

Aortocaval Fistula: A Rare Complication of Ruptured Abdominal Aortic Aneurysm

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Aortocaval fistula is a rare complication of aortic aneurysm, occurring in approximately 0.2% to 6.04% of all abdominal aortic aneurysms.¹ It may occur in the context of aortic aneurysm rupture, aortitis, Ehlers-Danlos syndrome, Marfan syndrome, or penetrating abdominal trauma.^{1,2} The classic clinical signs are abdominal pain, abdominal thrill, and symptoms of decompensated heart failure.¹ It is usually diagnosed via computed tomography angiography, and typical findings include early contrast enhancement of the inferior vena cava (prior to contrast of the renal and hepatic parenchyma) and retrograde enhancement of the renal or iliac veins.¹ Open surgical treatment has high associated morbidity and mortality, with reported rates of approximately 30%. With the advent of endovascular therapy, these rates have been reduced, with success rates as high as 96%.³

An 85-year-old male patient, with hypertension and history of tobacco use, was admitted to the emergency unit with a history of sudden onset of abdominal pain four days prior, associated with a pulsating abdominal mass in the hypogastric region. Tomography angiography of the total aorta was performed, showing a pararenal abdominal aortic aneurysm with a diameter of 11.5 cm, extending from the right renal artery to the aortic bifurcation, with signs of tamponade rupture into the retroperitoneum (Figure 1A), associated with an aortocaval fistula with a point of communication at the level of the iliac veins. In the tomography image, retrograde and early enhancement of the iliac veins was observed in the arterial phase (Figure 1B and 1C). During clinical evaluation, the patient presented hemodynamic instability, and an emergency surgical procedure was indicated. Intraoperatively (Figure 2), an aneurysm with signs of rupture was found, showing thrill on palpation. The patient evolved with refractory hypotension and died.

Aortocaval fistula is a rare complication of abdominal aortic aneurysm, and it is associated with high morbidity and mortality

rates. Knowledge about it is highly important for suspected diagnosis, in order to improve patients' survival results.

Author Contributions

Conception and design of the research and analysis and interpretation of the data: Gomes KEB, Sanvesso EK, Joviliano EE, Ribeiro MS, Zampieri EHS; acquisition of data: Gomes KEB, Sanvesso EK, Zampieri EHS; writing of the manuscript: Gomes KEB, Sanvesso EK; critical revision of the manuscript for intellectual content: Gomes KEB, Joviliano EE, Ribeiro MS, Zampieri EHS.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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Study Association

This study is not associated with any thesis or dissertation work.

Ethics Approval and Consent to Participate

This study was approved by the Ethics Committee of the HCFMRP-USP under the protocol number 68048223.7.0000.5440. All the procedures in this study were in accordance with the 1975 Helsinki Declaration, updated in 2013. Informed consent was obtained from all participants included in the study.

Keywords

Arteriovenous Fistula; Aortic Rupture; Vascular Surgical Procedures

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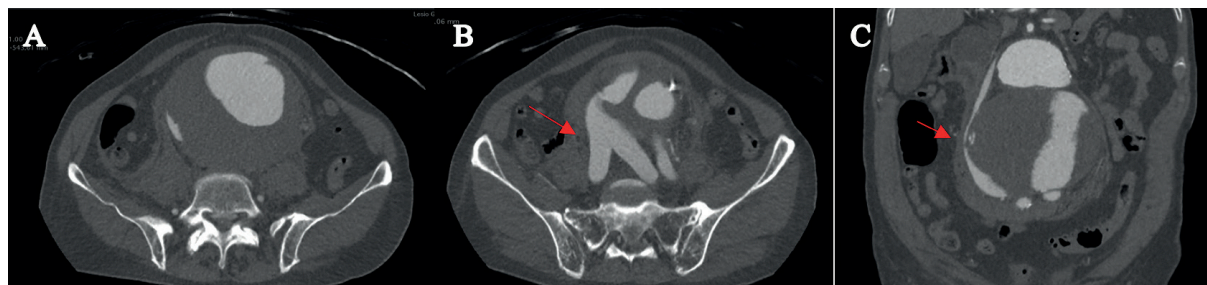


Figure 1 – A) Abdominal aortic aneurysm with signs of tamponade rupture; B) retrograde and early enhancement of the iliac veins (arrow) in the arterial phase; C) abdominal aortic aneurysm compressing the inferior vena cava (arrow) showing early enhancement in the arterial phase due to an aortocaval fistula.

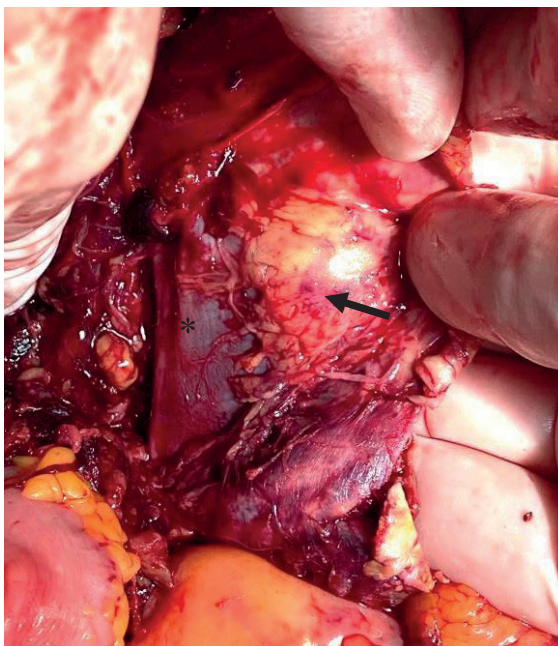


Figure 2 – Intraoperative finding showing inferior vena cava (*) and aortic wall (arrow) in close contact with an area of aortocaval fistula.

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