

CASE REPORT

A Short Cut to Definitive Airway in Open Tracheal Injury: A Case Report

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ABSTRAK

Kecederaan trakea terbuka jarang berlaku tetapi boleh membawa kepada akibat yang buruk seperti pendarahan besar-besaran, halangan saluran udara atau kegagalan dan aspirasi darah. Kami membentangkan kes kecederaan trakea terbuka seorang lelaki yang cuba untuk membunuh diri dengan menggunakan pisau. Dalam kes ini, pengurusan awal mendapatkan saluran udara dengan percubaan intubasi orotracheal, namun tidak berjaya apabila tiub itu keluar dari bahagian luka itu. Intubasi dicuba semula melalui bahagian hujung luka di situasi halangan saluran udara. Penilaian awal yang cepat dan jangkaan terhadap kemungkinan saluran udara yang gagal perlu sentiasa menjadi keutamaan dalam pengurusan kes-kes seperti ini bagi pakar perubatan kecemasan. Intubasi langsung melalui luka mungkin satu-satunya pilihan apabila semua yang lain gagal dan pesakit anda merosot.

Kata kunci: intubasi, luka, trakea

ABSTRACT

Open tracheal injury is rare but can lead to disastrous consequences such as massive bleeding, airway obstruction or failure and aspiration of blood. We present a case of open tracheal injury of a man who tried to attempt suicide using a knife. In this case, the initial management was securing the airway by attempting orotracheal intubation. However, it was unsuccessful when the tube came out from the laceration wound. Intubation was then re-attempted through the distal cut-end of the trachea in the face of airway failure. A quick initial assessment and

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anticipation of a failed airway should always be the top priority in any emergency physician managing these cases. Direct intubation through the laceration wound might be the only option when all else fail and your patient is crashing.

Keywords: intubation, laceration, trachea

INTRODUCTION

Penetrating neck injuries are rare but challenging as it can be associated with airway injuries and potentially be life threatening (Verdonck et al. 2016). The neck is divided into three zones each containing vital structures. These zones are not easily accessible by physical examination or surgical exploration in the event of injuries to any of these vital organs. The main initial priority upon presentation in the emergency department is to establish a secure airway (Wehbe & Hoballah 2017). The common approach to secure airway include endotracheal intubation, surgical cricothyroidotomy or tracheotomy (Bell et al. 2007). We present an unusual case of penetrating neck injury that securing the airway with these methods were not feasible.

CASE REPORT

A 74-year-old man with background history of diabetes, hypertension, and coronary artery disease was brought to Emergency Department (ED) by the pre-hospital team with alleged suicidal attempt. He tried to slash his neck with a knife and was found by his brother lying on the bathroom floor.

On arrival at ED, he presented with haemoptysis, dysphonia and

haematemesis. He was conscious but restless. There was no stridor. High flow oxygen 15 L/min by non-rebreathing mask was started by the paramedic team enroute to the hospital. There was a wide open laceration wound over the anterior neck measuring about 10 cm x 2 cm at the level of cricothyroid cartilage with surgical emphysema felt at the margin of the wound. However, there was no active bleeding or abnormal breath sounds heard from the open laceration wound. Lung auscultation revealed equal air entry with minimal bibasal crepitation. There were no other injuries elsewhere. Peripheries were warm, with good pulse volume. Vital signs shows pulse of 101 per minute, blood pressure 100/70 mmHg and oxygen saturation of 100 % under oxygen high flow mask 15L/min.

After the assessment of the airway, the decision was made with the anaesthesia team to intubate the patient before sending the patient to operation theatre for repair of laceration wound. Two large bore intravenous cannula were inserted and blood samples were taken for group cross match and full blood count. Patient was premedicated with Fentanyl 50 mcg, Midazolam 5 mg and Succinylcholine 50 mg prior to glidescope assisted intubation. An endotracheal tube size



Figure 1: An Endotracheal tube size 5 placed directly through the transected trachea (shown by white arrow).

7 mm was inserted via the oral cavity but came out from the open laceration wound and caused an obvious defect to the airway. The procedure was immediately aborted as patient's oxygen saturation deteriorated rapidly. In the face of airway emergency, an endotracheal tube size 5mm was inserted through the tracheal defect (Figure 1).

The patient was sent to operation theatre after securing the airway for wound exploration, repair of laryngeal wound and tracheostomy.

DISCUSSION

Penetrating neck injury accounts to 5-10% of all traumatic injuries (Aich et al. 2014). Injuries may involve structures like the trachea, oesophagus, great vessels and even the thyroid or parathyroid glands. The presence of dysphonia, hoarseness and blood productive cough should alert the attending physician of a possible airway disruption. Hard signs of airway disruptions such as subcutaneous emphysema, stridor and presence of

bubbling around the wound should be actively sought and appropriate emergency actions for airway control initiated.

Between 50-80% of penetrating neck injuries occurs in zone II of the neck which extends from the cricoid cartilage to the angle of the mandible (Nason et al. 2001). Immediate supplementation of oxygen should be initiated for all the patients with possible airway injury. In the presence of this patient's signs and symptoms of dysphonia, blood productive cough and subcutaneous emphysema, an immediate attempt to establish a secure airway was necessary. Endotracheal airway intubation should be attempted in all patients with neck injury except in severe maxillofacial trauma (Davari & Malekhosseini 2005). This can be performed either by direct or video laryngoscopy depending on the equipment available. Fiberoptic bronchoscopy is extremely useful as the vocal cords can be identified and the lumen of the trachea can be visualized, but may not be readily available in the emergency department.

The physician performing the endotracheal intubation should be prepared that if the airway is partially obstructed secondary to a tear or injury, it can be converted to a complete transection or obstruction by this attempt. The transected distal-end of the trachea could be identified and an appropriate size tube inserted to temporarily maintain a patent temporary airway before surgical repair (Bhattacharya et al. 2009). If this is unsuccessful, a surgical airway kit and expertise to perform a tracheostomy

should be available and could be difficult due to the distorted injury and anatomy.

Rapid sequence intubation using sedatives, inductive agents and paralytic drugs may remove airway reflexes and any effort for the patient to control the airway and breathing. In the situation where the attempt of intubation fails and bag valve mask ventilation cannot maintain adequate oxygen saturation, immediate decision to secure the airway surgically is of the upmost importance. A senior and experienced physician should be available or awake intubation should be attempted without the use of induction or paralytic agents.

CONCLUSION

Anticipation of a failed airway should always be at the back of the mind of any emergency physicians that encounter cases of open neck injury. An initial assessment that suggest the most likelihood of organs that are involved can guide in the choice of appropriate management. Options include conventional orotracheal

intubation, direct intubation through the laceration wound or tracheostomy.

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