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# An interesting-and unexpected-use of the GlideScope

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## Abstract

The use of the GlideScope for endotracheal intubation has been well documented in the literature. This is a case report of detection of a misplaced cricothyrotomy tube during GlideScope intubation.

## INTRODUCTION

The use of the GlideScope (Verathon Medical) for endotracheal intubation has been well documented in the literature.<sup>1,23</sup> There are also reports of its use for assistance in nasotracheal tube and transesophageal echocardiography probe placement.<sup>45</sup> This is a case report of detection of a misplaced cricothyrotomy tube during GlideScope intubation.

## CASE REPORT

A 54 year old male with a history of gastrointestinal bleeding requiring several blood transfusions presented to the operating room for exploratory laparotomy. Other medical history included end-stage renal disease, Human Immunodeficiency Virus, Hepatitis C, gastro-esophageal reflux disease, and obesity. On arrival to the operating suite, the patient's abdomen was significantly distended so a rapid sequence induction and intubation was planned. Airway exam included Mallampati III assessment, three finger breadths oral excursion and thyromental distance, and normal neck mobility.

Propofol and Cis-atracurium were given to induce general anesthesia. Succinylcholine was avoided due to the history of renal disease and a potassium level of 4.9. The patient had received several blood transfusions prior to arriving to the operating room so the current blood potassium level was unknown. The Glidescope was present in the room but the initial intubation attempt was performed with a Macintosh 4 blade, resulting in an esophageal intubation. The patient oxygen saturation began to drop and mask ventilation was attempted without success. Laryngeal mask airways (LMA America) in both size 4 and 5 were placed but neither seated well nor provided adequate ventilation. Help was called and

a request was given to the surgeons in the room to perform a surgical airway.

Additional anesthesia personnel arrived while the surgical airway was in progress. An endotracheal tube was placed through the cricothyroid membrane but no ventilation or end-tidal carbon dioxide could be obtained. It should be noted that the patient had a large neck and the trachea could not be visualized through the incision site. The GlideScope was placed into the mouth and the epiglottis and glottic opening were visualized. The endotracheal tube from the neck clearly could be viewed travelling retrograde through the vocal cords. The surgeon was requested to remove the tube from the neck and a new endotracheal tube was placed through the vocal cords under direct videoscopic vision with return of ventilation and end-tidal carbon dioxide. The patient's oxygen saturations improved dramatically with ventilation and occlusion of the neck incision. The patient then developed asystole which was treated with atropine and epinephrine with return of normal hemodynamic parameters.

The decision was made to leave the orotracheal tube in place, close the neck incision, and proceed with the operative procedure due to the urgent need for surgery. Oxygenation and ventilation were stable throughout the procedure with normal arterial oxygen levels and airway pressures. The patient tolerated the procedure and was taken to the intensive care unit post-operatively with the orotracheal tube still in place. After several days, the patient was successfully extubated but ultimately expired due to continued gastro-intestinal bleeding.

## DISCUSSION

This appears to be the first reported case of use of the GlideScope for identification of a misplaced endotracheal

tube during cricothyrotomy. Cricothyrotomy after failed intubation has a fairly low incidence, with reported rates of 0.2-1.3% in the emergency medicine literature.<sup>67</sup> Often a cricothyrotomy is performed after many other intubation attempts have failed, but may be performed early if the patient is impossible to mask ventilate, as in this case. It is possible that if the GlideScope had been used as the primary intubation technique, it might have been successful and a neck incision could have been avoided, but minimal intubation attempts were performed due to the quick oxygen desaturation that occurred. At the time the GlideScope was placed, minimal mouth opening could be achieved, so it is unlikely that conventional direct laryngoscopy would have provided the same view. The use of the GlideScope in this case report prevented the patient from requiring a surgical airway.

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