Flexi-Slip aided ProSeal™ laryngeal mask airway insertion by conventional technique

Rakesh Garg, MD · Anju Gupta, MD ·
Nishkarsh Gupta, MD

Received: 6 November 2008 / Revised: 3 December 2008 / Accepted: 3 December 2008 / Published online: 11 February 2009
© Canadian Anesthesiologists' Society 2009

To the Editor,

We read with interest the Letter to the Editor by Chen et al. describing Flexi-Slip stylet-aided insertion of a ProSeal™ laryngeal mask airway (PLMA).¹ We have several concerns regarding this technique of PLMA insertion.

First, advancing the Flexi-Slip stylet through the drain tube does not provide rotational stability to the PLMA during insertion, as the tube portion of the LMA tends to rotate over the cuff portion. This rotation may be further exaggerated with the use of lubrication, as mentioned by the author. Indeed, use of lubrication jelly may be unnecessary, because the Rusch Flexi-Slip stylet has a low friction coating to facilitate easy withdrawal (as mentioned in the product information for the Flexi-Slip stylet). Second, the authors referred to Yodfat² regarding the use of a stylet for LMA insertion; however, that study was undertaken with LMAs, so the results may not be applicable to the PLMA because of its different structure. Folding over of the cuff tip has been reported to be more common with the PLMA than with the classic LMA.³ The traditional technique of PLMA insertion along the hard palate, combined with rotational movement,⁴ can prevent cuff folding. If cuff folding does occur, partial withdrawal and reinsertion can usually resolve this problem. Third, though a 90° angling of the airway tube facilitates proper insertion of the PLMA, it is difficult to maintain this angle with the stylet during insertion, especially in a difficult airway setting, as any obstruction or impaction may alter the angle of the assembly.

A further observation is that the tip of the flexible stylet is maintained 1 cm beyond the PLMA tip. Accordingly, it

is unlikely that this will prevent the distal cuff from folding over, as mentioned by the authors. Also, the authors make no mention of a test to detect the cuff tip folding backwards.

Finally, the presence of the stylet tends to increase the stiffness of the drain tube tip, which has the potential to increase oropharyngeal trauma.⁵ Inserting the PLMA over a gum-elastic bougie or a tube inserted into the esophagus will guide the PLMA to its proper location and may reduce local tissue trauma. While there is mention of the use of a soft atraumatic stylet, it is uncertain how the presence of a stylet within the drain tube can provide rotational stability without adding any stiffness.

In our view, the potential advantages of the Flexi-Slip stylet-aided PLMA insertion may be, in part, operator-dependent, and may be partially offset by the several disadvantages noted above.

Conflicts of interest None declared.

Source of funding None.

References

1. Chen HS, Liu PH, Chung KC. The Rusch Flexi-Slip stylet for ProSeal™ laryngeal mask airway insertion (Letter). *Can J Anesth* 2008; 55: 719–20.
2. Yodfat UA. Modified technique for laryngeal mask airway insertion. *Anesth Analg* 1999; 89: 1327.
3. Brimacombe J, Keller C. Aspiration of gastric contents during use of a ProSeal™ laryngeal mask airway secondary to unidentified fold over malposition. *Anesth Analg* 2003; 97: 1192–4.
4. Evans NR, Gardner SV, James MF. Malposition of the ProSeal laryngeal mask (Letter). *Anesth Analg* 2002; 94: 1366–7.
5. Brimacombe J, Irving S, Keller C. Ease placement of LMA ProSeal with a gastric tube inserted (Letter, reply). *Anesth Analg* 2004; 98: 1817.

R. Garg, MD (✉) · A. Gupta, MD · N. Gupta, MD
All India Institute of Medical Sciences, New Delhi, India
e-mail: drrgarg@hotmail.com

Reply

Dr. Garg et al. point out several concerns associated with the insertion technique of the ProSeal™ Laryngeal Mask Airway (PLMA; Laryngeal Mask Company North America, San Diego, CA, USA) using the Rusch Flexi-Slip stylet (no. 503000-4.3/5.6; Willy Rusch AG, Germany).¹ Following is our response to each of their concerns.

First, the insertion technique using the Flexi-Slip stylet does not force the device against the hard palate, but slips the device onto the surface of the tongue with a simple wrist motion. The front of the laryngeal mask should be proximal to the tongue and, instead of lifting the tongue, should slide along the curve of the oropharynx. Therefore, it is not necessary to have a stiff, and marked property of the bended angulation to provide rotational stability. Since the Rusch Flexi-Slip stylet itself is not absolutely friction free, slight lubrication of the stylet is recommended for smooth removal.

Second, we referred to Yodfat's report² to explain that the 90° angle incorporated into the airway tube contributes significantly to the high insertion success rate. The PLMA introducer tool and the Ambu laryngeal mask also apply the same concept.³ A multicentre study has shown that, compared to the classic laryngeal mask airway, the traditional techniques of PLMA insertion have lower success rates at the first attempt.⁴ To improve the first-attempt insertion success rate and to reduce the potential trauma resulting from reinsertion, several novel techniques employing aids, such as the gum-elastic bougie technique,⁵ have been developed.

Third, sometimes the classic laryngeal mask airway may stick at the oropharynx, making it difficult to be rotated caudad. The following options should improve the insertion procedure. The tube portion of the PLMA could be held closer to the angular portion to reduce the torque during the insertion. The other option is to pull the stylet 1–2 cm out of the drain tube to shorten the rigid portion in the

laryngeal mask. In the more difficult insertion cases, the operator could select a larger size of Rusch Flexi-Slip stylet (no. 503000-5.6) to obtain improved stability.

Finally, with partial support of the Rusch Flexi-Slip stylet at the laryngeal portion, there is sufficient rigidity to pass through the dropped tongue without encountering 'folding over' of the laryngeal mask. Once the laryngeal mask is placed under the base of the tongue, the inflation of the cuff will adjust the laryngeal mask to the optimal position to match the contours of the pharyngeal and laryngeal surfaces. The soft feature on the distal end of the cuff could prevent the oropharynx from being harmed during the insertion. A formal study to validate the clinical experience is currently under way.

Conflicts of interest None declared.

References

1. Chen HS, Liu PH, Chung KC. The Rusch Flexi-Slip stylet for ProSeal™ laryngeal mask airway insertion (Letter). *Can J Anesth* 2008; 55: 719–20.
2. Yodfat UA. Modified technique for laryngeal mask airway insertion. *Anesth Analg* 1999; 89: 1327.
3. Hagberg CA, Jensen FS, Genzwuerker HV, et al. A multicenter study of the Ambu laryngeal mask in nonparalyzed, anesthetized patients. *Anesth Analg* 2005; 101: 1862–6.
4. Brimacombe J, Keller C, Fullekrug B, et al. A multicenter study comparing the ProSeal with the Classic laryngeal mask airway in anesthetized, nonparalyzed patients. *Anesthesiology* 2002; 96: 289–95.
5. Brimacombe J, Keller C, Judd DV. Gum elastic bougie-guided insertion of the ProSeal™ laryngeal mask airway is superior to the digital and introducer tool techniques. *Anesthesiology* 2004; 100: 25–9.

Hung-Shu Chen, MD

Ping-Hsin Liu, MD

Department of Anesthesiology, E-DA Hospital, No.1, Yida Rd., Yanchao Township, Kaohsiung County 824, Taiwan