RIGHT SUBCLAVIAN ARTERY INJURY SECONDARY TO BLUNT TRAUMA SUCCESSFULLY TREATED IN A PATIENT WITH SITUS INVERSUS TOTALIS.

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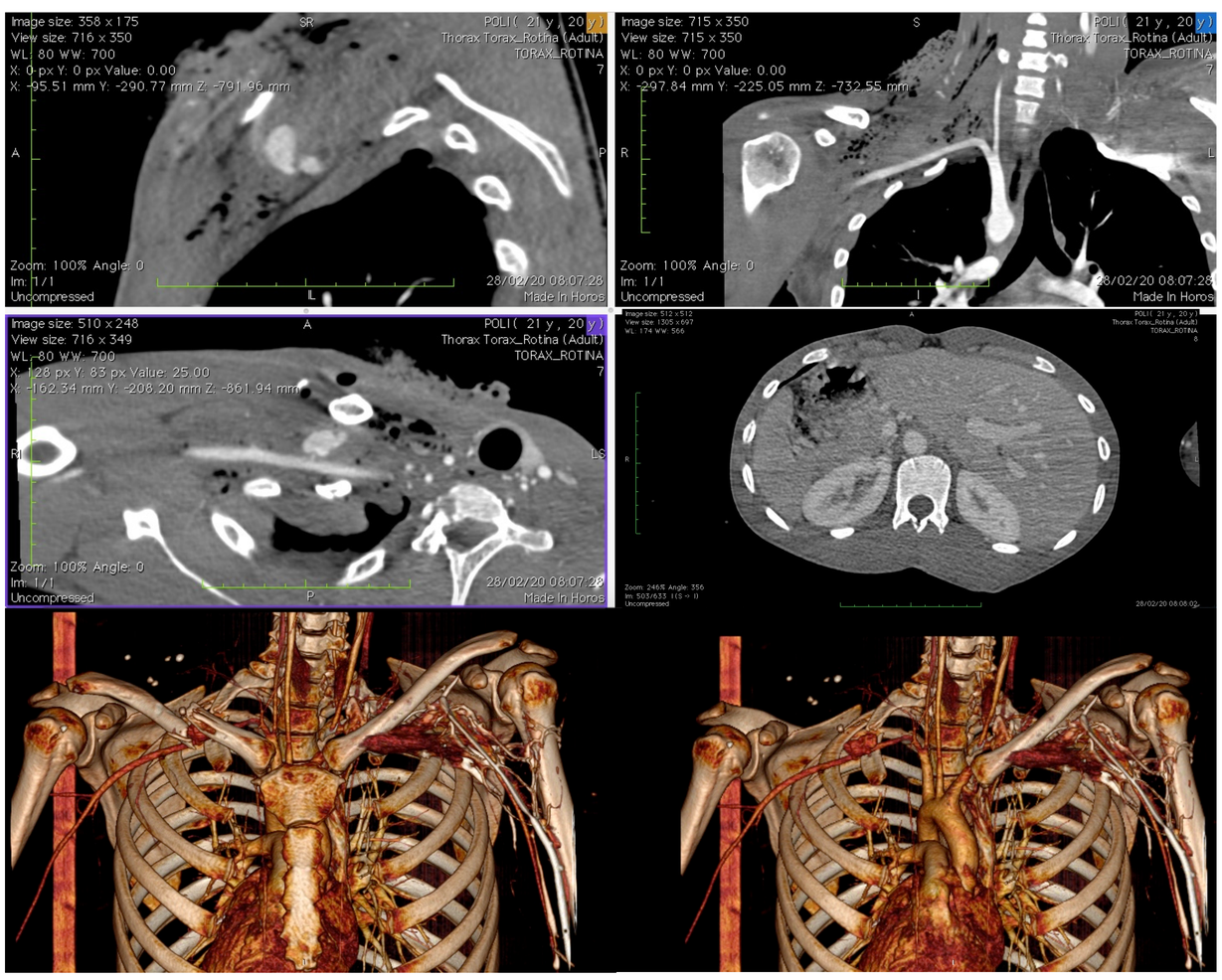
INTRODUCTION

