

Management of Homicidal Cut Throat Open Airway Injury: A Case Report

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Abstract

Cut throat injuries though rare, but pose a challenge to an anesthesiologist in securing the airway to provide oxygenation and to prevent aspiration. Distortion of the anatomy of the airway, bleeding at the site, and risk of aspiration complicate the process of securing the airway. The crucial time of intervention is usually lost; as the patient is brought to the hospital after sufficient time has elapsed. Placing an endotracheal tube through laryngoscopy or directly through the airway defect is of prime concern. Further management includes repair of the wound and rehabilitation. Here, we report a case of homicidal cut throat injury to airway exposing the true vocal cords.

Key words: Aspiration, Bleeding, Hypoxia, Larynx, Tracheostomy

INTRODUCTION

Cut throat injuries may be rare but can be life-threatening due to complications such as aspiration of blood and risk of hypoxia. These can be suicidal or homicidal.

They result in the transection of the hypopharynx, larynx, and trachea and are sometimes associated with injuries to the carotid artery, internal jugular vein, and esophagus.¹ The most common site of the tracheal transection is the junction of cricoid with trachea due to weak connective tissue in this area.²

Management of cut throat injuries requires a multi-disciplinary approach.³ The role of an anesthesiologist in instituting an airway using an endotracheal intubation or tracheostomy before wound exploration and repair of transected tissues, is challenging, as such injuries are most of the time associated with distortion of the normal anatomy of the airway.

Here, we present a case of homicidal cut throat injury to the airway leading to aspiration and hypoxia.

CASE REPORT

A 27-year-old male patient came to the emergency room with the homicidal cut throat. The injury had occurred an hour ago he came to the emergency room. The patient was aggressive, pale and had difficulty in breathing. The wound was horizontal just above the level of vocal cords over the infrahyoid region exposing the vocal cords outside. There was oozing of blood from the wound. There were no other injuries on the body. Blood pressure was 90/60 mm Hg, pulse rate 120/min, oxygen saturation was 82%, and respiratory rate 36/min. On auscultation, chest had bilateral crepitations. Immediately, the airway was secured with 7.5 internal diameters endotracheal tube passed through the exposed vocal cords, cuff inflated and auscultated for bilateral air entry. The endotracheal tube was suctioned and aspirated for blood. Then, the oxygenation was maintained through Ambu ventilation with 4 L of oxygen. Ryle's tube 18 passed through nasogastric route and aspirated for blood.

Two 18 Gauge cannulae secured on both upper limbs. Fluid resuscitation started. Urinary catheterization also done. Blood samples sent for investigations and arrangement of

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blood. Investigations revealed hemoglobin 9.2 g/dl, total WBC count 16,000 cells/Cumm, bleeding time 2.4 min, urea 32, and creatinine 1.1. Arterial blood gas (ABG) analysis done.

The patient immediately taken to the operating room without waiting for the investigations. After checking the anesthesia machine and suction apparatus, he was connected to blood pressure, electrocardiogram, and pulse oximetry monitors. Oxygenation maintained by connecting ET tube to anesthesia machine via Bains circuit. Injections glycopyrrolate 0.2 mg, midazolam 1 mg, fentanyl 125 µg, and ketamine 80 mg in titrated doses given. Then, injection vecuronium 6 mg given for muscle relaxation. Ventilation maintained by connecting to anesthesia machine ventilator with oxygen, nitrous and isoflurane inhalational anesthesia. The tracheotomy tube of 8 mm internal diameter placed after retracting strap muscles and the thyroid isthmus. The endotracheal tube was withdrawn gradually until the vocal cords and after confirming the position of the tracheostomy tube in the trachea, the endotracheal tube was taken out.

ENT surgeon gave a thorough wash to the wound and explored the same. Bleeding vessels were coagulated and hemostasis achieved. Patient's vitals stabilized. Blood pressure 110/70 mm of Hg, pulse rate 92/min, and oxygen saturation of 100%. Thyroid cartilage was damaged and hence repaired. The laryngeal mucosa also repaired. Appropriate antibiotics given. 1.5 L of crystalloids and 1 unit of blood transfused intraoperatively.

