

GUNSHOT WOUND TO THE NECK: NOT AN EASY AIRWAY

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Abstract

Introduction: Securing the airway is the first and most important part in any trauma as per the Advanced Trauma Life Support (ATLS) guidelines, and an injury to the face and/or neck can lead to devastating results if the airway was not secured.

Objective: A penetrating neck injury can be a life-threatening event if the airways were not secured.

Case Report: 26 years old female patient was transferred to our Emergency Department (ED) from a rural secondary care facility, for a self inflicted, close range, gunshot wound to the thyroid cartilage by a low velocity firearm. An attempt of oropharyngeal intubation was unsuccessful and as the patient's saturation was dropping, the surgeon present in the rural ED elected to expand the entry wound and insert the tube directly through the trachea and transfer the patient to our tertiary care center.

Conclusion: Securing the airways remains the most critical and challenging part even for the most skilled emergency physicians. At least a second and third alternatives should be prepared and ready in case of failure of intubation.

Keywords: Intubation; gunshot; airways; neck; ACLS

Received: 8 March 2018 **Accepted:** 21 May 2018

Introduction

Securing the airway is the first and most important part in any trauma as per the Advanced Trauma Life Support (ATLS) guidelines (1), and an injury to the face and/or neck can lead to devastating results if the airway was not secured. We present a case of difficult intubation after a Gunshot wound (GSW) to the neck where an innovative airway procedure was applied.

Case Report

26 years old female patient was transferred to our Emergency Department (ED) from a rural secondary care facility, for a self inflicted, close range, GSW to the thyroid cartilage by a low velocity firearm. An attempt of oropharyngeal intubation was unsuccessful and as the patient's saturation was dropping, the surgeon present in the rural ED elected to expand the entry wound and insert the tube directly through the trachea and transfer the patient to our tertiary care center. On physical exam, the entry wound was at the left side of the thyroid cartilage and the exit wound in the right latissimus dorsi around 5 cm from the mid-line, no active bleeding and ET tube sutured to the left side of the neck (fig 1), no jugular veins distention, no signs of expanding hematoma, good bilateral air entry with normal saturation. The patient had sinus tachycardia, no major

bleeding and no hypotension. Focused assessment with sonography for trauma (FAST) was negative with capillary refill less than 2 seconds. Also, the patient was awake, mildly agitated, not able to phonate, no cranial nerves deficit, motor power normal except in right upper extremity (1/5). Computed Tomography (CT) of the chest showed the entry site of the tube (fig 2).

The patient was discharged home a week after the admission, neurologically intact, with a tracheostomy and damage to the vocal cords, esophagus and right brachial plexus. Informed consent was taken from the patient after discharge.

Discussion

In our case, the physician elected to secure the airway by an innovative invasive maneuver due to lack of resources. In the ideal settings, an injury to the airways prompt emergent ENT and anesthesia consult for a possible awake fibroscopic intubation in the operating room, or the use of video laryngoscope for intubation (2,3,4).

A retrospective review of 240 patients with penetrating neck trauma showed that the use of blind nasotracheal intubation had a 90% success rate (5), and this method

can be safely used as a bridge for surgical repair and is applied by the prehospital personal so it can be used in a rural ED.



FIGURE 1. Endotracheal tube directly through the neck

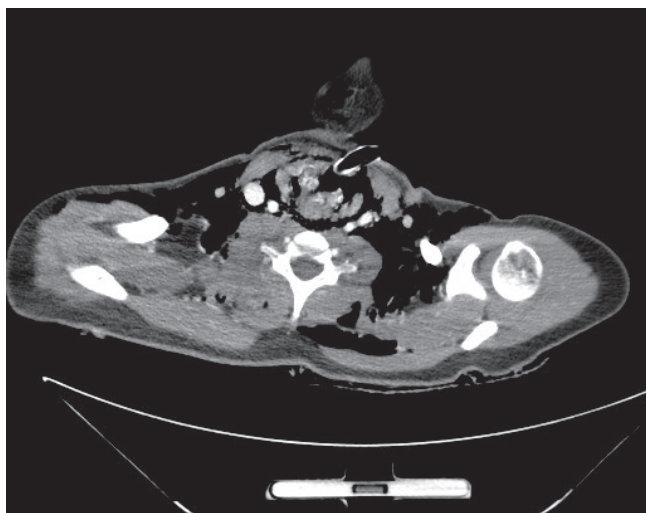


FIGURE 2. CT of the neck showing the entry point of the endotracheal tube

Another easy and practical alternative method is the retrograde tracheal intubation which uses Seldinger

technique where a needle is inserted percutaneously through the trachea and directed toward the head, then a guidewire is introduced (in our case, a guidewire could have been directly used through the defect in the trachea) and advanced until it comes out of the mouth or nose and finally the ET tube is thread over the wire until it reaches the trachea (6).

Bhattacharya P et al. (7) described 2 cases of cricothyroid membrane laceration where the first one was secured by direct laryngoscopy and seeing the tube going beyond the injury while in the second one, the distal part of the trachea was probed by a bougie, and then an ET tube was introduced (similar to our case), and the patient was then transferred to the operating room for a tracheostomy.

Conclusion

Securing the airways remain the most critical and challenging part even for the most skilled emergency physicians. At least a second and third alternatives should be prepared and ready in case of failure of intubation.

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