

Endovascular Treatment of Post-Traumatic Aortic Rupture

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Author(s):

Martin Rabellino, MD, Oscar Peralta, MD, Ricardo Garcia-Monaco, PhD

From the Department of Endovascular Therapy, Hospital Italiano de Buenos Aires, Ciudad Autonoma de Buenos Aires, Argentina.

ABSTRACT: The rupture of the abdominal aorta by blunt trauma is extremely rare and represents less than 5% of traumatic injuries of the aorta.¹ This pathology is associated with an elevated mortality. Most patients with aortic rupture do not reach the hospital alive and of those who survive until they reach the hospital, 75% die within the first 4 hours.² We report a case of aortic rupture by blunt trauma in an octogenarian patient. She was admitted to the emergency room in shock and received endovascular therapeutic treatment.

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Key words: aortoiliac artery, stent graft, endovascular therapy, endovascular grafts

Case Report

An 82-year-old female patient suffered multiple fractures from a fall 12 days prior to admission. At admission, she presented with sudden tachycardia and dyspnea. A ventilation/perfusion scan showed a high probability of pulmonary embolism. She received anticoagulation therapy, and orthopedic surgery was planned.

Prior to the orthopedic surgery, the anticoagulation therapy was suspended. A filter was placed in the inferior vena cava, and the procedure was performed without complications. She was discharged from the hospital.

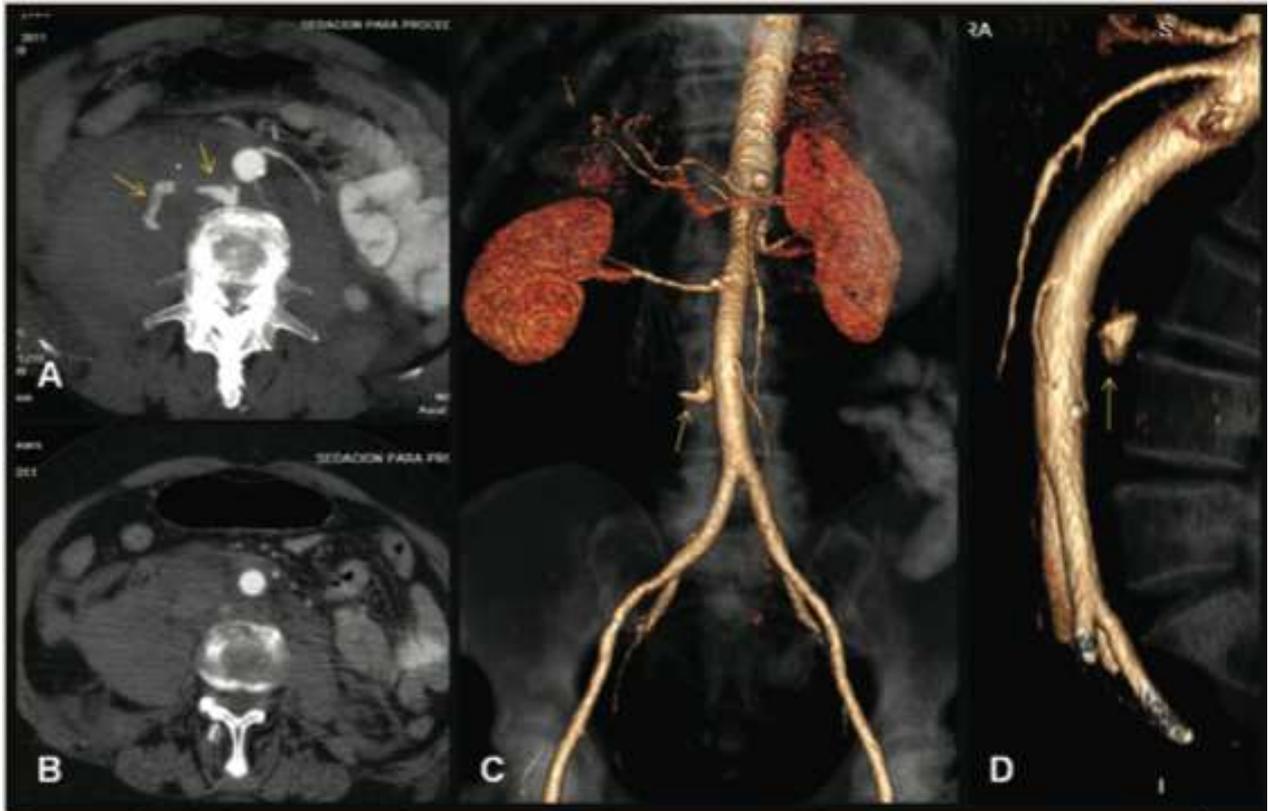


Figure 1. Multislice computed tomography showing active bleeding with extravasation of contrast medium (arrows) from the back of the infrarenal abdominal aorta (A). Multislice computed tomography shows the extent of retroperitoneal hematoma (B). Three-dimensional reconstruction of multislice computed tomography showing extravasation of contrast medium from the back of the aorta (arrows) up to the ostium of the inferior mesenteric artery (C).

Five days after the procedure, she was admitted to the emergency department with abdominal pain and hemodynamic instability. A multislice computed tomography (MSCT) scan showed active bleeding in the back of the infrarenal abdominal aorta (Figure 1). A subtraction angiography confirmed the findings of the MSCT (Figure 2A), and then endovascular treatment was performed by placing a 16 x 41mm Advanta V12 Atrium balloon-expandable covered stent (Atrium Medical Corporation), which closed the site of bleeding (Figure 2B).



Figure 2. The abdominal aorta angiography showing the site of rupture and extravasation of contrast material (arrows) (A). Final control angiography after covered stent placement shows exclusion the site of injury without evidence of extravasation of contrast medium (B).

After 6 days of treatment the patient was discharged with no complications related to the endovascular procedure.

Discussion

The treatment of aortic rupture traditionally has been conventional surgery, but since the advent of endovascular treatment by placement of a stent graft, this therapeutic modality has gradually become the treatment of choice for ruptured thoracic and abdominal aortic aneurysm.^{3,4}

There is scarce literature about endovascular treatment in blunt trauma of the abdominal aorta and most of them are case reports. This could be due to the low incidence of this pathology and the low percentage of patients who survive. However, the endovascular treatment of aortic rupture when it is below the visceral arteries represents an attractive alternative according Shalhuh et al, who recently published a study of 28 patients treated for traumatic rupture of the abdominal aorta with endovascular therapy.²

Endovascular treatment should be considered as first-line treatment in patients with injuries located below the infrarenal level. Besides being less invasive, the procedure is faster with less associated morbidity.

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*Address for correspondence: Martin Rabellino, MD, Hospital Italiano de Buenos Aires, J.D. Peron 4190 (C1181ACH) Buenos Aires, Argentina.
Email: jose.rabellino@hospitalitaliano.org.ar*