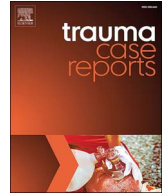


Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Trauma Case Reports

journal homepage: www.elsevier.com/locate/tcr

Case report

Importance of the capability for complete resuscitative treatment combining surgery and interventional radiology for potentially lethal multiple injuries: A case report

Hiroyuki Otsuka*, Toshiki Sato, Keiji Sakurai, Hiromichi Aoki, Takeshi Yamagiwa, Shinichi Iizuka, Sadaki Inokuchi

Department of Emergency and Critical Care Medicine, Tokai University School of Medicine, Japan

ARTICLE INFO

Keywords:

Resuscitative treatments
Life-threatening injury
Interventional radiology
Damage control strategy

ABSTRACT

Background: Recently, trauma management has been complicated owing to the introduction of damage-control strategies and interventional radiology. Here, we discuss important aspects regarding survival of patients with severe trauma.

Case presentation: A 74-year-old Japanese woman experienced a traffic accident on a highway. On arrival, paramedics were unable to measure her blood pressure, and her condition deteriorated. The patient was immediately transferred to our hospital in a physician-staffed emergency helicopter, during which she was administered emergency blood transfusions. On admission, her systolic blood pressure was 44 mmHg, and focused assessment with sonography for trauma yielded positive findings at the anterior mediastinum, right thoracic cavity, and intra-abdominal cavity. Plain radiography revealed a partial unstable-type pelvic fracture. Immediately, cardiac tamponade caused by the massive anterior mediastinal hematoma with internal thoracic vessel injuries was diagnosed through a median sternotomy, while a diaphragmatic rupture and hemorrhage from the intra-abdominal cavity were diagnosed through right anterior-lateral thoracotomy. Furthermore, massive bowel and mesenteric vessel injuries were diagnosed through laparotomy; all of these injuries were treated sequentially as a simplified process. The patient then underwent transcatheter arterial embolization for the retroperitoneal hematoma and the pelvic fracture. Reestablishing intestinal continuity was performed after intensive care. All procedures were seamlessly performed by trained emergency physicians, and the postoperative course was uneventful, with the patient recovering completely after rehabilitation.

Conclusions: The capability to perform complete resuscitative treatments that seamlessly combine surgery and interventional radiology in the appropriate order is important for the survival of patients with multiple traumatic injuries.

Background

It is important to accurately decide on and then perform without delay a life-saving management strategy for patients with severe traumatic injury [1]. Recent trauma management protocols have been complicated owing to the introduction of damage control (DC) strategies and interventional radiology (IVR) [2–7].

* Corresponding author at: Department of Emergency and Critical Care Medicine, Tokai University Hospital, 143 Shimo Kasuya, Isehara City, Kanagawa Prefecture, Japan.

E-mail address: hirootsu@is.icc.u-tokai.ac.jp (H. Otsuka).

<http://dx.doi.org/10.1016/j.tcr.2017.10.007>

Accepted 24 October 2017

Available online 01 November 2017

2352-6440/© 2017 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

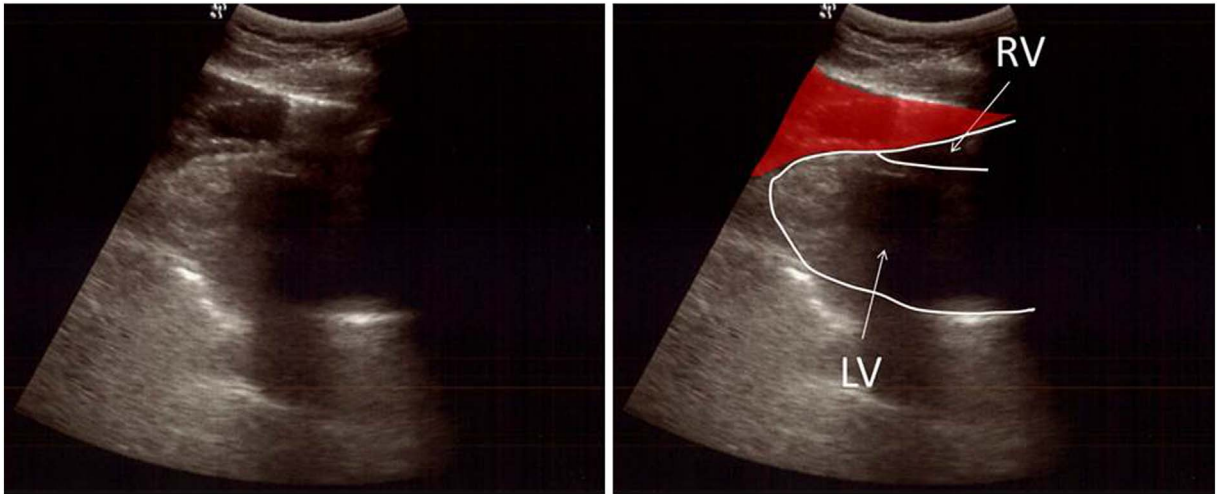


Fig. 1. FAST (focused assessment with sonography for trauma). The right ventricle was crushed slightly by the anterior mediastinal hematoma (red area). RV: right ventricle, LV: left ventricle. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

This case presentation describes the current important factors instrumental in saving the lives of patients with severe trauma.

