

A Rare Case of Bull Gore Injury Presenting with Internal Jugular Vein Transection

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Injuries to the head and neck region are rare after bull gore injuries. The case which we are reporting is a case of bull gore injury to the anterior triangle of neck, causing penetrating neck injury and transection of internal jugular vein. The patient was managed with ligation of both ends of the transected vessel, with flush ligation of the upper end of vessel with sternocleidomastoid muscle. The patient's hospital stay was uneventful and got discharged on day 7 of post operative period.

Keywords: Anterior Triangle; Penetrating Neck Injury; Bull Gore; Internal Jugular Vein; Surgical Emphysema**Abbreviation**

IJV: Internal Jugular Vein

Introduction

Trauma to the neck can be caused by various methods such as homicidal, accidental, and suicidal. The term penetrating neck injury is used when there is breach in platysma, a superficial muscle in the neck [1]. The presentation can vary from simple laceration to involvement of critical structures in the neck such as trachea, oesophagus and great vessels in the neck [2]. The case which we are reporting here is a bull gore injury causing internal jugular vein transection and surgical emphysema of the neck.

Case Report

A 48-year-old male visited the emergency department with an alleged history of bull gore injury, which he sustained 6 hours back. Patient presented with an injury to the upper part of the neck. Following injury there was a history of bleeding from the site which was initially controlled by compressive dressings at home. Patient reported no history of loss of consciousness or altered sensorium,

no history of seizure activity, no history in change of voice, difficulty in swallowing or difficulty in breathing.

On examination, the patient was hemodynamically stable. Examination of the neck showed a lacerated wound just below the level of hyoid extending 1.2 centimetres (cm) from the midline measuring 4 cm horizontally to the anterior border of left sternocleidomastoid muscle, vertically 1.2 cm and depth of approximately 3 cm (Figure 1).

Bedside 70-degree endoscopic examination of larynx was normal. Patient was then shifted to the emergency operation theatre for exploration of the neck, debridement of the wound and closure. Intra operatively it was noted that Internal Jugular Vein (IJV) was transected at just proximal to the origin of common jugular vein. The proximal end of the vein was ballooned out with a well-formed thrombus at the transected end. The lower end was retracted into the deep neck and meticulous exploration showed a thrombus which is well formed completely occluding the transected lower part also (Figure 2).

Figure 1: External wound at the time of presentation.

Figure 2: Showing dilated IJV distal end.

Ligation of the upper end was done, followed by suturing in flush with the sternocleidomastoid muscle. The lower end was also ligated in order to prevent thrombus embolization. Intra operatively no chyle leak noted and the carotid artery system was found to be intact. Wound closed in layers and the drain was kept *in situ*.

Postoperative ultrasonogram and contrast enhanced computerised tomography of neck confirmed presence of IJV transection with thrombus and presence of air foci within the neck. Patient's rest of the hospital stay was uneventful and got discharged on day 7 after removal of skin sutures.

Discussion

The neck is divided into three zones, a classification named after Roon and Christensen which helps in initial assessment and management unique to each zone. The neck extending from sternal notch to skull base is divided into three zones in caudal to cranial direction by two imaginary lines passing horizontally at the level of cricoid cartilage and through the angle of the mandible [3].

As the vessels are fixed to bony structures vascular injuries are common in zone 1 and 3. In zone 2 vessels are not fixed and easily displaced by concussive forces thereby minimizing the chances for vascular injury [4].

Overall incidence of reported neck injury in bull goring encounter ranges from 3 to 20% [5]. The gore injury can be primary or secondary. Primary injury occurs when the bull, charges and accelerate towards the subject with head in flexed position at the time of engagement of its horn into the subject. There after it extends the neck powerfully with the subject is violently taken off the ground. In such a scenario the horn act as an axis and the bull stereotypically rotates its head causing further shearing forces to tissues and resulting in deep and severe tissue damage. Primary goring site was considered to be abdominal or inguinal region previously. But, as the subject kneels down in most of the cases as bull approaches as a defence mechanism, the primary site is considered as head and neck nowadays [6].

Direct goring results in penetrating injury to oesophagus especially in zone 1 and 2 and injury to carotid or IJV in zone 2. Management of such penetrating injury cases is neck exploration if reliable diagnostic tests are available and selective neck exploration is indicated when appropriate personnel to provide active observation is present. In all other settings mandatory neck exploration is the treatment of choice.

Vascular injury may result in haemorrhage, expanding hematoma vascular bruit and pulse deficit. In cases of injury to IJV treatment options include lateral venography or ligation. In cases of bilateral IJV injury one vein should be repaired to prevent sequel of raised intracranial pressure [7].

The most serious complication following a laceration of IJV is air embolism. This is common because of the fact that the walls contain less smooth muscle and the outer wall is adherent to carotid sheath rendering the constriction or collapse of the vein. Although the risk of pulmonary embolism is also present the reported incidence is less than 5%. Uncomplicated IJV injuries rarely need intervention [8].

Conclusion

Injuries to the head and neck region are less common but can be very fatal due to the presence of vascular and neurological struc-

tures present in the region. Bull gore injury in the neck can present with various unusual symptoms and findings. Prompt diagnosis and management is of utmost importance to prevent complications and sequelae.

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