
CASE REPORTS

THE VIDEO LARYNGOSCOPES BLIND SPOTS AND POSSIBLE LINGUAL NERVE INJURY BY THE GLIDERITE® RIGID STYLET

- Case Presentation and Review of literature -

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Summary

We report the first case of near serious lingual nerve injury in an 80-y-old female caused by the Rigid GlideScope Stylet. This complication was discovered during oral surgery and may have been missed if the site of surgery was not oral cavity.

Introduction

The GlideScope Video Laryngoscope is a relatively new intubating device designed to provide better view of the glottis without alignment of the oral, pharyngeal and tracheal axes. The aim of this case presentation is to increase awareness for possible serious complications that may arise with increase popularity and usage of video laryngoscopes, and their Rigid Stylet.

Key words: Glide Rite, Glide Scope, Complications, Lingual nerve injury.

Case Presentation

A morbidly obese 80-y-old female (Wt.102.1 kg, Ht. 157.5 cm, BMI of 41) presented with mouth pain and multiple carious teeth was scheduled for teeth extraction with an alveoplasty. Past Medical history of CVA, TIA, CHF, hypertension, and MI. ECG showed first degree heart block, prolonged QT with and anterolateral infarct. ECHO showed an ejection fraction of 45-50%, left atrial enlargement, mild pulmonary hypertension, and trace mitral regurgitation.

Pre-operative airway assessment revealed a Mallampati score of IV, three finger breadth mouth opening, slight limitation of neck movement, and loose carious teeth. With this assessment the patient was predicted to be difficult to intubate. The anesthetic plan included management of the predicted difficult intubation with the GlideScope.

Anesthesia was induced with fentanyl 150 micro grams, lidocaine 100 mg, propofol 150 mg and succinylcholine 100 mg.

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The GlideScope blade tip was placed in the vallecula and the vocal cords and epiglottis were seen. A size 7 ETT was mounted in the GlideRite® Rigid stylet (Figure 2a, b) and then passed into the oral cavity for intubation. The ETT appeared to slide into the oropharynx with relative ease and the endotracheal tube was placed into the trachea. The stylet was removed, positive ETCO2 and equal bilateral breath sounds was confirmed. A successful GlideScope intubation was assumed.

As the surgeon began the procedure he noticed that the endotracheal tube had pierced and entered the tissue of the Retromolar trigonum [the same space which holds the lingual nerve], and then proceeded to pass through the oropharyngeal space and re-enter the vocal cords (Figure 1a, b).

Fig. 1a

ETT had pierced into Retromolar Trigonum tissues, and then entered the vocal cords

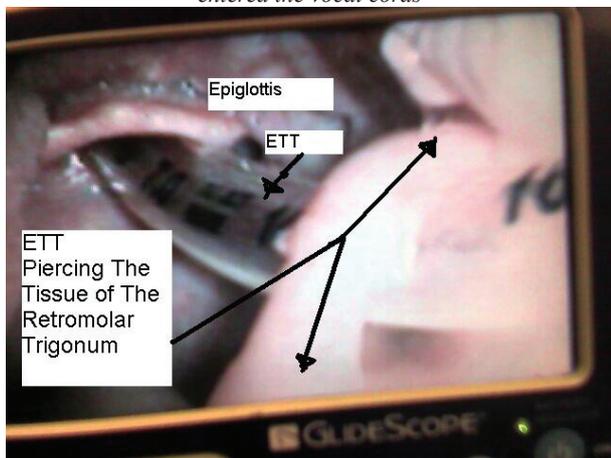
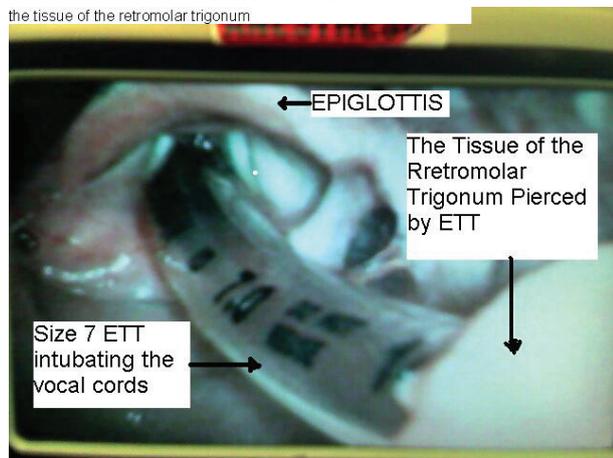


