

LETTER TO THE EDITOR

## Penetrating injury of the soft palate by a microlaryngeal tracheal tube during GlideScope® intubation

*Lesione del palato molle in corso di posizionamento di tubo endotracheale con ausilio di GlideScope®*

W.S. ALFAHEL, M.T. AOUAD, S.M. SIDDIK-SAYYID

Department of Anesthesiology, American University of Beirut Medical Center, Beirut-Lebanon

Acta Otorhinolaryngol Ital 2016;36:231-232

Dear Editor,

A 57-year-old man presented for suspension microlaryngoscopy and biopsy of a laryngeal lesion that was mildly obstructive. After induction of general anaesthesia, a standard midline approach of GlideScope® laryngoscopy provided good laryngeal exposure. A junior anaesthesiologist made a failed attempt to introduce a 5.0-mm internal diameter cuffed microlaryngeal tracheal (MLT) tube with a malleable stylet curved at 90° in the larynx to facilitate intubation. A slight resistance was encountered while passing the tube into the oropharyngeal cavity and a trace of blood was noted at the tip of the MLT tube upon removing it. Another attempt was made by an experienced anaesthesiologist, during which it was noticed on the screen that the tube was inserted completely behind the pharyngeal mucosa that was lifted up. The tube was withdrawn immediately and with fine manoeuvres reinserted between the vocal cords. The otorhinolaryngologist found severe right sided perforation of the soft palate, which resulted in a lateral pharyngeal wall haematoma with subsequent narrowing of the hypopharyngeal lumen and upper airway. We suspect that the soft palate was perforated during the first pass of the tube which made an entry point to the tube creating a false passage in the pharynx. The false passage was eventually filled with blood after withdrawing the tube and the haematoma was formed. The laceration of the soft palate was sutured and the patient was kept intubated for 24 hours for any unexpected events that might lead to airway obstruction. The next day, the patient was extubated uneventfully and was discharged the day after. Complications of GlideScope® videolaryngoscopy have been described in the literature<sup>1-5</sup>. With the use of GlideScope®, like any other airway device, there is always a risk of trauma to the pharyngeal mucosa. The risk of trauma to the soft tissue is greatest during passage of the styletied tube through the “blind spot” that exists at the point where the operator loses sight of the endotracheal tube (ETT)

tip at the back of the pharynx until it resurfaces within the camera’s visual field. In addition, when upward force is applied to the GlideScope®, the tonsils and structures around become stretched and vulnerable to perforation.

All injuries reported in association with the use of GlideScope® videolaryngoscopy were simple laceration and caused by ETT size 7-mm internal diameter or more. In our patient, however, the injury was significant and the tube used was a small size MLT. It is well known that applying the same force to a smaller surface area would result in higher pressure, which means more pressure may be applied using an ETT of narrower diameter. The relatively high pressure may have caused the tip of the tube to cut through oral tissue even though minimal force was applied. Consequently, a styletied sharp-edged small tube with a less surface area, such as the MLT, might be considered as risk factor for causing soft tissue injury. Of note, we used a malleable stylet because the rigid Gli-



Fig. 1. Oropharyngeal view under anaesthesia revealing right soft palate injury.

derite stylet cannot be introduced through the small-size MLT tube.

Many steps have been described in literature to minimise airway trauma while using the GlideScope. First, the ETT should be directly observed before it appears on the monitor to reduce the distance of the blind spot. In addition, the tube should be inserted close to the side of the blade with the bevelled tip facing against that blade. Gentle insertion is highly recommended at all steps on the tube's passage, particularly while inserting it through the blind spot mentioned above, thus mitigating the risk of trauma to the oral cavity structures. Sometimes, however, the described approach cannot be applied. This may be due to the large size of the Glidescope blade, especially in the presence of a small mouth opening, and to the fact that it has to be placed in the midline rather than on the right side pushing the tongue to the left, as it is the case in direct laryngoscopy. It is perhaps

time to consider more fundamental ways in which these injuries may be avoided by modifying the device(s), rather than modifying the technique of using it.

## References

- <sup>1</sup> Hsu WT, Hsu SC, Lee YL, et al. *Penetrating injury of the soft palate during GlideScope intubation*. *Anesth Analg* 2007;104:1609-10.
- <sup>2</sup> Choo MK, Yeo VS, See JJ. *Another complication associated with videolaryngoscopy*. *Can J Anaesth* 2007;54:322-4.
- <sup>3</sup> Cooper RM. *Complications associated with the use of the GlideScope videolaryngoscope*. *Can J Anaesth* 2007;54:54-7.
- <sup>4</sup> Amundson AW, Weingarten TN. *Traumatic GlideScope<sup>®</sup> video laryngoscopy resulting in perforation of the soft palate*. *Can J Anaesth* 2013;60:210-1.
- <sup>5</sup> Bruno E, Dauri M, Mauramati S, et al. *Utility of Glidescope<sup>®</sup> videolaryngoscopy in surgical procedures involving the larynx*. *Acta Otorhinolaryngol Ital* 2015;35:45-8.

Received: July 3, 2014 - Accepted: October 3, 2014

Address for correspondence: Sahar M Siddik-Sayid, American University of Beirut, Department of Anesthesiology, P.O. Box 11-0236, Beirut, Lebanon. Tel. 961 1 350000 extension: 6380. Fax 961 1 745249. E-mail: ss01@aub.edu.lb