
CASE REPORT

Anaesthetic management in a case of stab injury neck posted for emergency tracheostomy- A Case report

Anand.S¹, Harish Kumar.J²

1. Post Graduate, Department of Anesthesiology, Saveetha Medical College, Chennai, Tamilnadu, India
2. Assistant Professor, Department of Anesthesiology, Saveetha Medical College, Chennai, Tamilnadu, India

Corresponding author's Mail id : dranandanesthesia@gmail.com

ABSTRACT

Penetrating neck injuries pose significant challenges in the emergency setting, necessitating prompt assessment and intervention to mitigate life-threatening complications. We present a case of a 26-year-old female who presented to the emergency room with a stab injury to the neck, manifesting with stridor, hoarseness, and subcutaneous crepitus. Despite initial distress hindering airway assessment, the patient underwent emergency tracheostomy under general anesthesia. Anesthetic management involved meticulous preoxygenation, sedation with Fentanyl and Ketamine, and successful endotracheal intubation with Sevoflurane maintenance. Intraoperative challenges included managing hypotension and significant blood loss, necessitating crystalloid administration and packed red blood cell transfusion. The patient was transferred to the ICU post-tracheostomy for further management. This case underscores the importance of rapid assessment and decisive intervention in penetrating neck injuries to prevent morbidity and mortality. Close postoperative monitoring is crucial for early detection and management of complications such as pneumothorax and aspiration pneumonia.

Keywords: Penetrating neck injury, emergency tracheostomy, anesthetic management, airway compromise, hypotension, ICU care.

Received 24.12.2023

Revised 05.01.2024

Accepted 21.03.2024

How to cite this article:

Anand.S, Harish K J. Anaesthetic management in a case of stab injury neck posted for emergency tracheostomy- A Case report. Adv. Biores., Vol 15 (3) May 2024 :120-123

INTRODUCTION

In most cases, penetrating neck injuries (PNI) necessitate immediate surgical intervention and may possibly be fatal. For both surgeons and anesthesiologists, handling these patients is extremely difficult and dangerous due to the anatomical complexity of the neck region. The fatality rates from such accidents have varied from 3% to 6% because of injuries to the main vessels, despite documented variances [1]. Thus, it's critical to do a thorough preoperative evaluation using techniques like fiberoptic bronchoscopy, computed tomography (CT), ultrasound (US), and angiography in order to confirm the severity of damage and establish a treatment strategy. However, these techniques are only appropriate for stable, compliant patients.

CASE REPORT

A 26-year-old female presented to the emergency room with massive bleeding, stridor, and distress after sustaining a stab injury to her neck at home by her husband half an hour earlier. The patient exhibited hoarseness, air bubbling from the wound, and subcutaneous crepitus, indicating airway injury. Following a quick initial assessment and blood investigations, she was urgently taken for exploration and tracheostomy. High-risk consent was obtained, and postoperative ICU care with ventilator standby and adequate blood was reserved. Due to the patient's distress, airway assessment was challenging. In the operating room, routine monitors were connected, and two 16G venflons were secured. The patient was positioned upright to minimize aspiration, preoxygenated, and sedated with Fentanyl (75 mcg IV) and

ketamine (50 mg IV). Direct laryngoscopy revealed the need for an endotracheal tube (ETT) size 7, which was placed beyond the suspected tracheal injury and confirmed with auscultation and visible chest rise with EtCO₂. Maintenance anesthesia with sevoflurane was administered. An emergency tracheostomy was performed, and the airway was secured, followed by paralysis with atracurium and initiation of mechanical ventilation. Intraoperative hypotension was managed with crystalloids, and one unit of PRBC transfusion was administered. Hemostasis was achieved, muscles were sutured, and the patient was transferred to the ICU for further management. A postoperative CXR revealed a right pneumothorax, for which an intercostal chest drain was inserted. The patient was successfully weaned off the ventilator the following day.