Fig. 1b

ETT had pierced into Retromolar Trigonum tissues, and then entered the vocal cords



We decided to remove the endotracheal tube to avoid trauma to Lingual nerve, and re-insert another size 7 endotracheal tube with the aid of the GlideScope camera. Positive ETCO2 and equal bilateral breath sounds was confirmed. Surgery was completed uneventfully; however, the surgeon stated multiple times that the patient’s oral mucosa was very fragile and easily torn. The patient was easily extubated and transferred to PACU.

The PACU staff was instructed to look for signs of lingual nerve injury (loss of tongue sensation, difficulty breathing, slurred speech, or bleeding from her oral cavity).

The PACU stay was uneventful, the patient denied any of the above mentioned symptoms, and was discharged.

Discussion

The GlideScope and other video laryngoscope have improved tracheal intubation especially in patients with difficult Airway¹.

The GlideRite® Rigid stylet (Figure 2a, b) was introduced to over come difficulties found with intubation with GlideScope and other similar video laryngoscope and help reduce patient trauma^{2,5}.

Fig. 2a

The GlideRite® Rigid Stylet is specifically designed to work with GlideScope® Video Laryngoscopes.



Figure 2b
The GlideRite® Rigid Stylet is specifically designed to work with GlideScope® Video Laryngoscopes.



Study by Tukstra et al showed that the dedicated GlideScope rigid stylet and the standard malleable ETT stylet are equally effective in facilitating endotracheal intubation^{4,5}. The Flex-It® Stylet was no more effective in facilitating endotracheal intubation than the standard malleable endotracheal tube stylet^{3,5}.

In our case the Rigid stylet converted the endotracheal tube tip into a sharp knife like weapon that cut through the patient oral tissues.

When Intubating with video laryngoscope the operator usually concentrate on the perfect image of the cords. The path of the tube from the mouth opening to the vocal cords is a “blind spot” to the intubating person.

Hsu, Huang, and Chen reported the first

penetrating injury of the soft Palate during GlideScope® intubation¹⁷ Malik, and Frogel reported. The first Anterior tonsillar pillar perforation during Glidescope® Video laryngoscopy¹⁸.

This is the first reported case of near serious lingual nerve injury by The Rigid GlideScope Stylet. Accidentally discovered during oral surgery.

Decision to reintubate, rather than cutting the oropharyngeal tissues to release the tube, has avoided a serious injury to the lingual nerve. Injuries to lingual nerve are now frequently reported with upper airway intubation and instrumentation. Lingual nerve injury was even reported with the use of LMA, Cuffed oropharyngeal airway, oropharyngeal airway, Proseal LMA, and conventional endotracheal intubation. Both unilateral and bilateral injuries have been reported. Potential predisposing factors included the use of nitrous oxide^{6,7,8,9,10,14,16} using an LMA that was too small^{6,9,11,12,13,16} and excessive pressure.

We concluded that injuries from video laryngoscopes intubation aids could be avoided by careful attention to the following steps:

The ETT must be passed close to the scope and away from the corners of the mouth. Close attention to the path of the tube from mouth entering to vocal cord intubation.

The tube course must be re-inspected by the video scopes on the way out after intubation.

When using rigid stylet, ETT with softer tips must be used. The parker ETT has a soft malleable tip and maybe helpful in these situations. The tip of the conventional ETT, if dipped into warm saline, will turn softer and less traumatic.

We recommend the use of soft stylets and Soft tipped ETT to prevent such traumatic injuries.

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