Subclavian artery injury secondary to blunt trauma is a rare condition . In a 6-year follow-up of 167 patients with treatment of the subclavian and superior mediastinal arteries injures, Costa and Robbs are shown that only 15 of these injuries (9%) occurred after blunt trauma. Much more common, subclavian artery injuries occur from penetrating mechanisms or as a consequence of iatrogenic injury during central catheter placement. Blunt-related injury is associated with high morbidity and mortality. Most patients with blunt trauma that affects the subclavian arteries, and the major vessels die before reaching the hospital due to blood loss related to the trauma kinematics. Hospital mortality remains high. The subclavian arteries are protected by the clavicles, ribs, and chest wall. The clinical management and surgical approach vary depending on the specific lesion. We report a blunt trauma case with open right clavicle fracture and subclavian artery injury accompanied by hemorrhage in a patient with situs inversus totalis.

CASE REPORT

A 22-year-old man was brought by the paramedics to our trauma center after being thrown from his motorcycle during an accident on the highway hitting a light pole. On initial examination was hemodynamically stable with a blood pressure of 110/70 mmHg, and a pulse rate of 98 beats/min. He was conscious and had a Glasgow Coma Scale of 15.



CT scan—dextrocardia with situs inversus totalis; pulmonary contusion and pneumothorax. CT angiography reconstruction—Right subclavian injury. Right subclavian artery injury with contrast leak. No traumatic occlusion of the subclavian artery, with subsequent CTA showed a normal appearance flow pattern.

After initial imaging, the patient was emergently conducted to the surgical center to repair the right subclavian vasculature. No sufficient endovascular equipment was available at the hospital. Surgical exploration of the lesion with a supraclavicular incision, osteotomy of the middle third of the clavicle, ligation of the subclavian vein, which presented a >90% circumferential lesion, proximal and distal control of the subclavian artery. There was no evidence of brachial plexus injury.

