CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 23 (2016) 82–84

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

A penetrating dorsal thoracic injury that is lucky from every aspect: A case report

Mehmet İlhan*, Ali Fuat Kaan Gök, Gizem Öner, Kayıhan Günay, Cemalettin Ertekin

Department of General Surgery, Istanbul University, Istanbul Medical Faculty, Istanbul, Turkey

ARTICLE INFO

Article history:
Received 17 December 2015
Received in revised form 22 March 2016
Accepted 22 March 2016
Available online 7 April 2016

Keywords:
Penetrating thoracic trauma
Dorsal region injury
Emergency surgery

ABSTRACT

INTRODUCTION: Penetrating thoracic trauma management represents a major problem for emergency department staff. In these cases, we reported a patient, who can be deemed very lucky, because of both the trauma mechanism and the provided first aid at scene.
PRESENTATION OF CASE: A 30-year-old man was transported to the emergency surgery outpatient clinic after being stabbed from his back. A knife entered thorax from the dorsal region paravertebrally between two scapulae. No vascular and thoracic injuries were detected in the CT. The knife was then pulled and removed, and pressure dressing was applied on the wound. He was discharged with full recovery on the second day of admission.
DISCUSSION: Thoracic traumas may present as blunt or penetrating traumas. Trauma with penetrating dorsal thoracic injuries is usually in the form of stabbing, sharp penetrating object injuries, or firearm injuries. The aim of a successful trauma management is to determine whether a life-threatening condition exists. The general rules of penetrating trauma management are to avoid in-depth exploration for wound site assessment, to avoid removal of penetrating object without accurate diagnosis, and to keep in mind the possibility of intubation for airway security in every moment.
CONCLUSION: During the initial care of patients with penetrating trauma, the object should not be removed from its place. Our patient was lucky enough in that no thoracic pathology developed during the accident and he was not subjected to any secondary trauma during ambulance transport.

1. Introduction

Penetrating thoracic trauma management represents a major problem for emergency department staff. Cause of penetrating injuries of the dorsal regions may be bullets or other penetrating sharp objects [1]. Penetrating thoracic traumas have a wide spectrum, ranging from mild traumas to life-threatening injuries [2,3]. Major vascular injury should be rapidly assessed in these cases. Esophageal, lung, and neural injury may also occur [4]. In this paper, we reported a patient, who can be deemed very lucky, because of both the trauma mechanism and the provided first aid at scene; we also provided a current literature review about the management of cases with penetrating dorsal region traumas.

2. Presentation of case

A 30-year-old male patient was referred to our emergency trauma center by ambulance after being stabbed in his back. He was put on a wheeled stretcher while he was in a conscious state. It was noted, that the knife entered thorax from the dorsal region paravertebrally between two scapulae (Fig. 1). Than the patient was transferred to resuscitation room and an intravenous line was established without allowing the knife to move from its original location. The patient's general status was not critical and his Glascow Coma Score was 15. His vital signs included arterial blood pressure of 130/80 mmHg, pulse rate of 100 bpm, body temperature of 36.8 °C, and oxygen saturation of 97% on admission. Physical examination did not reveal active bleeding or an enlarging hematoma at the site of the injury. The patient was free of any symptoms suggestive of pulmonary parenchymal injury such as dyspnea, hemoptysis, or cough. His bilateral lung auscultation was bronchovesicular of equal intensity. His total blood count and routine biochemical tests were within normal limits.

