

CASE REPORT

Anesthetic management of a case of suicidal cut throat injury

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ABSTRACT

Traumatic airway injuries may be rare, but these can be difficult to manage as there is a chance of aspiration of blood and risk of hypoxia as happened in our case. We present a case of suicidal cut throat injury in a 16 year old male. Tracheal intubation was initially done directly through the tracheal cut; and tracheostomy with repair of wound followed later on. The patient was electively ventilated for 12 hours post operatively and recovered completely. Mortality and late complications in these patients are high and may be related to delay in definitive treatment.

Key words: Intubation, Airway defect, Tracheostomy

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INTRODUCTION

Suicide is a known cause of unnatural death, with psychiatric illness listed among the commonest predictors.¹ Suicidal cut throat with penetrating airway injuries in the neck are relatively uncommon accounting for less than three cases per year per reporting centre.² Such injuries result in transection of hypopharynx, larynx, and trachea and are sometimes associated with carotid artery and digestive tract injuries.³ The most common site of tracheal transection is the junction of cricoid with trachea due to weak connective tissue in this area.⁴ These injuries require multidisciplinary approach with involvement of anesthesiologist, psychiatrist and otolaryngologist working together.⁵ Though the initial management may look straight forward with placement of tracheal or tracheostomy tube and surgical repair of transected tissue, complications due to aspiration of blood, vomiting, major vessel injury, and hypoxia often complicate the scenario.⁶ We present a case report of a patient managed in our hospital with suicidal cut throat injury.

CASE REPORT

A 16 year old male was brought to our hospital with self-inflicted cut throat. The horizontal wound

measured about 12x4 cm, and was over the infra-hyoid area above the true vocal cords. The injury was few hours old with exposed vocal cords and cut thyroid cartilage. There was oozing of blood from the wound and he was having difficulty in phonation and swallowing. On examination he was conscious, aggressive, and pale with air coming out from the neck wound. Patient's vital signs recorded in the emergency were heart rate 60/min, blood pressure 110/70 mmHg, SpO₂ 95% on room air, and respiratory rate 35 breaths/min. On systemic examination respiratory, cardiovascular, abdomen and central nervous system were normal. Patient's relatives revealed that he was suffering from depression and was on antipsychotic medication (amipryptaline) for the last two years. After a trivial argument at home he inflicted this injury with a sharp edged weapon under the influence of alcohol.

Two 16G cannulas were inserted in the peripheral veins and fluids started. Venous blood samples were sent for arrangement of one unit of blood; and estimation of hematological tests and viral markers estimation as per institutional protocol. The results of the lab reports were as follows; Hb 10 gm/dL, bleeding time 2.4 min, clotting time 5.4 min, urea 32, creatinine 1.1, random blood sugar 100 mg/

suicidal cut throat injury

dL, and negative viral markers. Arterial blood gas analysis revealed pH 7.54, PaCO₂ 24, PaO₂ 75, HCO₃ 22, and base excess +4.

Patient was immediately shifted to OR for repair of the wound. He was maintained in lateral position to prevent aspiration. In the OR he started to vomit and had sudden onset of respiratory distress. SpO₂ decreased to 27% with oxygen, blood pressure fell to 90/60 mmHg, and heart rate 95 beats/min. Tracheal intubation was performed with 7.5 mm internal diameter tracheal tube through the airway defect and exposed vocal cords to prevent further hypoxia due to aspiration of blood. The endotracheal tube immediately filled with blood which was suctioned and air entry was confirmed by auscultation and EtCO₂ reading. Auscultation of chest also revealed crepitations in the right middle lobe. Patient was connected to an oxygen source.

Patient was given inj. glycopyrrolate 0.2 mg, midazolam 5 mg, fentanyl 100 microgram, ketamine 60 mg, and rocuronium 50 mg after securing airway and anesthesia was maintained with sevoflurane 3MAC, oxygen, and dexmedetomidine infusion. Ventilation was maintained with anesthesia machine ventilator. Intraoperative vital parameters recorded were SpO₂ 95%, heart rate 75 beats/min, blood pressure 100/70 mmHg, EtCO₂ 25 mm Hg, and respiratory rate 30 breaths/min. One unit blood was transfused and 1.5 L fluids were given intra operatively. Emergency tracheostomy was performed for securing a definitive airway. A tracheostomy tube of 8 mm inner diameter was placed after retracting the strap muscles and resecting thyroid isthmus. Endotracheal tube was gradually withdrawn up to the vocal cords and once tracheostomy tube placement was confirmed endotracheal tube was taken out, and confirmation of the tracheostomy tube placement was done by SpO₂ and EtCO₂ readings.

