

Case Report

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Blunt Abdominal Trauma with an open Book Pelvic Fracture and a retrohepatic caval injury in a patient with cirrhosis

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Received: October 23, 2024; **Accepted:** October 25, 2024; **Published:** November 08, 2024

Case Report

A 42-year-old male was involved in a high-speed motor vehicle collision. He was intubated at the scene and transported to a Level 2 trauma center. On admission his vital signs were: Blood pressure was 75/40 Pulse – 94, Resp – 14 (on ventilator) and Temp – 98. The GCS was 3. The abdomen was non-distended. The initial FAST was negative. The CXR revealed bilateral rib fractures and a left pneumothorax. A left chest tube was inserted (Figure 1). The pelvic film revealed an open book pelvic fracture and a right acetabular fracture (Figure 2). A pelvic binder was placed and three units of packed cells started. Initial labs revealed a base deficit of 12, Lactate of 6.1, Hemoglobin of 9.5 Prothrombin time (PT) of 20 with a Partial thromboplastin time (PTT) of 40. The INR was 1.9. Repeat vital signs were improved. The patient was transported to CT. CT of the brain was negative for acute injury. CT of the abdomen revealed perihepatic blood, suprarenal IVC injury, a grade V liver laceration and a grade 5 spleen injury (Figures 3 and 4). A grade 3 right kidney injury was evident as well. The patient was taken to the operating room for abdominal exploration. The grade V spleen injury was confirmed and a splenectomy was performed. The liver was cirrhotic and bleeding was arising from the back wall of the right lobe. The liver was packed. The splenic bed was packed as well. An on table cystogram was performed because of hematuria. This study was consistent with an extra peritoneal bladder injury. A grade 1 right colon injury was repaired with interrupted silk sutures. A negative pressure dressing was placed to close the abdomen. The estimated blood loss was 7 liters. Intra-operatively he received 24 Packed red blood cells, 13 fresh frozen plasma, 3 cryoprecipitate and 2 platelet packs. His lowest intra-operative ph was 7.06 and his lowest temperature was 32.6 Celsius. The patient was transported to the ICU in critical condition. Intraabdominal pressure was monitored utilizing bladder pressures. The coagulation profile was corrected. He was taken back to the operating room in 48 hours and all packs were removed and the abdomen was closed with a negative pressure dressing again. He was diuresed and subsequently had a third laparotomy with closure of the abdomen using component separation. An external fixation device was used to stabilize the pelvis. Nosocomial pneumonia occurred and this was addressed with broad spectrum antibiotic therapy. Renal failure and liver failure ensued but reversed with dialysis support. Clostridium difficile colitis developed and this responded to enteral vancomycin therapy. A tracheostomy was performed. He was eventually weaned from the ventilator and extubated uneventfully.

He began to tolerate oral intake. He was discharged to home after a 61-day hospital stay (43 of those days in intensive care).



Figure: 1



Figure: 2



Figure: 3



Figure: 4

Discussion

This patient presented in shock with an open book pelvic fracture and a negative FAST. Aggressive resuscitation was paramount and the principles of ATLS were utilized [1]. A left pneumothorax was addressed with a left chest tube and a pelvic binder was placed. 3 units of packed cells were administered and with improvement of his vital signs the patient was taken to CT.

Life threatening intra-abdominal injuries were noted and abdominal exploration was performed. Gross evidence of cirrhosis was noted and packing for any Grade V liver injury related to blunt trauma was a primary option [2]. Splenectomy in this setting is recommended [3]. The kidney injury was contained and a damage control approach was followed. Packing of the left upper quadrant to control the splenic bed was performed. Correction of coagulopathy in a trauma patient is predicated on the administration of whole blood and component therapy [4].

Tranexamic acid (TXA) has been a critical adjunct in patients with evidence of fibrinolysis [5,6]. Crash 2 data has confirmed a decrease in mortality when TXA is administered in the pre-hospital phase [7]. Crash 3 data supports its use in patients with moderate head injury [8]. Our patient did not have a closed head injury and the resuscitation proceeded without the use of TXA. Thromboelastography would have been helpful in this setting to document the presence of fibrinolysis. Conventional coagulation parameters confirmed the presence of coagulopathy. His complicated post-operative course characterized by multi-organ dysfunction was expected given the pre-existing presence of cirrhosis and the profound shock present at the time of admission. In summary we present the case of a patient with cirrhosis and polysystem trauma with a retrohepatic caval injury. The hemorrhage responded to packing and a damage control approach. Although prolonged his post-operative course was one of incremental improvement until discharge to home.

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