

Management of Homicidal Cut Throat Injury at a Peripheral Set up: A Case Report

Atma Prakash Chitragupta*

Department of Anaesthesiology, Military Hospital, Beechwal Army Gate, Bikaner, Rajasthan 3344001, India

*Corresponding author: Atma Prakash Chitragupta, MBBS, M.D., Anaesthesiologist, Department of Anaesthesiology, Military Hospital, Beechwal Army Gate, Bikaner, Rajasthan 3344001, India, Tel: +919680223352; E-mail: 27chitraagupta@gmail.com

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Abstract

Homicidal cut-throat injuries are potentially life threatening because of the many vital structures that course through this area. Definite incidence of homicidal cut-throat injuries is unavailable as many are fatal before making it to a medical echelon. These patients need emergency and multispecialty care with multidisciplinary approach, managing these cases at peripherally located sub-optimally equipped medical setups is a challenge in itself, despite being apparently stable and breathing spontaneously, these patients rapidly deteriorate. Expertise in managing airway is pivotal in securing a definitive airway in such cases thereby facilitating the wound exploration and surgical repair. We present a patient who was the victim of a homicidal cut-throat injury at a peripherally located medical setup at north eastern part of India.

Keywords: Homicidal cut-throat injuries; Respiratory distress; Aphonia; Definitive airway; Peripherally located medical setup

Introduction

Homicidal cut-throat injuries are incised injuries or those simulating incised injuries in the neck inflicted by sharp objects. Cut-throat injuries are potentially life threatening because of the many vital structures that course through this area. These patients need emergency and multispecialty care, multidisciplinary approach is mandated to manage such cases [1]. No definite incidence of homicidal cut throat injuries are available as many are fatal before making it to a medical echelon, however a review of 20 cases carried out by Ramesh et al. reports an incidence of 60 percent which is not only limited by the sample size but also the retrospective nature of the study [2]. Penetrating injuries of the neck involve the larynx in approximately 5-15% of patients and chances of associated vascular or esophageal injuries also being two folds as likely to have airway injuries [3]. Crico-tracheal junction by virtue of having thin connective tissues is a common site of tracheal transection [4]. The anaesthesiologist is pivotal in securing a definitive airway in such cases thereby facilitating the wound exploration and surgical repair. We present a case report of a victim of homicidal cut-throat injury managed at a peripherally located medical setup with a good final outcome.

Case Report

A 38 year old tribal female with alleged history of attempt at homicide was brought to our emergency department, with a wide open gaping wound approximately 10 cm wide in front of the neck at the level of thyrohyoid membrane (Figure 1). She presented with cough, dyspnoea, aphonia, breathlessness and tachypnea. She had a pulse of 118 per min, blood pressure of 96/60 mm Hg respiratory rate of 30 per min, saturation of 86 to 88 percent. She had coarse pulmonary crepitations and respiratory distress even in upright position. The

patient was breathing through the retracted distal tracheal end which was identified by gush of expiratory air coming out of it.



Figure 1: Showed the wide open gaping wound approximately 10 cm wide in front of the neck at the level of thyrohyoid membrane.

In emergency department, two wide-bore intravenous cannulas were placed; volume resuscitation was carried out by infusing 2 units of 6 percent Hydroxyethyl Starch, blood sample was sent for grouping, typing and cross matching. In the mean time high risk informed consent was taken and patient was accepted under ASA IV for an emergency surgery. In the operation theatre, continuous electrocardiogram, non-invasive blood pressure and pulse-oximeter monitoring were carried out. Patient was premedicated with intravenous midazolam 1.5 mg ondansetron 4 mg, glycopyrrolate 0.2 mg and fentanyl 70 mcg.

Induction was carried out with intravenous ketamine 100 mg, propofol 100 mg, fentanyl 1.5 mcg.Kg⁻¹ body weight; the retracted distal end of the trachea was retrieved with Allis' forceps, and a size 7.0 mm cuffed flexometallic endotracheal tube was slid in to the distal end of the transected trachea and airway was secured. Anaesthesia was maintained with nitrous oxide, oxygen, isoflurane and ketamine plus propofol infusion. No muscle relaxant was provided.

The surgical repair of the posterior part of the transected trachea was carried in first stage. Following this a conventional laryngoscopy was carried out and a fresh orotracheal intubation was done, facilitating the passage of the endotracheal tube through the proximal flail part of the trachea. The flexometallic endotracheal tube from the distal end was withdrawn and the orotracheal intubation carried out, endotracheal tube was guided and reinserted by the surgeon into the distal lumen of the trachea hence facilitating the surgical repair of the anterior and lateral walls thereby restoring the continuity (Figure 2).



