

# Bougie-facilitated Intubation in Penetrating Neck Injury

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## Abstract

A young male patient with a history of schizophrenia was admitted to the emergency department after suicide attempt. He slashed his neck with a broken glass and this resulted in a wound in zone II exposing laryngeal structures. The vocal cords could be visualized through the wound. Intubation over a bougie was successful after well topicalizing the patient's airway. The patient was taken for immediate tracheostomy and reconstruction.

**Keywords:** Penetrating, neck, intubation

## Introduction

Airway management is a continuous learning experience. Trauma victims form a significant number of challenging cases in emergency departments (1-3). Penetrating neck trauma is a scenario in which the emergency physician needs to be proactive to improvise certain tricks that may save a patient's life (4-6).

## Case Report

The present case was a 30-year-old male patient with a history of schizophrenia. He had suicidal thoughts until the night before his presentation to the emergency department. He was taken to his psychiatrist to address this issue, however, the physician changed his medications and discharged him.

On the following day, the patient broke a glass bottle and attempted suicide by slashing his neck. The patient's family found him in his room, still breathing in a pool of blood. Emergency medical service was called and he was transferred to our department.

Upon arrival to the emergency department, the patient was surprisingly quiet, with a GCS of 12, heart rate of 110 bpm, blood pressure of 105/70 mmHg, respiratory rate of 20/min,

O<sub>2</sub> saturation of 96% with 10 liters face mask. There was a big dressing on his neck to cover the wound.

Upon exploration of the wound, there was no active bleeding or hematoma. However, a leaking air sound was noticed, which turned out to be a damaged laryngeal structure. Multiple cartilage debris was found in the explored wound.

At this point, the team decided to secure the patient's airway immediately. The following steps were done:

- Exploring the wound for foreign bodies and removal of those that could be aspirated through the damaged larynx. These included parts of the laryngeal cartilage.
- Pre-oxygenation: A non-rebreather oxygen mask was applied on patient's face. As the patient was breathing through the damaged larynx, we applied another non-rebreather oxygen mask over the neck wound.
- As the vocal cords were visualized, topicalization with lidocaine spray was started through the open wound.
- Gentle introduction of Bougie stylet through the visualized vocal cords. When the tracheal rings were felt, a size 7, cuffed endotracheal tube was introduced.



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**Figure 1.** The patient's neck upon exposure, showing a cut wound with exposed larynx

- Sedation and muscle paralysis were initiated.
- Placement was secured and air leaks were tested negative.

The patient was taken to operating room by the surgical team to secure a tracheostomy, which was done successfully. Multiple reconstructive surgeries were performed to reconstruct the laryngeal structure using cartilage implants. His tracheostomy was closed after a few months. His psychiatric status was controlled by more aggressive therapeutic interventions.

This case had the IRB approval no RJ13/025/J, and the article was written in accordance with methods/methodical section of the Ethical Principles for Medical Research (amended in October 2013).

## Discussion

The injuries affecting soft tissues during penetrating or blunt trauma can result in soft tissue distortion, damage to major structures, and thus lead to lethal results if not addressed in a timely and accurate manner. Neck trauma with airway injuries

is a critical condition requiring immediate action to secure the airway in the best and fastest possible way. Timely interventions to keep the airway intact are the cornerstone of obtaining positive results with no organ or function loss (7,8).

## Ethics

**Ethics Committee Approval:** Ethical Principles for Medical Research (amended in October 2013).

**Informed Consent:** It was taken.

**Peer-review:** Externally and internally peer-reviewed.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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