

Revised Manuscript

GlideScope Assisted Fiberoptic Intubation: A New Airway Teaching Method

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It is well-known that “practice makes perfect” when learning fiberoptic intubation (FOI). While subjecting patients with normal airways to awake FOI for mere teaching purposes is usually inappropriate, it is common to have residents obtain FOI experience in patients with normal airways under general anesthesia. However, conducting FOI in this setting has time pressures that are not present with awake intubation, as special concerns of oxygenation, ventilation and awakening exist. Complicating this situation is the fact that frequently only the operator can see what is happening, so that the supervisor can only offer limited assistance.

The purpose of this note is to describe a new technique for FOI using the GlideScope video laryngoscope (Vitaaid Airway Management, 300 International Drive, Williamsville, NY, USA, 14221 www.vitaid.com 1-800-267-9301). Following anesthetic induction, a GlideScope is introduced in the usual manner [1, 2], followed by introduction of the fiberoptic bronchoscope (FOB). While the resident manipulates the FOB into position, the supervisor monitors the GlideScope display to see where the tip of the FOB is located. (The resident looks only through the FOB and does not look at the GlideScope display.) The supervisor then provides verbal feedback to the resident as to the location of the tip of the FOB. Once the FOB has entered well into the trachea, the endotracheal tube is then passed over the FOB into the glottis. Here, use of the GlideScope can again be helpful, since should the endotracheal tube get caught on the arytenoids [3] or other laryngeal structures, it becomes evident on the GlideScope display, and appropriate corrective action (such as twisting the endotracheal tube) can easily be taken.

It should also be pointed out that under general anesthesia, the lumen of the pharynx and the larynx usually becomes smaller as a result of reduced muscle tone. Insertion of the GlideScope lifts the tongue and the jaw to “open up” these structures and facilitates the identification of anatomical landmarks by the user of the FOB.

Finally, it should be emphasized that this technique would be expected to be useful for other purposes, as in situations where FOI is difficult even for experienced operators, as may occur, for instance, in the case of airways soiled by blood.

Based on using this technique in eight anesthetized patients to date, I have found it to be particularly valuable, especially in averting lengthy detours to peripheral structures such as the piriform fossae. It was also my experience that this technique offers a “macro view” that is helpful even when a video bronchoscope is available. While it is my clinical impression that FOI using this technique can be accomplished in a shorter period and accelerates resident learning, formal studies are needed to test these impressions.

References

- [1] Cooper R. Use of a new videolaryngoscope (GlideScope®) in the management of a difficult airway. *Can J Anesth* 2003; 50: 611-613
- [2] Agro F, Barzoi G, Montecchia F. Tracheal intubation using a Macintosh laryngoscope or a GlideScope in 15 patients with cervical spine immobilization. *British Journal of Anaesthesia*. 2003; 90:705-6
- [3] Katsnelson T, Frost EAM, Farcon E, Goldinger PL. When the endotracheal tube will not pass over the flexible fiberoptic bronchoscope. *Anesthesiology* 1992; 76:151–2.

Multimedia Appendix

A small 35 second video clip 320 x 240 pixels in size has been made available in ISO
MPEG-4 format at **GlidescopeAssistedFOI.homestead.com**

The file download size is about 2.7 MB