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CASE REPORT

Airway Management in Cut-Throat Injury: Endotracheal Intubation Followed by Surgical Tracheostomy: A Case Report

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ABSTRACT

Cut-throat injuries represent a critical emergency due to the high risk of airway compromise, hemorrhage, and distortion of normal anatomy. Prompt airway management is crucial in preventing hypoxia and mortality. We report a case of a middle-aged male presenting with a deep anterior neck laceration and exposed airway structures. The airway was initially secured using endotracheal intubation under controlled anaesthetic conditions, followed by definitive surgical tracheostomy. Careful planning, maintenance of oxygenation, and coordination between anaesthesia and surgical teams played a crucial role in successful management. This case highlights the importance of a stepwise airway approach in managing complex neck trauma.

KEYWORDS

• Cut-Throat Injury • Penetrating Neck Trauma • Airway Management • Endotracheal Intubation • Tracheostomy • Difficult Airway • Trauma Anaesthesia

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INTRODUCTION

Penetrating neck trauma, including cut-throat injuries, remains one of the most challenging situations for airway management. The presence of distorted anatomy, active bleeding, subcutaneous emphysema, and risk of aspiration complicates both ventilation and intubation. Early airway control is widely recognised as the cornerstone of management and is emphasised in trauma guidelines and airway literature.[1–3]

In many cases, endotracheal intubation is the initial method used to secure the airway. However, in severe injuries involving structural disruption of the larynx or trachea, this may only serve as a temporary measure. Definitive airway management often requires tracheostomy, particularly when prolonged ventilation or airway instability is anticipated.[4]

The role of the anaesthesiologist is pivotal in these situations. The clinician must ensure rapid airway control while preserving oxygenation, minimising further injury, and preparing for alternative airway strategies. Recent difficult airway guidelines stress the importance of planning, preparedness, and early consideration of a surgical airway in anticipated difficult airway scenarios.[5]

CASE PRESENTATION

A middle-aged male presented to the emergency department with a history of cut-throat injury caused by a sharp object. He arrived shortly after the incident and was conscious but in respiratory distress at the time. On initial assessment, an open anterior neck wound with disruption of the soft tNumbers and partial exposure of the airway structures was noted. An audible air leak from the wound during respiration suggested communication with the trachea. The patient had laboured breathing with the use of accessory muscles, and oxygen saturation was reduced on room air, although hemodynamic parameters were stable.

Local examination revealed a deep transverse laceration across the central neck, exposing the laryngeal structures (Figure 1). Although active bleeding was minimal, the risk of airway compromise was significant. No associated maxillofacial trauma or neurological deficits were observed. Baseline investigations were planned, but securing the airway was prioritised

