Injuries during orotracheal intubation using the Glidescope® video laryngoscope

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Objective: Describe the indications and advantages of using the video laryngoscope for intubation and demonstrate potential complications when using the video laryngoscope in a series of six patients. In addition, we hope to make the participant more cognisant of the potential for oropharyngeal injuries and propose mechanisms to avoid such complications.

Study Design: Retrospective chart review in this case series of six patients

Methods: A retrospective chart review was performed on six patients from the Otolaryngology service who sustained injuries during orotracheal intubation using the Glidescope® video laryngoscope.

Results: Six patients sustained injury to the oropharynx during attempted orotracheal intubation using the Glidescope® video laryngoscope. Injuries were more commonly found to be right-sided. Five of the six patients’ injuries were identified intraoperatively. Three patients required closure of the soft tissue injuries. One of the six patients received an unplanned tracheostomy tube due to significant oropharyngeal bleeding and inability to successfully perform a traditional orotracheal intubation. Other than the need for a tracheostomy in one patient, there were no long-term complications from these injuries.

Discussion: It is well established in the literature that video laryngoscopy can be a beneficial tool in managing a difficult airway as well as proper placement of a nerve monitoring endotracheal tube. In some instances, it is used in the primary attempt at intubation, especially in the patient with predictors of a difficult direct laryngoscopy. At our institution, we began to see an increase in the amount of soft tissue injury that occurred as a result of the endotracheal tube insertion. The majority of these injuries were lacerations of the anterior and/or posterior tonsillar pillar(s), soft palate mucosa, and/or pharyngeal wall. In the most severe instance, the patient sustained a laceration of the posterior pharyngeal wall from the level of the soft palate extending inferiorly to the level of the esophageal inlet. The subsequent bleeding required an emergent tracheostomy to establish an airway.

While the video laryngoscopy equipment provides excellent visualization, we believe that the focus of the operator is too heavily placed on the video screen showing the larynx. As such, the endotracheal tube is inserted blindly through the oral cavity and oropharynx until the tip of the tube is seen on the screen. During this blind insertion, the tube may traverse the aforementioned structures causing soft tissue damage. As most operators are right handed and would be introducing the tube from the right side of the oral cavity, the injuries seen in this series are in the right side of the oropharynx.

We believe this complication could be easily avoided by directly visualizing the endotracheal tube passing through the oral cavity and the oropharynx as if it were a direct laryngoscopy. We encourage operators to use the video screen only for passage of the endotracheal tube through the endolarynx. Furthermore, we believe traditional direct laryngoscopy should be the method used unless there is sufficient evidence that it will be difficult to perform a direct laryngoscopy on the patient or placement of the tube is critical as in nerve monitoring tubes.

Conclusions: Video laryngoscopy can be helpful in managing the patient with a difficult airway, but can be associated with significant oropharyngeal injuries. Care must be taken during its use as the endotracheal tube can cause significant soft tissue injury if its path is not directly visualized at all time.