Figure 2: Showed the distal end of the transected trachea with surgeon using his little finger as guide.



Figure 3: Showed the patient breathing spontaneously with endotracheal tube in situ.

Results

On completion of surgery the patient was shifted to ICU with endotracheal tube in situ and oxygen was provided at the rate of 5 l.min⁻¹ via Ayre's T-piece. Patient maintained a saturation of 90 to 92 percent. Nebulisation was provided four hourly with normal saline and

asthalin. However postoperative recovery was stormy complicated by early ARDS with ill defined alveolar consolidation in chest radiograph and clinically evident crackles in right lower lobe. Along with aggressive antibiotic management and chest physiotherapy Injection Hydrocortisone was added to the management as patient complained of difficulty in swallowing, and patient responded very well, she was extubated on third postoperative day (Figure 3). She was discharged on fifteenth postoperative day with residual hoarseness of voice. Indirect laryngoscopy revealed a palsy of right recurrent laryngeal nerve which compensated over time and speech therapy. Patient was reviewed after three months and showed complete recovery (Figure 4).



Figure 4: Showed the patient immediately before extubation.

Discussion

Only a small subset of laryngotracheal injuries caused by homicidal cut throat is saved. Injuries to vital structures including nerves, vessels thyroid and esophagus remains the main reason for death [5]. The role of imaging in blunt or penetrating laryngotracheal injuries is controversial, however in cases where uncertainty about the extent of injury, failure to evaluate the endolarynx and trachea and history of significant trauma to airway is present, imaging can be considered and computed tomography remains a definitive modality [6]. However, delay in securing a definitive airway in absence of radiologic studies, are fraught with catastrophic airway emergency. Thus, we avoided subjecting our patient to any imaging procedure. In an injured trachea, it is always preferable to maintain the patency and reduce the effort of breathing and avoid the blood entering the trachea by placing an advanced airway, hence we placed an endotracheal tube through the defect and utilized it subsequently for the surgical repair. Literatures have reported about the non-surgical management of tracheal injuries, but most of them suffer some residual airway or speech impairment [7]. In our patient, the trachea was surgically repaired, instead of waiting to heal spontaneously. Other than the airway blocks for intubation, regional anaesthesia is not promising and can obtund the protective airway reflexes of the lower airway [8]. Moreover, these methods also require technical competence and expertise to be performed. Awake oral intubation utilizing topical analgesia and fibre optic bronchoscope have in such cases been advocated [9]. Awake oral intubation was purposefully avoided in this case as our patient was hypoxic and also in respiratory distress.

Problems witnessed during securing airway are difficult laryngoscopy, making intubation difficult due to flail tracheal segments and anatomical distortion of the neck; undesirable adverse effects of the induction and risk of aspiration. Literature suggests that the tracheal defect can be used to secure for endotracheal intubation thereby establishing a definitive airway [10]. Postoperative care includes broad spectrum antibiotic coverage, fluid therapy, intensive respiratory care, speech therapy and counselling [11]. Our patient recovered completely, as seen in the review after three months.

Conclusion

To summarize, homicidal cut throat injuries are not uncommon, but literature about its incidence and survival rate is not available. In spite of being apparently stable and breathing spontaneously, these patients rapidly deteriorate due to fatal airway distortion because of subcutaneous emphysemas, hematomas and soft tissue swelling. Early decision and intervention to secure the airway, not only permits a controlled milieu for resuscitation but is also prudent to avoid any catastrophic airway compromise. Fibre-optic bronchoscope guided awake intubation is an ideal way to establish a definitive airway in such cases, however in this case we established the control over the retracted distal end of the airway first, using a flexometallic endotracheal tube, thereby facilitating the surgical repair. Managing these injuries requires an expertise in securing an advanced airway with difficult airway devices at hand. The case turns important because other than limited resources, terrain constraints the transportation time to the next higher medical echelon capable of managing such cases would take at least ten hours and the patient was critical enough to withstand the journey. However we managed this case efficiently without any difficult airway devices available at our peripherally located medical setup. Our patient recovered completely, as seen in the review after three months.

It is worthwhile to mention that this patient was a widow, homicide was attempted in view of grabbing her piece of land by her neighbours who were from a different ethnicity altogether. *Homo sapiens* never ending greed towards materialistic necessities require to be addressed in order to curb such incidences in which a precious life is jeopardized.

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