

Case Report

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A Rare Laryngeal Trauma: Complete Cricolaryngeal Separation

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Abstract

Laryngeal trauma is a rare but life threatening injury. In cut throat, laryngeal injury should be suspected and investigated. The first priority in management is to secure airway. Associated injuries should be searched for. Treatment may be conservative or surgical depending upon the site, magnitude of injury and stability of laryngeal framework. Here we present a rare form of penetrating laryngeal injury with complete disruption between cricoid and thyroid cartilages.

Keywords: Laryngeal trauma; Cut throat; Airway injury

Case Report

A 28 years male patient did a suicidal attempt cutting his throat with a razor. He was urgently intubated in a peripheral hospital and referred to King Abdullah Hospital, Bishah, KSA as a suspected case of laryngeal trauma within the first 12 hours after the insult. On clinical examination he was intubated, on mechanical ventilation, with SO₂ 100% and hemodynamically stable. There was a transverse wound in neck, closed by interrupted sutures. Local examination of neck did not reveal subcutaneous emphysema or hematoma. The thyroid cartilage was intact, but the cricoid could not be felt. Examination of chest, abdomen, and extremities were normal. The patient was stable and shifted for CT scan of neck which showed emphysema in neck extending to mediastinum. We decided for panendoscopy in OR under general anasthesia. Direct laryngoscopy showed bleeding around endotracheal tube, bronchoscopy showed laceration in subglottic area and rigid esophagoscopy confirmed integrity of oropharynx and esophagus. A decision was taken to explore the wound. After stitches were cut we found the wound extending to larynx cutting cricothyroid membrane and completely separating the thyroid from cricoid cartilage. The right vocal cord was detached. The endotracheal tube was seen maintaining patency of airway. No other injuries could be found, and we did not explore for recurrent laryngeal nerves. There was no soft tissue loss and the edges of the wound were clean. The right vocal cord was reattached using 3/0 vicryl. Reconstruction of airway was achieved by taking simple, interrupted sutures using 3/0 vicryl and starting from posterior to anterior approximating the cricoid cartilage to thyroid cartilage and endolarynx. By simply using traction to endotracheal tube we were able to take posterior stitches accurately. We ended the anastomosis without



performing tracheostomy deciding to do it later if indicated in case of any airway compromise. The strab muscles, subcutaneous tissue and skin were closed in interrupted manner with a suction drain inserted. Postoperatively the patient was admitted in ICU on mechanical ventilation. The head of the bed was elevated. Antibiotic prophylaxis and antireflux measures were administered. He was extubated after 24 hours. The airway was patent. He was under close observation in ICU for 48 hours. There was hoarseness of voice. Flexible laryngoscopy was done 3 days postoperatively. It revealed slight movement of vocal cords (bilateral recurrent laryngeal nerve lesions). The anastomotic line was intact. We will follow watchful expectancy for 6 to 12 months regarding phonation. The patient was discharged in a stable condition after 7 days (Figure 2).

Discussion

Laryngeal trauma is uncommon but life threatening injury that should be managed properly. The incidence is 1 in every 22,900



Figure 2: Postoperative view showing the site of the wound.

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emergency room visits [1]. The penetrating injuries, whether homicidal or suicidal account for about 14.8% of all laryngeal trauma and mostly involve zone II of the neck. The ATLS principles should be strictly followed and the first priority is to insure patent airway. There is debate regarding the best way to establish patent airway whether to do tracheostomy or to attempt orotracheal intubation [2,3]. Our patient was referred to our hospital already intubated without difficulty. Early recognition of laryngeal injury is crucial and this requires high index of suspicion. History of change of voice, dyspnea, dysphagia, hemoptysis and clinical signs of stridor, subcutaneous emphysema, neck wound all draw attention to possibility of laryngeal injury. Chest X-ray is often helpful to rule out a pneumothorax, tracheal deviation, or pneumoediastinum (suggesting an airway injury). CT scan is helpful to assess the integrity of skeletal framework and confirm diagnosis. Flexible fibreoptic laryngoscopy is a valuable tool in evaluation and surgical decision. Oesophagoscopy and bronchoscopy are adjuncts to laryngoscopy to assess the extent of injury of aerodigestive tract [4]. Complete trauma assessment must be performed to investigate for associated cervical, cranial and spinal injuries [5]. Classification of laryngeal trauma by Schaeffer helps in surgical decision [2]. Class V is complete laryngotracheal separation and our case was very rare since separation occurred at cricothyroid level (Figure 1). Both forms of injury are highly associated with recurrent laryngeal nerve injury. Operative intervention is based on the integrity of airway, stability of laryngeal framework, extent of mucosal injury and function of vibratory apparatus. Timing of surgery greatly influences the outcome in terms of voice and airway [6].

Conclusion

Laryngeal trauma is rare but life threatening injury. Cut throat is a cause of penetrating laryngeal trauma. High index of suspicion is required for diagnosis. The first priority is to establish and maintain stable airway. Clinical examination, CT scan and flexible laryngoscopy are important for complete assessment of laryngeal injury and plan of management. Complete airway disruption occurs at the level of the cricoid cartilage, either at the cricothyroid membrane or cricotracheal junction. Proper timing and adequate surgical repair are vital for treating such life threatening lesions.

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