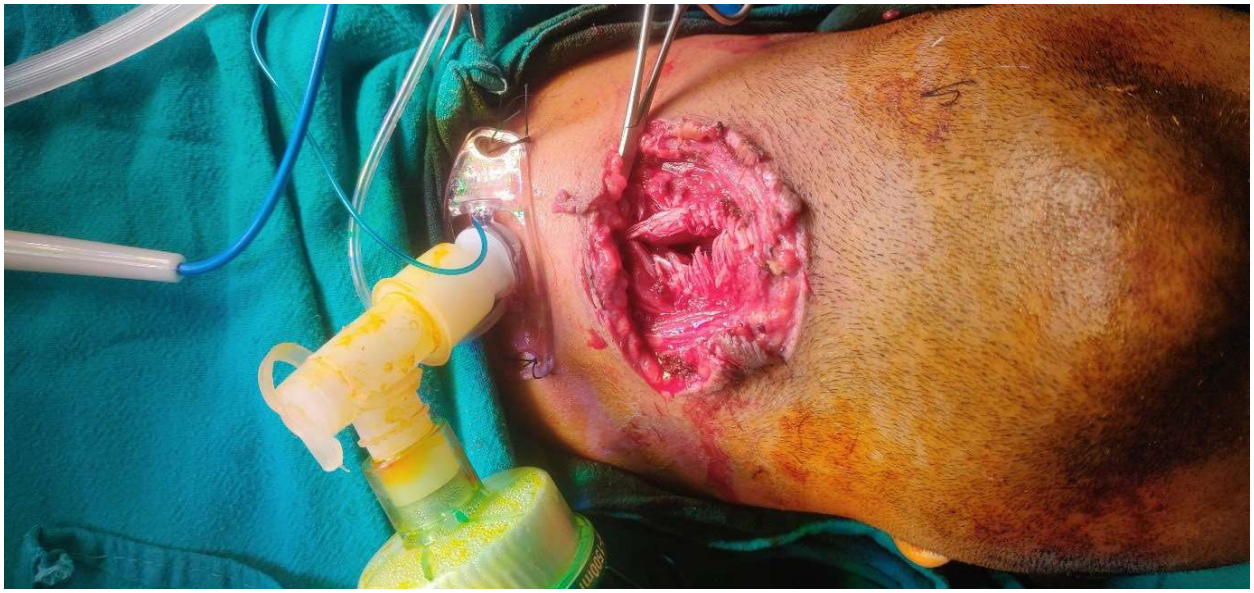

Figure 1: Intraoperative image showing a deep anterior neck laceration with exposed airway structures

The patient was shifted to the operating room for controlled airway management under general anaesthesia. Standard ASA monitors were applied, and preoxygenation with 100% oxygen was performed. Considering the distorted anatomy and aspiration risk, cautious induction was performed using intravenous ketamine (2 mg/kg) along with glycopyrrolate (0.2 mg). After confirming adequate mask ventilation, succinylcholine (1.5 mg/kg) was administered to facilitate rapid-sequence intubation.

Direct laryngoscopy was performed carefully, and the endotracheal tube was guided using Magill forceps through the tracheal injury site into the distal airway. Successful intubation was confirmed by capnography and bilateral chest auscultation, and the tube was secured. Anaesthesia was maintained using oxygen, air, and sevoflurane, with intermittent vecuronium and fentanyl for analgesia.

Due to the extensive airway injury and risk of tube instability, a decision was made to proceed with surgical tracheostomy. The endotracheal tube was slightly withdrawn under direct vision, and a tracheostomy tube was inserted into the tracheostomy incision. Ventilation was then shifted to the tracheostomy tube, and correct placement was confirmed before the removal of the endotracheal tube.

Following airway stabilisation, the tracheal and surrounding soft tNumber injuries were surgically repaired. The patient remained hemodynamically stable throughout the procedure, without any episodes of desaturation. At the end of the surgery, the patient was stable and shifted to the intensive care unit for further monitoring and management.

DISCUSSION

Airway management in cut-throat injuries is complex and requires rapid decision-making and a well-coordinated multidisciplinary approach. The presence of disrupted anatomy, bleeding, and risk of aspiration makes conventional airway techniques challenging. Trauma guidelines emphasise that securing the airway should be the first priority in such cases.[1,2] Delayed or failed airway management can lead to hypoxia, aspiration, and death, reinforcing the importance of early intervention.[3]

Endotracheal intubation remains the most commonly used initial method for airway control, allowing rapid stabilisation and maintenance of oxygenation. However, in cases of severe airway disruption, it may not provide a definitive solution due to risks such as tube displacement, worsening oedema, and airway collapse.[4,5]

Tracheostomy provides a more secure and stable airway in such situations. It bypasses the upper airway, reduces aspiration risk, and facilitates long-term ventilation. Current evidence supports early conversion to tracheostomy in patients with significant structural injury or anticipated prolonged ventilatory support.[6,7]

Anaesthetic management plays a crucial role in successful airway control. Maintaining spontaneous ventilation during induction, selecting appropriate agents such as ketamine, and avoiding repeated or blind attempts are essential principles. The incidence of difficult airway is higher in emergency and trauma settings, necessitating preparedness and backup strategies.[5]

Recent airway guidelines and evolving concepts in critical care emphasise structured planning, clear communication, and early transition to a surgical airway when indicated.[6–9] This case reinforces these principles and highlights the importance of adaptability and multidisciplinary coordination in managing complex airway emergencies.

CONCLUSIONS

Cut-throat injuries present a significant challenge in airway management due to anatomical disruption and risk of airway compromise. A stepwise approach, beginning with endotracheal intubation and followed by timely conversion to tracheostomy, ensures effective airway control and improves patient outcomes. Early intervention, careful anaesthetic planning, and close coordination between teams are essential for successful management.

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