



THE ROLE OF CAREFUL AIRWAY ASSESSMENT IN PENETRATING NECK INJURY

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Introduction:

Penetrating neck injuries are potentially fatal due to the presence of major vascular and aerodigestive structures. Airway management remains a priority, however, not all patients require immediate tracheostomy. In a patient who is clinically stable, examination under anaesthesia (EUA) with airway intervention performed under controlled setting in the operation theatre may be a safe alternative. The management of penetrating neck injuries (PNIs) continues to be a subject of debate, with no universally accepted international guideline currently available. Although traditional treatment algorithms have largely been based on anatomical zone classification, contemporary practice has shifted toward a selective management strategy incorporating clinical evaluation and advanced radiological imaging ¹. We present a case of penetrating neck trauma involving the cricoid cartilage in a 25-year-old male patient.

Case presentation:

A 25 year-old male presented with a penetrating neck injury following a trauma at his workplace. On presentation, the patient was hemodynamically stable with no stridor, respiratory distress and no oxygen desaturation under high flow mask. Clinical examination revealed a penetrating neck wound involving the inferior part of thyroid cartilage and cricoid (Figure 1). CECT scan done revealed anterior neck laceration wound with communication to subglottic larynx via an anterior opening. Major neck vessels are spared. Given the patient's stable airway status, he was closely monitored in the Emergency and Trauma Department before undergoing tracheostomy under local anaesthesia. This was followed by wound exploration and laryngeal cartilage repair under general anaesthesia with definitive surgical management achieved within 7 hours of presentation. Intraoperatively, there is defect seen in between inferior part of the thyroid cartilage and the remanat of the cricoid cartilage. Cartilage defect then repaired with prolene 4/0, enhanced with rotational right sternocledomastoid flap. The patient demonstrated satisfactory postoperative recovery and underwent successful decannulation at one-month follow-up.



Figure 1: Anterior view of neck laceration with laryngeal injury

Discussion:

The neck houses numerous vital neurovascular and aerodigestive structures within a confined anatomical space, rendering it particularly susceptible to significant injury following trauma. Penetrating neck injuries account for approximately 10% of all traumatic presentations ². Tracheal injuries are uncommon, comprising less than 1% of all traumatic injuries and approximately 14% of PNIs ³. The management of PNIs involving the larynx remains a subject of ongoing debate. In patients presenting with airway instability, prompt airway control via tracheostomy or endotracheal intubation is paramount.

Once the airway has been secured, laryngeal injuries are commonly graded according to the Schaefer Classification System, which provides a standardised framework for assessing injury severity and guiding subsequent management ⁴. While mandatory surgical exploration was historically considered the standard of care, increasing evidence supports a more selective approach in appropriately selected patients ⁵. In a case reported by Chandu Raj et al, primary laryngeal repair was done without tracheostomy with good outcome ⁶. Surgical exploration remains warranted in unstable patients or those demonstrating signs of significant aerodigestive injury, including expanding cervical hematoma, persistent air leakage, subcutaneous emphysema, hoarseness, or dysphonia. Conversely, a thorough primary survey supplemented by imaging modalities such as computed tomography can facilitate accurate diagnosis and reduce unnecessary surgical intervention in hemodynamically stable patients ⁷. In this case, the patient was hemodynamically stable with no significant bleeding. Within 24 hours, tracheostomy under local anaesthesia, wound exploration and laryngeal cartilage was done under controlled setting in the operation theater. This case highlights the importance of individualised management in penetrating neck trauma.

Conclusion:

The management paradigm for penetrating neck injuries has evolved from routine mandatory exploration toward a more selective and patient-centred strategy. Nevertheless, the optimal approach remains controversial, particularly in cases involving laryngotracheal injury. Clinical intervention should be tailored to type of injury sustained. Not all may require tracheostomy.

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