



Management of Penetrating Retroperitoneal Trauma Resulting in Traumatic Aortic Pseudoaneurysm: A Case Report

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Introduction

- Traumatic abdominal aortic injuries are rare but carry high prehospital and in-hospital mortality.
- Traumatic aortic pseudoaneurysms (PSA) represent partial arterial wall disruption with contained hemorrhage.
- These lesions pose a significant risk of delayed rupture, even when initially hemodynamically stable.
- Management strategies include open and endovascular repair, guided by anatomy, injury pattern, and associated injuries.

Case Presentation

- A 36-year-old male sustained multiple gunshot wounds to the chest, back, and flank, arriving hemodynamically unstable despite prehospital transfusion.
- Initial trauma bay management included right thoracostomy tube placement for hemopneumothorax and aggressive blood product resuscitation.
- CTA revealed multifocal distal abdominal aortic intimal injury with a small PSA, large retroperitoneal hematoma, L4 burst fracture, pulmonary and diaphragmatic injuries.
- Given young age, complex injury pattern, and PSA location at the aortic bifurcation, endovascular repair was not feasible; proceeded with open repair.

Figure 1

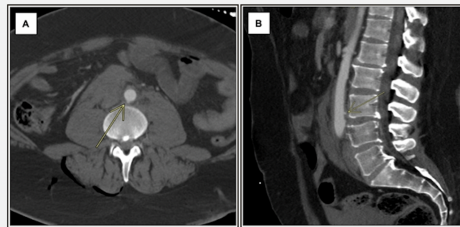


Figure 1. Preoperative computed tomography angiography demonstrating distal abdominal aortic PSA. A. Axial CTA of the abdomen showing focal posterior disruption of the distal infrarenal abdominal aorta (arrow) with a contained PSA and associated retroperitoneal hematoma. B. Sagittal CTA reconstruction demonstrating the same distal aortic PSA at the level just superior to the aortic bifurcation (arrow).

Figure 2

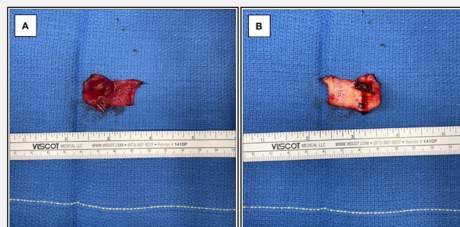


Figure 2. Intraoperative findings of distal aortic injury and PSA. A. Resected segment of the distal abdominal aorta demonstrating external ecchymosis and focal dilation corresponding to the traumatic PSA. B. Opened specimen ("played" view) revealing intraluminal thrombus adherent to the disrupted aortic wall, consistent with a contained traumatic PSA.

Disclosures

The authors have no conflicts of interest to disclose. The views expressed in this material are those of the authors, and do not reflect the official policy or position of Brooke Army Medical Center, the United States Government, the Department of War, or the Departments of the Air Force and Army.

Operative and postoperative course

- Emergent exploratory laparotomy revealed concomitant lateral inferior vena cava (IVC) injury and distal aortic PSA.
- The IVC was repaired primarily, and the injured distal aorta was resected and reconstructed with a rifampin-soaked Dacron interposition graft.
- Concomitant injuries were addressed, including small bowel resection with primary anastomosis and primary repair of two right diaphragmatic lacerations.
- Postoperatively, the patient was extubated on postoperative day 1, maintained palpable distal pulses, and was started on aspirin therapy.
- The hospital course was notable for transient urinary retention, resolving ileus, and gradual resolution of hemopneumothorax, without vascular complications.
- The patient was discharged home on postoperative day 12, ambulatory, tolerating diet, and with stable vascular examination.

Key takeaway

- Complex distal aortic PSA with adjacent IVC and concomitant traumatic injuries was successfully managed with open interposition graft reconstruction with excellent early outcome.