

Neck Trauma – An experience at Mayo Hospital

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ABSTRACT

Introduction: Neck trauma is an important area of trauma care that has undergone evolution in the recent past. A remarkable number of changes have occurred. Neck Trauma is very common presentation in Accident and Emergency department with different modes of presentation. The purpose of this audit is to highlight the increasing incidence of neck trauma in Emergency department, Mayo Hospital, Lahore.

Material and Methods: This audit included 17 patients who presented in emergency department with neck trauma during one-year period, from Jan 2008 to Dec 2008 at accident and Emergency Department, Mayo Hospital, Lahore.

Result: Out of 17 patients, 14 patients presented with penetrating neck trauma, two patients presented with blunt trauma neck. One patient presented with kite string injury. All patients were explored. Three patients had wound infection, One patient developed esophageal fistula which was managed conservatively. There was no mortality in our series.

Conclusion: In our emergency department neck trauma is most commonly caused by penetrating injury. Blunt trauma presentation is not so common. The risk of missed injury can be significantly reduced by improving diagnostic facilities like Barium Swallow, Angiography, CT neck, etc.

Key words:

INTRODUCTION

Neck is an anatomically complex region that acts as a conduit for multiple structures, including vital components of the vascular, neurological, respiratory and digestive systems. The density and relative vulnerability of these structure dictates that injuries to this region be given a high priority in the management of multiple injured patients^{1,2}.

Clinical manifestations of neck trauma depend on the structures involved in the injury. Airway injuries (larynx, trachea) produce hoarseness, stridor, or dyspnea. Subcutaneous emphysema is a pathognomonic sign of airway injury. Injuries to the esophagus comprise less than 1% of neck trauma³ and manifest as severe chest pain and dysphagia if perforation occurs. Esophageal secretions cause inflammation of the mediastinum (mediastinitis). Arterial injuries can manifest with obvious hemorrhage, hematoma, hypovolemic shock, or a bruit heard on auscultation⁴.

The most common mode of presentation is penetrating injury. Mandatory exploration of zone II injuries was the standard practice because of the ease of exposure of these structures; however, the recent trend favors diagnostic evaluation over mandatory exploration⁴⁻⁶. The purpose of this audit was to highlight the need for investigation or dependence on the physical examination in cases with blunt and penetrating trauma cases in our setup.

MATERIAL AND METHODS

Audit of patients presenting with neck trauma which included 17 patients presented in accident and emergency department, Mayo Hospital, Lahore from Jan 2008 to Dec 2008. Diagnosis was made on history clinical examination. X-Ray soft tissue neck was done in all patients. All patients with platysma deep penetrating injury underwent surgical exploration of neck. All patients with history of profuse bleeding after the incident or expanding haematoma or patient with stridor underwent surgical exploration of neck done under general anesthesia.

RESULTS

Seventeen patients were included in this audit. Youngest was 18 years old and oldest was 45 years. 15 patients were male and 2 patients were female. Most common presentations were bleeding, respiratory distress. On examination, anaemia, cyanosis and stridor were common findings. Associated injury to apical pleura was found in two patients, in which chest tube intubation was also done.

X-Ray soft tissue neck; reveal fractured transverse process of C₄ – C₅ in two patients. None of the patients had Angiography, CT Scan neck or Barium Swallow in emergency department. All patients underwent neck exploration, five patients underwent tracheostomy. In three patients, primary repair of thyroid cartilage and tracheal ring was done without tracheostomy. Rest of the patients either had

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partial or complete transection of neck muscles like sternocleidomastoid or strap muscles, along with injuries to Internal Jugular Vein, External Jugular Vein, Anterior Jugular Vein and muscular branches. Muscles were approximated and bleeding vessels were ligated.

In two patients, primary repair of esophageal rent done and in one patient lobectomy and isthmusectomy was done. Three patients had wound infection, One patient developed esophageal fistula which was managed conservatively. There was no mortality.

DISCUSSION

Penetrating neck trauma represents approximately 5-10% of all trauma cases that present to the emergency department. About 30% of these cases accompanied with injury outside of the neck zones as well. The current mortality rate in civilians with penetrating neck injuries ranges from 3-6%¹.

Penetrating neck injuries were more common as compared to other modes of presentation. Approximately 10% of patients with neck injuries had some degree of airway compromise, so to secure an airway in patients with tracheal injuries is always a priority².

For purpose of diagnostic strategy and operative approach, neck has been divided into three zones.

- Zone I is bounded by the thoracic outlet at the clavicles and the cricoids cartilage;
- Zone II encompasses the area between the cricoid and the angle of the mandible;
- Zone III contains structures from the angle of the mandible to the base of the skull.⁷

In our study, six patients presented with zone (I) injury, ten patients presented with zone (II) injuries and one patient presented with stab injury involving zone (II) & (III). Most common presentations were bleeding, respiratory distress and stridor.

All of these patients, underwent neck exploration and repair of thyroid cartilage done primarily with or without tracheostomy. In other patients, only muscles were approximated, bleeding vessels ligated and esophageal repair done in two patients. Two patients

had fracture transverse process of cervical vertebrae with neurological symptoms. For this neurosurgical opinion was sought.

Management of vascular and aerodigestive tract injuries may improve with availability of certain diagnostic tools like barium swallow, angiography and CT Scan neck. This will also reduce the incidence of missed injury during neck exploration.

CONCLUSION

The most common cause of trauma neck in our emergency was penetrating either by stab or firearm injury. The frequency of blunt trauma neck was far less as compared to penetrating neck injuries. Surgical exposure of the injury was particularly difficult in zone I and zone III. With latest diagnostic tools like CT Scan neck, Angiography and Barium Swallow, frequency of missed injuries and subsequent post operative complications can be significantly reduced. Clinical judgement is still the best method of deciding for exploration of the neck especially in blunt trauma neck cases.

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