mask is used, a 7-mm internal diameter reinforced tube can be passed through it. The tracheal tube protrudes beyond the grill of the mask for 10 cm, and the distance between the grille and the tracheal tube cuff is 4.5 cm.

The reinforced tube has a greater flexibility than the microlaryngeal tube, and therefore the reinforced tube may be more useful when the glottis is not positioned directly below the aperture of the laryngeal mask. In addition, because these reinforced tubes are larger than the microlaryngeal tube, there may be less concern for the airway resistance of the tube. Therefore, I believe that the 6-mm Mallinckrodt reinforced tracheal tube is more suitable for the technique of tracheal intubation through the laryngeal mask.

UCSD Medical Center
Department of Anesthesiology
402 Dickinson Street
Mail Code 8812
San Diego, California 92103-8812

References

1. Cooper SD, Benumof JL: Teaching management of the airway: The UCSD Airway Rotation, Airway Management: Principles and Practice. Edited by Benumof JL. St. Louis, C.V. Mosby, 1996, pp 903-10
2. Rogers SN, Benumof JL: New and easy techniques for fiberoptic endoscopy-aided tracheal intubation. *ANESTHESIOLOGY* 1983; 59:569-72

(Accepted for publication May 2, 1996.)

There is a factor that we should bear in mind when a longer tracheal tube is passed through the laryngeal mask. When a longer tracheal tube is passed through either a size 3 or 4 laryngeal mask, the tracheal tube may be inserted too deeply into the trachea; therefore, there is a theoretical risk of endobronchial intubation. The position of the tracheal tube should be assessed and the tube fixed to the laryngeal mask at an adequate depth.

Takashi Asai, M.D.
Department of Anesthesiology
Kansai Medical University
Moriguchi City, Osaka
Japan

References

1. Pennant JH, Joshi GP: Intubation through the laryngeal mask airway. *ANESTHESIOLOGY* 1995; 83:891-2
2. Asai T, Latta IP, Vaughan RS: The distance between the grille of the laryngeal mask airway and the vocal cords: Is conventional intubation through the laryngeal mask safe? *Anaesthesia* 1993; 48: 667-9

(Accepted for publication May 2, 1996.)