ENT surgeon explored the wound after thorough wash with antiseptic solution. Thyroid cartilage was found to be cut into three pieces above the true vocal cords in the ventricle region. Bleeding vessels were identified and coagulated. Hemostasis was secured; mucosa of the larynx was repaired by end to end anastomosis and soft tissue repair done over it. Thyroid cartilage was repaired with wires and prolene sutures. Strap muscles was repaired in layers, platysma was closed with vicryl and wound thoroughly irrigated with saline, antiseptic solutions and closed in layers after inserting a drain. Ryle's tube number 14 was placed via nasal route. Cefuroxime, amikacin and metronidazole were

given intraoperatively. Patient was kept ventilated and shifted to ICU for postoperative care at around 7.30 am. At that time he had a heart rate of 60beats/min, blood pressure 100/60 mm of Hg, EtCO₂ 35mm Hg and, respiratory rate of 25 breaths/min.

Patient was electively ventilated for 12 hours post operative by and gradually weaned off from mechanical ventilation. All vital parameters in the postoperative period were within normal limits. X-ray chest was done in immediate post operative period to look for any radiological signs of aspiration which was negative. Nutrition was maintained via nasogastric tube within 12 hours of post operative period. After weaning off from ventilator an uncuffed tracheostomy tube number 7 was placed and patient was encouraged to speak with help from speech therapist on the fourth day of surgery. On the fifth day psychiatry consultation was done for persisting depression and on the sixth post operative day tracheostomy tube was removed. Patient was discharged home on the eighth day with normal speech and removal of sutures.

DISCUSSION

The injury in this patient was caused by a self inflicted cut using by a sharp edged glasscutter. In such cases injury to the major and minor vessels, nerves, thyroid gland and esophagus can occur⁷. Fortunately our patient did not injure the carotid artery as at the time of inflicting the wound, his head was probably thrown backwards which might have drawn the carotid sheath posteriorly. No initial radiological investigation was done by us because of the acute nature of the wound, full stomach and sudden deterioration of the patient due to suspected aspiration. At that time managing the airway was more important as acute airway obstruction due to aspiration could occur.

Arterial blood gas estimation was done to look for any metabolic acidosis and base deficit as the patient was bleeding heavily and the injury was a few hours old.

We did not give regional anesthesia for tracheostomy in this case as bilateral block of the hypoglossal nerve can lead to a flaccid tongue which might cause obstruction of pharyngeal airway thus augmenting the risk of aspiration.

Although the preferred technique is awake intubation under topical block⁸ we never had the time to perform this as our patient required tracheal intubation due to acute hypoxia (SpO₂ 27%).

During surgery, hemodynamic parameters were

maintained by administering one and half liter of Ringers lactate and one unit of blood. Recent recommended strategy is of replacing blood loss with blood, not with fluids alone in order to avoid dilutional coagulopathy.

Sevoflurane 3 MAC was given for maintenance of balanced anesthesia along with midazolam, fentanyl, ketamine, rocuronium and dexmedetomidine infusion. We also wanted to avoid hemodynamic disturbance by using higher MAC of volatile anesthetics. Ryle's tube was placed to decompress the stomach and prevent further aspiration. Patient

was kept electively, ventilated (on SIMV mode of ventilation with FiO_2 -60%, PEEP-6, respiratory rate -15, tidal volume-450 ml) and gradually weaned off during the next 12 hours (via CPAP and T-piece trial) in order to recover from aspiration pneumonitis.

These types of neck injuries require quick and prompt action along with a good team work. These cases should be managed quick intubation either via orotracheal or the airway defect and making a tracheostomy followed by surgical repair of the wound.

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Corrigendum

The editorial board apologizes for the typographical error in the qualification of a co-author of the original article entitled, "**Perioperative assessment of left ventricular function in patients with mitral valve stenosis undergoing mitral valve replacement: utility of Tei Index and ejection fraction**", published in Volume 18, No. 1 (March 2014)

For

Anita Saran, MD

Read

Anita Saran, DA

Thanks