The patient was shifted to intensive care unit (ICU) after the surgery with the tracheotomy tube in place. He is ventilated for the next 12 h under appropriate sedation. Vitals were stable. Nutrition maintained through Ryle's tube. After 12 h, the patient was weaned off from the ventilator and monitored. X-ray chest was done immediately after the surgery to look for any radiological signs of aspiration that was negative. The patient weaned off from the ventilator. Then, an uncuffed tracheostomy tube number 7 inserted and was encouraged to speak from the fourth day of surgery. On the sixth day of surgery, tracheostomy tube removed. The patient was discharged home on the ninth day.

DISCUSSION

The most important initial management of cut throat injuries is securing the airway with the placement of tracheal or tracheostomy tube because complications due to aspiration of blood, major vessel injury, and hypoxia often complicate the scenario.⁴ Our patient though would have

maintained oxygenation through the airway defect, but the aspiration of blood complicated the situation.

Airway injuries are associated with injuries to the hypopharynx, larynx, airway, and major vessels in the neck leading to aspiration, hypoxia, and bleeding.⁵ In our patient, fortunately, there was no injury to the carotid artery or internal jugular vein. There was an injury to the airway above the level of true vocal cords leading to respiratory distress, aspiration, and hypoxia. Radiological investigations not done due to the emergency of the situation and airway had to be secured.

ABG analysis done after securing the airway as the patient had respiratory distress and was hypoxic. ABG was done to look for metabolic acidosis and base deficit as the injury was few hours old, and there was bleeding from the injury site.

The preferred technique is awake intubation under topical or regional block.⁶ However, we never had the time to perform this as our patient required tracheal intubation due to hypoxia.

Intraoperatively, 1.5 L of crystalloids and 1 unit of blood was transfused, and patient maintained stable hemodynamics throughout.

Isoflurane given for the maintenance of balanced anesthesia along with midazolam, fentanyl, vecuronium, and ketamine. Hemodynamic disturbance prevented using lower minimum alveolar concentration of volatile anesthetics. Ryle's tube used to aspirate the stomach and prevent further aspiration. The patient was electively ventilated for next 12 h (synchronized intermittent mandatory ventilation mode with FiO₂-40%, positive end expiratory pressure-6, respiratory rate - 12, tidal volume - 450 ml), and gradually weaned off.

Cut throat injuries either suicidal or homicidal, require prompt attention and intervention to protect the airway, prevent aspiration, and hypoxia. Further management includes repair of the airway, vessel or digestive tract injuries. This requires a team work with involvement of anesthesiologist, psychiatrist, intensivist, speech therapist and otolaryngologist working together.³

CONCLUSION

Securing the airway, either by intubation through laryngoscopy or airway defect, or by tracheostomy, is of the prime concern in traumatic airway injuries. Complications such as aspiration of blood, hypoxia, and bleeding have to be prevented. Surgical wound closure follows next.

After surgery, proper ICU care, respiratory therapies, hemodynamic monitoring, speech therapy, counseling altogether help in the recovery of the patient.

REFERENCES

1. Rao BK, Singh VK, Ray S, Mehra M. Airway management in trauma. *Indian J Crit Care Med* 2004;8:98-105.
2. Cicala RS, Kudsk KA, Butts A, Nguyen H, Fabian TC. Initial evaluation and management of upper airway injuries in trauma patients. *J Clin Anesth* 1991;3:91-8.
3. Herzog M, Hoppe F, Baier G, Dieler R. Injuries of the head and neck in suicidal intention. *Laryngorhinootologie* 2005;84:176-81.
4. Venkatachalam SG, Selvaraj DA, Rangarajan M, Mani K, Palanivelu C. An unusual case of penetrating tracheal ("cut throat") injury due to chain snatching: The ideal airway management. *Indian J Crit Care Med* 2007;11:151-4.
5. Grewal H, Rao PM, Mukherji S, Ivatury RR. Management of penetrating laryngotracheal injuries. *Head Neck* 1995;17:494-502.
6. Peralta R, Hurford WE. Airway trauma. *Int Anesthesiol Clin* 2000;38:111-27.

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