Initial management in blunt trauma neck

Madam,

Blunt tracheoesophageal injuries are rare but potentially life-threatening injuries. Early identification and prompt protocol based management helps to reduce morbidity and mortality. We describe the successful management of a patient with complete transection of trachea and esophagus.

A 24-year old male, while riding a motorcycle got a rope entangled around his neck. He fell off the bike and was brought to the hospital within an hour. In the emergency department (ED), he was conscious but disoriented. The patient had tachycardia, tachypnea with labored breathing. His arterial oxygen saturation was 60%. Urgent orotracheal intubation was performed under vision using 8.0 mm ID cuffed endotracheal tube (ETT) with manual in-line stabilization. On auscultation, breath sounds were diminished bilaterally. There were visible contusions and subcutaneous emphysema on the chest and around the neck [Figure 1]. A palpable defect was felt 2-cm above the sternal notch but the overlying skin was intact. There was a momentary increase in arterial oxygen saturation to 90% but then, it started decreasing. The patient was transported to operating room immediately. Arterial oxygen saturation had already dropped to 40%, but he was hemodynamically stable. Anesthesia was induced with 0.3 mg/kg etomidate and 2 µg/kg fentanyl. A midline cervical incision was performed, and the trachea was seen transected at C2-3 level. The ETT was lying partially outside the trachea. Immediately, another ETT was inserted in the distal end of the transected trachea, and the previous tube was removed [Figure 2]. Saturation improved to 100%. Anesthesia was maintained with 60% N₂O in oxygen with 0.5-1% isoflurane. Paralysis was maintained with vecuronium and 100 µg/kg morphine was given for analgesia. Esophagus was also seen to be transected completely. The trachea and esophagus were repaired. Tracheostomy was performed two rings below the defect. Postoperatively, the patient was shifted to the intensive care unit for mechanical ventilation. After 3 days, he was transferred to the ward. The timing of intubation and technique of choice in aerodigestive injuries depends upon urgency, patient’s cardiorespiratory status, and the trauma team’s experience. Direct laryngoscopy, flexible fiberoptic bronchoscope (FOB) guided intubation, and tracheostomy are common methods available to secure the airway. Otroracheal intubation after rapid sequence induction is the easiest and most frequently used technique in the ED. However, apnea and smooth muscle relaxation after drug administration can cause collapse of the traumatized and already distorted airway. Therefore, it is preferable to avoid drug-assisted intubation. Tracheostomy can be time-consuming and there is a high-risk of complications. Awake FOB guided intubation is considered the gold standard in airway trauma. It, not only, aids in direct visualization but the scope also acts as a stent to guide the tube past the site of injury. However, it requires expertise and is difficult to perform in acute trauma. If it is unsuccessful, an emergency tracheostomy may be necessary.

Blind tracheal intubation with the distal end of the tube lying outside, in false passage or proximal to the injury can be dangerous. There should be a high index of suspicion in cases where there is an increase in airway pressure or subcutaneous emphysema, bilateral breath sounds are reduced or the patient desaturates.

To summarize, the outcome in airway trauma can be improved by rapid transportation to the hospital, eliciting detailed history regarding mechanism of injury. Awake FOB guided intubation is the recommended technique but if it is not feasible, ETT position should be confirmed with FOB as early as possible.

Financial support and sponsorship

Nil.

Conflict of interest

There are no conflicts of interest.

Chhavi Sawhney, Mahesh Kumar Arora, Subodh Kumar, Pradipta Kumar Barik, Piyush Ranjan

Departments of Anaesthesia and Surgery, All India Institute of Medical Sciences, New Delhi, India
Airway trauma: A review on epidemiology, mechanisms of injury, diagnosis and treatment. J Cardiothorac Surg 2014;9:117.
4. Gussack GS, Jurkovich GJ. Treatment dilemmas in laryngotracheal trauma. J Trauma 1988;28:1439-44.
5. American College of Surgeons Committee on Trauma. Advanced trauma life support for doctors. Student course manual. Initial assessment and management. 9th ed. Chicago: American College of Surgeons Committee on Trauma; 2012. p. 2-22.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

References

1. Vassiliu P, Baker J, Henderson S, Alo K, Velmahos G, Demetriades D. Aerodigestive injuries of the neck. Am Surg 2001;67:75-9.
2. Mohammed S, Biyani G, Bhatia PK, Chauhan DS. Airway management in a patient with blunt trauma neck: A concern for anesthesiologist. Egypt J Anaesth 2014;30:431-3.
3. Prokakis C, Koletis EN, Dedeilias P, Fligou F, Filos K, Dougenis D.