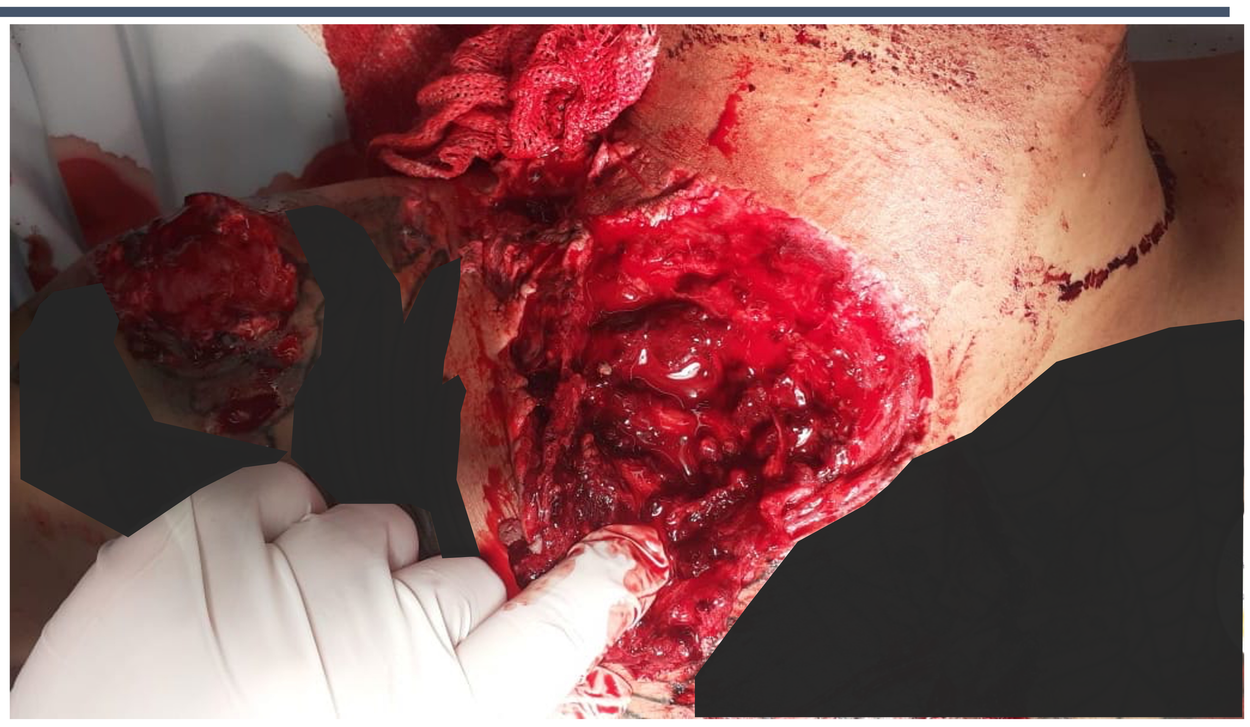


Figure 2: Large open right neck/subclavian soft tissue wound exposing the clavicle with clots and active bleeding.

A laceration was identified in the right subclavian artery caused by a bone fragment of the clavicle fracture. Debridement of the punctiform lesion with primary suture with Polypropylene 5-0 was performed. On immediate postoperative radial and ulnar pulses were present. Antithrombotic therapy with heparin was not performed due to trauma kinematics. The patient received prophylactic enoxaparin during hospitalization and discharged with acetylsalicylic acid 100 mg PO daily. Soft tissue injury was sutured to bring the skin closer but not fully closed. Osteosynthesis of the clavicle was not performed. Second look was performed in 48 hours to close the suture. The patient was discharged on day 10 and continued to be free of complications at the 6-month follow-up. The patient did not present any neurological symptoms.

DISCUSSION

Blunt trauma, causing damage to the subclavian arteries, is rare with a reported incidence of less than 1% of all arterial injuries of thoracic traumatic injuries and it is usually associated with other major injuries. The necessity of immediate identification and appropriate surgical approach for repair is mandatory because such injuries carry high rates of mortality and morbidity. In general, the proper management of the subclavian artery injury depends on the mechanism and extension of the injury. The intraoperative diagnosis of subclavian artery trauma is more common due to hemodynamic instability caused by the bleeding. However, in most patients, conventional angiography and CT angiography are also useful diagnostic modalities . The preoperative planning in our case was essential due to the anatomical variation presented by the patient to determine the best surgical planning. Surgical procedures are considered more difficult than in other patients because of the different anatomical position of the organs. Situs inversus totalis is a rare congenital condition that occurs in 1 in 4000–20,000 people, characterized by complete transposition of the thoracic and abdominal viscera. Surgical procedures are considered more difficult than in other patients because of the different anatomical position of organs. There is a high risk of intraoperative complications, in this case specifically due to variation in the aortic trunk.

Proposed algorithms for traumatic subclavian injuries are stratified based on clinical stability, with the general opinion that stable patients should proceed to the hybrid room for endovascular repair. An open surgical approach is one of the treatment options for subclavian artery injury. However, this approach requires an extensive incision to obtain proximal and distal control, which is invasive and difficult to perform taking into consideration the anatomic distortion caused by the trauma. In our case, the patient presented an open fracture, with a high risk of infectious complications in postoperative if used synthetic grafts]. Minimally invasive endovascular treatment has good results for vascular injuries caused by penetrating trauma such as a gunshot, stab, or iatrogenic catheter injury. Stentgraft repairs have been found to have early stent patency comparable to open repair.

Carregal DC, Rabelo PMA, Amaral MTP, Souza Junior FDPA, Fiqueiredo Junior FDAF. Right subclavian artery injury secondary to blunt trauma successfully treated in a patient with situs inversus totalis: Case report. Int J Case Rep Images 2021;12:101275Z01DC2021.