Case presentation

A 74-year-old Japanese woman experienced a severe traffic accident on a highway. The paramedics could not measure her systolic blood pressure (sBP), and her condition subsequently deteriorated. Consequently, the paramedics urgently requested a trained emergency physician (TEP)-staffed helicopter. Upon arrival at the scene, the TEP performed a focused assessment with sonography for trauma (FAST) and administered emergency transfusions. The FAST indicated trauma in the anterior mediastinum (Fig. 1) and intra-abdominal cavity. After emergency surgery was arranged via radio communication, the patient was immediately transported to our hospital. During transportation, her sBP improved to approximately 100 mmHg.

On admission, her Glasgow coma scale score was E2V2M4, her respiratory rate was 30 breaths per minute, her pulse was 104 beats per minute, and her sBP dropped again to 44 mmHg. Her chief complaint was consciousness disturbance. Hence, a physical examination could not be completed. Laboratory evaluation revealed that her base excess was -13.4 mmol/L and her D-dimer and serum lactate levels were elevated, at 96.6 $\mu\text{g/mL}$ and 89 mg/dL, respectively. FAST additionally indicated trauma of the right thoracic cavity. Plain radiographs showed a massive hemothorax on the right side and a partial unstable-type pelvic fracture (Tile classification, type B). At this point, the diagnosis comprised the following: cardiac tamponade caused by massive anterior mediastinal hematoma (AMH), hemothorax on the right side, intra-abdominal hemorrhage, and pelvic fracture. Thoracostomy of the right thoracic cavity and median sternotomy were performed about 10 min later in the operating room (OR) of the emergency department (ED), where the massive AMH with internal thoracic vessel injuries was diagnosed and removed, and hemostasis of the internal thoracic vessels was also performed. Simultaneously, a sheath was inserted into the femoral artery to perform resuscitative endovascular balloon occlusion of the aorta (REBOA) for the abdominal and retroperitoneal hemorrhage. Consequently, the patient's sBP was momentarily elevated to 90 mmHg without REBOA; however, shortly thereafter, her sBP dropped to 60 mmHg. Hence, a right anterior-lateral thoracotomy was performed, during which a diaphragmatic rupture (Fig. 2) and hemorrhage into the intra-abdominal cavity were diagnosed. Additionally, immediate laparotomy was performed, where massive injuries to the bowels and mesenteric vessels (Fig. 3) and retroperitoneal hematoma were detected. Subsequently, hemostasis of the mesenteric vessels and bowel resection were performed; thereafter, the patient's sBP remained elevated up to 120 mmHg. After repairing the diaphragmatic rupture and brief closure of the thoracic and abdominal cavities, angiography (Fig. 4) and transcatheter arterial embolization (TAE) were used to treat the retroperitoneal hematoma and pelvic fracture in the angiography suite of the ED. Following TAE, the patient underwent computed tomography and was admitted to the intensive care unit.

The following final diagnoses were made: fractures of the left 6–10th ribs and sternum, hemothorax on the right side, hemo-pneumothorax on the left side, bilateral lung contusions, cardiac tamponade caused by AMH, left internal thoracic vessel injuries, right-sided diaphragmatic rupture, massive small bowel and mesenteric vessel injuries, retroperitoneal hematoma, partial unstable-type pelvic fracture (Tile classification, type B), fracture of the 5th cervical vertebral body, and fracture of the left 5th transverse process of the lumbar vertebra. Her revised trauma score was 3.4786, while the injury severity score was 57 and probability of survival was 0.0158.

Reestablishing intestinal continuity was performed about 24 h after admission. All procedures listed here were performed seamlessly by TEPs in our hospital. Other injuries were treated conservatively without surgery. The postoperative course was uneventful, and the patient recovered completely after rehabilitation and was discharged 2 months later.

Download English Version:

<https://daneshyari.com/en/article/8804906>

Download Persian Version:

<https://daneshyari.com/article/8804906>

[Daneshyari.com](https://daneshyari.com)