The patient was transported to obtain a thorax CT angiogram with ultimate care for not to move the object. In thorax CT, a knife penetrating into thoracic cavity by passing the transverse process at the left half of vertebra at the level of D6–D7 was determined and it progressed to thoracic aorta. No vascular injury, contrast material extravasation, or hemothorax/pneumothorax was observed (Fig. 2). Simultaneously patient was consulted to thorax surgery and car-

* Corresponding author.
E-mail address: op.dr.mehmetilhan@gmail.com (M. İlhan).

http://dx.doi.org/10.1016/j.ijscr.2016.03.036

Fig. 1. The site and pattern of stabbing.

diovascular surgery clinics in need of any explorative approaches. Absence of any lung and vascular pathology, and patient's stabil status made agreeing on the decision of extracting the foreign body. The patient was taken into operation room to remove the knife. The injury site was rubbed and draped under mask sedation in right lateral decubitis position. The knife was then pulled and removed, and pressure dressing was applied on the wound. During observation, no bleeding exists, his skin was sutured and he was placed on Table in supine position. He was monitored for 30 min in operating room. The operation was ended upon observing that his hemodynamic status was well and any decrease in hematocrit levels was not observed. He was taken to intensive care unit for further observation; one day later he was transferred to regular ward and undergone esophagogastroscopy which has no sign of injury. He was discharged with full recovery on the second day of admission after checked with CT anjiogram with no pathologic sign. No late complication was observed. The patient was neurologically unchanged in follow-up examinations. CT anjiograms did not address any pseudoaneurysm in first and third month controls.

3. Discussion

Thoracic traumas may present as blunt or penetrating traumas [12]. Seventy percent of thoracic traumas are blunt traumas and the rest of them are penetrating injuries. In a domestic study the corresponding rates of 72% and 28%, respectively, were reported [2]. Trauma with penetrating dorsal thoracic injuries is usually in the form of stabbing, sharp penetrating object injuries, or firearm injuries. Total mortality rate of chest traumas ranges between 3.6% and 37% [3,4]. However, high-velocity bullet injuries are typically fatal, with cases being ended at the scene of the incident [1,5,6]. The aim of a successful trauma management is to determine whether a life-threatening condition exists. The general rules of penetrating trauma management are to avoid in-depth exploration for wound site assessment, to avoid removal of penetrating object without accurate diagnosis, and to keep in mind the possibility of intubation for airway security in every moment. The majority of patient's deaths in penetrating traumas are due to serious vascular injury [7]. Therefore, vital signs should be assessed rapidly and with care. In case of definite or possible organ injury, fluid support should be provided immediately and the patient should be transported to operating room at once. Our case was also brought to our attention without moving the knife from its position and the patient was rapidly assessed and taken into the operating room. In thoracic traumas, posttraumatic intrathoracic pathologies are determined, depending on severity of the trauma. The

