International Journal of Sciences

Research Article Volume 11 – November 2022 (11)

Damage Control in Cervico-Thoracic's Transition Wound: Case Report

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Abstract: The case addresses a patient who suffered a penetrating wound by a knife in right anterior cervical region (zone I) and left thoracic region that was admitted with signs of hemorrhagic hypovolemic shock (class III). The emergency surgical approach in patients with cervical trauma is indicated in cases of shock that is refractory to volume replacement, murmurs in the cervical region, and intense active bleeding. It is also suggested to avoid approaching non-expandable hematomas due to the risk of rebleeding. In this case, the patient had bleeding in the orifice of the cervical region and signs of shock. First, bleeding control was performed with Foley catheter placed in the wound and a massive transfusion protocol was initiated in the emergency room. Then, the patient was referred to the operating room. The management of penetrating neck injuries is based on anatomical division of the cervical region into zones I, II and III. Zone II is the area where most lesions are observed, followed by zones I and III.

Introduction

Cervical injuries in trauma can be devastating, due to the presence of multiple vital structures and proximity between them, with a mortality rate of 9.7%. Penetrating chest injuries are more common and have a high mortality rate of 8.4%.

This type of trauma is common, and their assessment and management depend on the anatomical location of the lesion. The main injuries that put the patient's life at risk are those that compromises airway and vessels. Lesions in Zone II are routinely explored in the operating room, while lesions in zones I and III can be evaluated with diagnostic images, according to the patient's hemodynamic and airway stability.

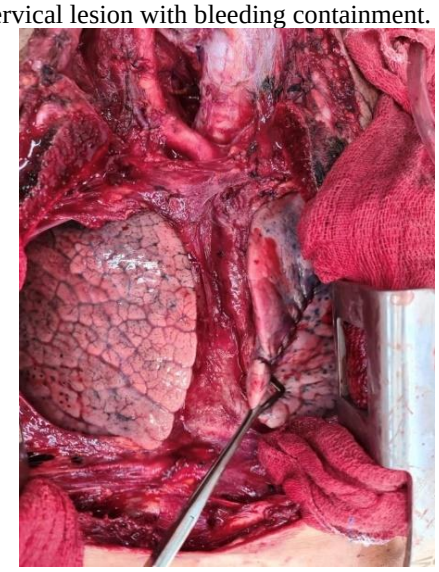
The present article reports a case of a stab wound's victim in the cervical and thoracic region and discusses the management of the case and approaches that has been taken.

Case Report

A 41-year-old male patient came to the trauma department with a history of having been stabbed in the neck region. Previously, in the pre-hospital evaluation, a blowing lesion was identified in the parasternal region, a three-way dressing and volume were performed and the referred to hospital care.

Upon arrival at the tertiary hospital, the patient has a patent airway, 88% oxygen saturation in room air, and tachypnea. The thoracic drainage was performed with blood and air outflow.

He presented hemodynamic instability, with positive e-FAST in the pericardial window and active bleeding in the right cervical wound. A massive transfusion protocol was initiated, the orotracheal intubation was performed and two Foley catheter were positioned in the cervical lesion with bleeding containment.



He was taken to the operating room for exploratory cervicotomy on the right, and bleeding from the external jugular vein, lateral border of the right thyroid lobe, posterior paravertebral region and right clavicle were seen. We opted for enlarging the incision, median sternotomy and identifying active bleeding from the right vertebral artery, performed proximal and distal ligation. The pericardial sac was explored, with a small amount of citrine fluid, without traumatic injuries,

Published at: http://www.ijsciences.com/pub/issue/2022-11/
DOI: 10.18483/ijSci.2627; Online ISSN: 2305-3925; Print ISSN: 2410-4477

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opening of both pleuras, showing a tear in the lingula. It was decided to shorten the procedure with damage control, sternotomy with Barker dressing, primary skin suture with continuous suture in the cervical region, bilateral pleural drainage, mediastinal drain, suture of lesion in the parasternal region, with a total duration of 55 minutes, and referred to ICU. The patient evolved with hemodynamic and laboratory improvement, being referred to the operating room 36 hours after the initial procedure. Upon review, without signs of active bleeding, lavage, sternum and cervical suture were performed. He went to the postoperative period in an ICU bed. During hospitalization, he presented paresis in MSD. Cranial tomography identified hypodensity in the frontal and left parietal lobes with a probable diagnosis of mixed disorder (ischemic and brachial plexus injury). After 16 days, the patient was discharged from the hospital.

Discussion

During the initial care in cases of trauma caused by cervical injuries, external compression of the lesion with the fingers or insertion of a Foley catheter into the orifice is recommended. In the case reported, 2 Foley tubes were placed through the cervical os in zone I on the right, with external compression and reduction of local bleeding. Traumatic cervical injuries are based on dividing the neck into zones I, II and III. Most signs of penetrating cervical injuries are due to vascular and/or airway injuries. If unstable, symptomatic or positive diagnostic tests, cervicotomy is indicated. If cervicotomy is ineffective to control bleeding, thoracotomy is chosen. In the case reported, a right cervicotomy was performed, with visualization of bleeding in the external jugular vein, right thyroid lobe and posterior paravertebral region. Due to the difficulty in controlling the bleeding, a median sternotomy was chosen, with clamping of the right brachiocephalic trunk, identification of a lesion in the right vertebral artery and bleeding control with arterial suture.

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