

## GlideScope® for Assessment of Recurrent Laryngeal Nerve Integrity after Thyroid Surgery

### جهازاً لرؤيا المنزلق لتقييم سلامة العصب الحنجري الراجع بعد جراحة الغدة الدرقية

Sir,

Recurrent laryngeal nerve (RLN) paralysis is a devastating complication after thyroid surgery. Although the incidence has decreased from 17% to as low as 1.5% with evolution of surgical technique, it still remains high in cases involving re-exploration, malignancy, radiation exposure, and large goitres.<sup>1</sup> Some of the important causes of RLN injury during thyroid surgery are application of excessive stretch, pressure, suction, electrocautery and ischaemia which may go unnoticed during surgery. Symptoms of RLN palsy are dysphonia, dysphagia, aspiration, voice alteration and life threatening dyspnoea from airway obstruction.<sup>1,2</sup> Thus, although the incidence of permanent paresis of the RLN after thyroidectomy is low, it can have serious consequences and is of significant medicolegal importance. It is therefore vitally important that during the perioperative period both the anaesthesiologist and the surgeon assess the vocal cord function (VCF) of a patient undergoing thyroidectomy.

Preoperative indirect laryngoscopy by an otolaryngologist is a simple examination to know the base line VCF.<sup>3</sup> Similarly, intraoperative neuromonitoring (IONM) is used to localise the RLN and prevent impending RLN injury during the surgical instrumentation.<sup>4</sup> Finally, direct laryngoscopy after tracheal extubation can assess the VCF immediately after surgery and rule out the risk of acute airway compromise.<sup>3</sup>

There is no uniform opinion about the constant question whether laryngoscopy at the end of thyroid surgery is an essential standard or just an unnecessary routine. The answer might depend on the specific hospital protocol and the presence of factors related to the gland itself which increase the risk of RLN injury.<sup>3</sup> Our hospital is a tertiary care referral center and we regularly do difficult thyroid surgeries which include malignancy, big thyroid with retrosternal extension; we also redo thyroidectomy for recurrent nodule or goitre. Assessment of VCF is routinely done after these surgeries and our surgeons expect to be provided with the results.

The GlideScope®, which has recently become a very important piece of equipment in the anaesthesiologist's armamentarium, is a videolaryngoscope. This has a digital camera incorporated into the blade which displays a view of the vocal cords (VCs) on a monitor.<sup>5</sup> Recently, we have started using a GlideScope® to look at the post-extubation VCF after thyroid surgery and found it very advantageous. Its exaggerated blade curvature and camera with enhanced optics placed at the inflection point of the blade gives a better magnified view with a larger viewing angle of the glottis even without the proper alignment of the oral and tracheal axis. Therefore, the GlideScope®, compared to a conventional laryngoscope, requires less forceful displacement of the tongue and less forceful manipulation of the larynx while attempting to view the VCs.<sup>5,6</sup>

The above features make the GlideScope® much more suitable for proper assessment of post-operative VCF when the patient is recovering from the neuromuscular blocker and general anaesthetics and can resist the use of airway instrumentation. A reduced amount of airway manipulation will have lesser systemic side effects such as hypertension, tachycardia, cough, laryngospasm, increased intra-cranial and intra-ocular pressure. Similarly, the risk of disruption to skin sutures in the neck, or bleeding due to laryngeal

manipulation will also be reduced.<sup>5</sup>

In addition to patient safety, the GlideScope® provides clearer visualisation of the VCs compared to a conventional laryngoscope. Its video screen can be shared with other physicians in the operating theatre including the surgeon.<sup>6</sup> In addition to confirming the VCF with the surgeon, capturing a video of VC movement can be very useful for documentation purposes. Also, in the case of any VCF abnormality, it can be treated as a baseline evaluation for future follow-ups. In patients with established difficult airway, the GlideScope® may be the only way to visualise the VCs during intubation and after extubation if a fiberoptic bronchoscope is not available.<sup>5,7</sup>

In summary, although further randomised clinical trials are required, the GlideScope® looks to be a better and safer choice for assessment of post-extubation vocal cord function after thyroid surgery compared to a conventional laryngoscope.

#### CONFLICT OF INTEREST

The authors reported no conflict of interest and are in no way influenced by the manufacturers of any equipment mentioned in this letter.

\*Qutaiba A. Tawfic,<sup>1</sup> Pradipta Bhakta,<sup>1</sup> Pragyandipta Mishra,<sup>2</sup> Mooyad A. Ahmed<sup>1</sup>

<sup>1</sup>Department of Anaesthesia & ICU, Sultan Qaboos University Hospital, Muscat, Oman.

<sup>2</sup>College of Medicine, University of Florida, Jacksonville, USA.

\*Corresponding Author email: drqutaibaamir@yahoo.com

## References

1. Randolph GW. Surgical anatomy of the recurrent laryngeal nerve. In: Randolph GW, Ed. Surgery of the Thyroid and Parathyroid Glands. Philadelphia, PA: Elsevier Science, 2002. Pp. 300–42.
2. Shindo M, Chheda NN. Incidence of vocal paralysis with and without recurrent laryngeal nerve monitoring during thyroidectomy. Arch Otolaryngol Head Neck Surg 2007; 133:481–5.
3. Schlosser K, Zeuner M, Wagner M, Slater EP, Domínguez Fernández E, Rothmund M, et al. Laryngoscopy in thyroid surgery--Essential standard or unnecessary routine? Surgery 2007; 142:858–64.
4. Chiang FY, Lee KW, Chen HC, Chen HY, Lu IC, Kuo WR, et al. Standardization of intraoperative neuromonitoring of recurrent laryngeal nerve in thyroid operation. World J Surg 2010; 34:223–229.
5. Rai MR, Dering A, Verghese C. The Glidescope system: A clinical assessment of performance. Anaesthesia 2005; 60:60–4.
6. Asai T, Murao K, Shingu K. Training method of applying pressure on the neck for laryngoscopy: Use of a videolaryngoscope. Anaesthesia 2003; 58:602–3.
7. Tawfic QA, Burad J. The GlideScope® for tracheal intubation in patients with grade IV modified Cormack and Lehane. Eur J Anaesthesiol 2010; 27:668–70.