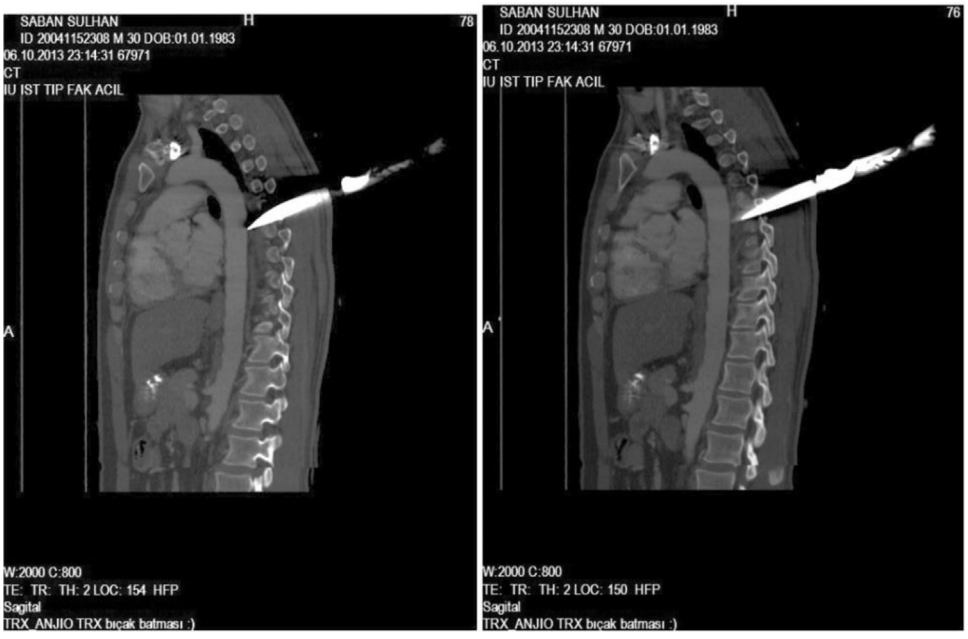

Fig. 2. Thorax CT showed A knife passing by the transverse process of vertebra at the level of D6–D7 and reaching thoracic aorta. There was no vascular injury, hemothorax, or pneumothorax.

most common posttraumatic thoracic pathology is pneumothorax followed by hemothorax [8–11]. Lung contusion, cardiac tamponade, pneumomediastinum, esophageal injury, spinal cord injury, and vascular injury are among other possible pathological conditions following thoracic trauma [9,11,12]. Our patient was lucky, because he had no thoracic pathology associated with stabbing. By the way, important point of view in such cases avoiding an iatrogenic damage to patient especially during transporting could be life saving.

4. Conclusion

During the initial care of patients with penetrating trauma, the object should not be removed from its place. Our patient was lucky enough in that no thoracic pathology developed during the accident and he was not subjected to any secondary trauma during ambulance transport.

Conflict of interest

None.

Funding

None.

Ethical approval

No ethical approval.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Guarantor

Mehmet İlhan.

Authors' contributions

This work was carried out in collaboration between all authors. Author MI designed the study, wrote the protocol and wrote the first draft of the manuscript. AuthorsMI and GO managed the literature searches, analyses of the study. All authors read and approved the final manuscript.

References

[1] Battistella F.D., Benfield J.R., Blunt and penetrating injuries of the chest wall, pleura, and lungs. In: Shields T.W. (Ed.) General Thoracic Surgery. Fifth ed. Philadelphia 2000 815–863.
[2] A. Eroglu, I. Can Kurkcuogu, N. Karaoganogu, C. Tekinbas, O. Yimaz, M. Basog, Esophageal perforation in thoracic trauma: the importance of early diagnosis and primary repair, Dis. Esophagus 17 (2005) 91–94.
[3] R.M. Stewart, M.G. Corneille, Common complications following thoracic trauma: their prevention and treatment, Semin. Thorac. Cardiovasc. Surg. 20 (2008) 69–71.
[4] J. Ali, T.J. Gana, Howard M.Trauma mannequin assessment of management skills of surgical residents after Advanced Trauma Life Support training, J. Surg. Res. 93 (2000) 197–200.
[5] E. De Lutio di Castelguidone, A. Pinto, S. Merola, C. Stavolo, L. Romano, Role of spiral and multislice computed tomography in the evaluation of traumatic and spontaneous oesophageal perforation, Radiol. Med. 109 (2005) 252–259.
[6] Hatipoğlu A., Bozer Y., Toraks travmaları. Toraks Cerrahisi 2007 (bölüm 11), 216.
[7] A. Başoğlu, A.O. Akdağ, B. Çelik, S. Demircan, GşğÇs travmalarö. 521 olgunun değerlendirilmesi, Ulus Travma Derg. 10 (2004) 42–46.
[8] Pearson's Thoracic and Esophageal Surgery, 3rd ed. Churchill Livingstone 2008, 1723.
[9] American College of Surgeons Committee on Trauma, Advanced Trauma Life Support (ATLS) for Doctors, 7th ed., American College of Surgeons Committee on Trauma, Chicago, 2004.
[10] J.V. O'Connor, J. Adamski, The diagnosis and treatment of non-cardiac thoracic trauma, J. R. Army Med. Corps 156 (2010) 5–14.
[11] W. Shields Thomas, J. LoCicero, General Thoracic Surgery, 6th ed., Lippincott Williams & Wilkins, 2005.
[12] I. Greaves, Thoracic trauma, in: Trauma Care Manual, Oxford University Press, 2016.