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Advancing the endotracheal tube smoothly when using the GlideScope®

To the Editor:

I read, with interest, the article entitled, "A maneuver to facilitate endotracheal intubation using the GlideScope®".¹ In the case of a small mouth opening, the authors recommend inserting the blade of the GlideScope (Verathon, Bothell, WA, USA) from the left side of the mouth. To illustrate this technique, the authors include a photograph revealing a larynx in a deviated position. In Image C, it appears that the angling of the blade to the left might impede passage of the endotracheal tube.

Having used the GlideScope extensively, I have also encountered difficulty in establishing adequate space for the endotracheal tube, and I have determined two successful approaches. Firstly, to obtain a view of the vocal cords, the GlideScope can be inserted in the midline. Then, if there is insufficient room in the oropharyngeal cavity to pass the endotracheal tube, the entire GlideScope handle can be shifted to the left to allow passage of the tube. Next, the GlideScope can be readjusted back to the midline to provide the usual laryngeal view. Another approach is to pass the endotracheal tube in the mouth under direct vision, but prior to placement of the GlideScope handle.

The authors report some difficulty in passing the endotracheal tube in 25 of 120 patients; however, they do not describe their actual technique and they do not indicate, in how many of these patients, tracheal intubation was unsuccessful. For my part, I have found it much easier to advance the tube by using the GlideScope rigid stylet which features a 90° curve. As the tube is being advanced through the vocal cords, it is rotated 90° clockwise. The stylet is simultaneously pushed out with the thumb to assist in placement of the endotracheal tube.

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- 1 *Cho JE, Kil HK.* A maneuver to facilitate endotracheal intubation using the GlideScope (Letter). *Can J Anesth* 2008; 55: 56–7.

Reply:

Thank you for the opportunity to respond to this letter. We appreciate Dr. Neustein's interest in our maneuver to facilitate endotracheal intubation using the GlideScope, and we agree with the techniques that he recommends. The first method, involving a shift of the GlideScope handle to the left to allow passage of the endotracheal tube, is very similar to our approach.¹ Although the laryngeal view may be deviated from the midline, insertion of the endotracheal tube will be easier, due to increased space to facilitate passage of the tube. We evaluated the difficulty of the tracheal tube insertion using GlideScope by subjective grading (easy, mildly difficult, and difficult) of the anesthesiologists who performed the intubations. Of 120 cases that were graded as being "difficult" in directing the endotracheal tube into the larynx, endotracheal intubation was successful in all cases using this method.¹

A second method suggested by Dr. Neustein is to pass the endotracheal tube in the mouth under direct vision, prior to insertion of the GlideScope blade. However, in the case of small mouth opening or a narrow oral cavity, this method may prove to be limiting.

We do agree with the suggestion that a rigid stylet with a 90° curve is helpful to facilitate tracheal tube advancement. A 90° stylet angle has been recommended for successful tracheal intubation using the GlideScope.^{2,3} In case of a small mouth or a narrow oral cavity, tracheal tube insertion with the conventional angle of stylet will be difficult.

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Biting of ProSeal™ laryngeal mask complicated with hypoxia in a child

To the Editor:

Unintended biting of laryngeal mask airways (LMA) occurs quite commonly,¹ and secondary luminal obstruction can occur, even with reinforced LMAs.^{2,3} The ProSeal™ LMA (PLMA; LMA North America, San Diego, CA, USA) is modified with a built-in bite block, and a wire reinforced airway tube, which is more resistant to compression from biting.⁴ However, biting of the airway tube is still a problem, even in children. We recently observed an unusual incident involving a PLMA, where biting resulted in severe hypoxia and LMA wire distortion, in a three-year old child.

The child, weighing 19.5 kg, was scheduled for a hernioplasty. General anesthesia was induced with O₂/N₂O/sevoflurane, using a face mask, and a size 2.5 PLMA was placed smoothly, without a separate bite block. The patient was allowed to breathe spontaneously during anesthesia, which proceeded uneventfully until emergence, when the child became agitated. He pulled off the tube's adhesive tape, and bit the PLMA vigorously. The lumen of the PLMA became completely obstructed, with disappearance of end-tidal CO₂ on the capnograph. Cyanosis ensued, and arterial oxygen saturation decreased to 50%. After administration of propofol 20 mg *iv* and succinylcholine 20 mg, the PLMA was removed. The child's breathing was assisted with a bag-mask ventilation, and his oxygen saturation increased to 100%. The child awakened, without sequelae.

Examination of the PLMA revealed a severely deformed airway tube, with quite a remarkable indentation (Figure, bottom). Other reusable PLMAs may show distinct wire distortions, as well as size 2 and 2.5 LMAs (Figure, black arrow). In some instances, a pitting mark around the bite block may become evident (Figure, dotted arrow). Two size 1.5 LMAs were intact without wire distortion (Figure, top).

There are few reports which describe the biting of PLMAs in children. The PLMA is 'bite-proof', only when the bite block is placed between the teeth. The wire-reinforced airway tube is designed to prevent

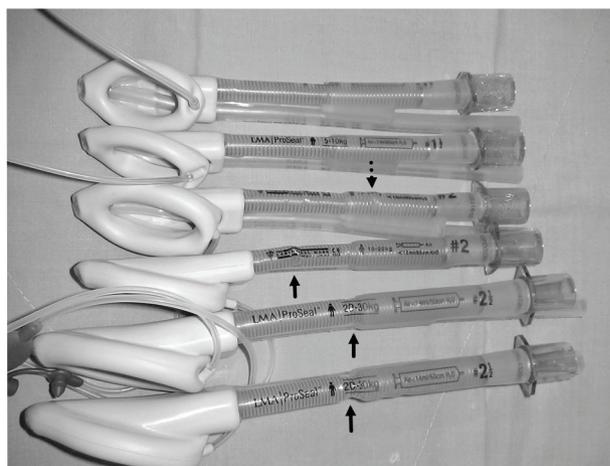


FIGURE Upper: Two size 1.5 laryngeal mask airways are shown, intact, without wire distortion; Dotted arrow: a pitting mark around the bite block; Black arrow: wire distortion in two other, sizes 2 and 2.5, laryngeal mask airways.

kinking, not biting. Therefore, it is important to choose the correct size of PLMA, and to position it correctly. For proper positioning, it is recommended that at least 50% of the bite block is advanced beyond the tip of the upper incisors.⁴ For patients with either a large tongue or a small chin, it may be difficult to position the bite block directly between the teeth. Other strategies to minimize biting should be considered, such as insertion of a separate bite block, or removal of PLMA while the patient is deeply anesthetized. Finally, bearing in mind that the PLMA is composed of silicone, and is safe to autoclave for up to 40 uses, it is recommended that tube patency, and integrity of the reinforcing wire, be confirmed prior to each use.

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