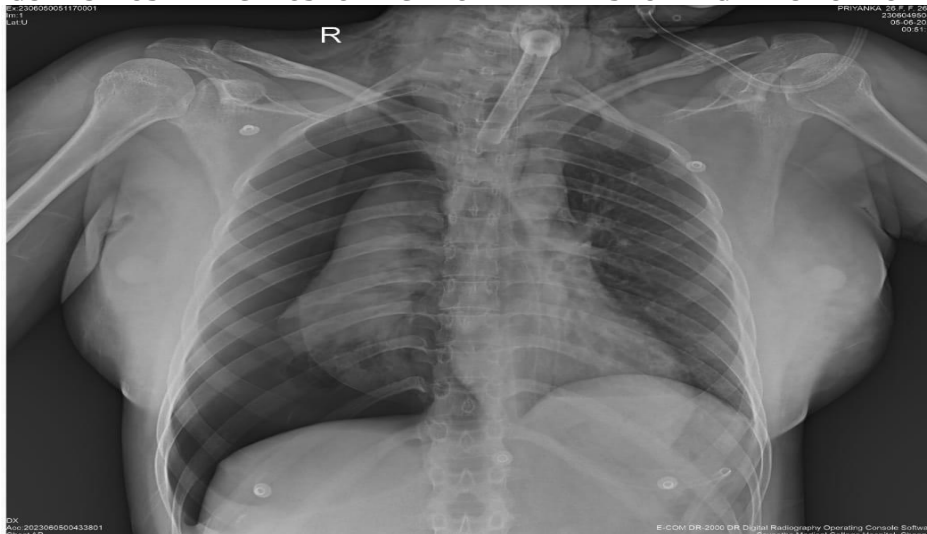
FIGURE 1: PRE-OPERATIVE PICTURE OF PATIENT PRESENTED WITH CUT THROAT INJURY



FIGURE 2: PRE-OPERATIVE IMAGE



FIGURE 3: POST TRACHEOSTOMY CXR OF PATIENT SHOWING PNEUMOTHORAX



DISCUSSION

The anesthetic management of patients with penetrating neck injuries presents numerous challenges that require a systematic and vigilant approach [2]. The neck region houses critical structures vulnerable to injury due to their proximity to the skin [3]. Potential complications include bleeding from major vessels, airway obstruction from hematoma or tracheal injury, esophageal injury, and neurological damage, underscoring the potentially fatal consequences of such injuries [4]. Prompt and appropriate management is imperative for improving outcomes.

Anatomically, the neck can be divided into three zones for assessing and treating penetrating injuries [5]. Immediate surgical intervention is recommended for patients displaying significant signs of injury, such as expanding hematoma, bruit, pulse deficit, subcutaneous emphysema, hoarseness, stridor, respiratory distress, or hemiparesis [6]. Diagnostic modalities such as ultrasound, CT, and angiography play crucial roles in evaluating injury severity, particularly in hemodynamically stable patients [7]. Additionally, preoperative assessment, including angiography and esophagography, is essential, especially for zone I injuries where vascular and esophageal injuries commonly coexist [8].

During the assessment phase, careful attention to the airway is paramount, with endotracheal intubation being essential for airway control [9]. However, traditional intubation techniques may exacerbate tracheal injuries, necessitating consideration of alternative approaches such as fiberoptic bronchoscopic inspection, particularly in patients with suspected airway damage [10].

Awake fiberoptic intubation is often the safest approach for most patients, ensuring airway management. This is especially crucial in cases where the patient is uncooperative due to factors like severe melancholy or psychiatric conditions [2]. Positive pressure breathing prior to intubation is not recommended in cases of suspected tracheal injury, as it may exacerbate damage and lead to subcutaneous emphysema.

REFERENCES

1. Brywczyński JJ, Barrett TW, Lyon JA, Cotton BA. (2008). Management of penetrating neck injury in the emergency department: a structured literature review. *Emerg Med J*; 25: 711-5.
2. Roon AJ, Christensen N. (1979). Evaluation and treatment of penetrating cervical injuries. *J Trauma*;19:391-397.
3. Biffi WL, Moore EE, Rehse DH, Offner PJ, Franciose RJ, Burch JM. (1997). Selective management of penetrating neck trauma based on cervical level of injury. *Am J Surg*. 174:678-682.
4. Kelly JP, Webb WR, Moulder PV, Everson C, Burch BH, Lindsey ES. (1985). Management of airway trauma. I: Tracheobronchial injuries. *Ann Thorac Surg*. 40:551-555.
5. Tisherman SA, Bokhari F, Collier B, Cumming J, Ebert J, Holevar M, et al. (2008). Clinical practice guideline: penetrating zone II neck trauma. *J Trauma*. 64:1392-1405.
6. Desjardins G, Varon AJ. (2001). Airway management for penetrating neck injuries: the Miami experience. *Resuscitation*. 48:71-75.
7. Ursic C, Curtis K. (2010). Thoracic and neck trauma. Part four. *Int Emerg Nurs*. 2010;18:177-180.
8. Bhattacharya P, Mandal MC, Das S, Mukhopadhyay S, Basu SR. (2009). Airway management of two patients with penetrating neck trauma. *Indian J Anaesth*. 53:348-351.
9. Kelly JP, Webb WR, Moulder PV, Everson C, Burch BH, Lindsey ES. (1985). Management of airway trauma. I: Tracheobronchial injuries. *Ann Thorac Surg*. ;40:551-555.

10. Desjardins G, Varon AJ. (2001). Airway management for penetrating neck injuries: the Miami experience. *Resuscitation*. 48:71-75.
11. Bhattacharya P, Mandal MC, Das S, (2009). Mukhopadhyay S, Basu SR. Airway management of two patients with penetrating neck trauma. *Indian J Anaesth*. 53:348-351.

Copyright: © 2024 Author. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.