Incidentally Detected Aortocaval Fistula Associated with an Abdominal Aortic Aneurysm: A Case Report

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Abstract

An 86-year-old woman with a known abdominal aortic aneurysm underwent CT angiography with lower-extremity runoff for left-leg circulatory symptoms. Imaging demonstrated an aortocaval fistula, right atrial enlargement and dilated pelvic veins. The fistula was described as clinically asymptomatic and was treated by endovascular aneurysm repair eight days after detection. In the hours after the procedure, abdominal pain developed. CT angiography showed superior mesenteric artery occlusion and intestinal ischaemia. Palliative care was instituted, and the patient died the following day. This case illustrates incidental detection of an aortocaval fistula during imaging for another indication and the importance of assessing new abdominal symptoms after intervention.

Keywords: EVAR, asymptomatic, AAA, aortocaval fistula, complication

Introduction

Aortocaval fistulas are an uncommon complication of abdominal aortic aneurysms [1, 2]. Shunting of arterial blood into the venous system may cause venous hypertension and high-output cardiac failure, with symptoms such as leg oedema and shortness of breath [1, 2]. A fistula may also be detected incidentally during imaging performed for another indication [4].

Case Report

An 86-year-old woman with a known abdominal aortic aneurysm underwent abdominal aortic CT angiography (CTA) with lower-extremity runoff for left-leg circulatory symptoms and suspected superficial femoral artery occlusion. CTA demonstrated an abdominal aortic aneurysm communicating with the inferior vena cava. Right atrial enlargement and dilated pelvic veins were also present. Arterial-phase CTA demonstrated early opacification of the inferior vena cava and adjacent venous structures, with dilated pelvic veins (Figure 1).

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Pre-intervention CT Angiography

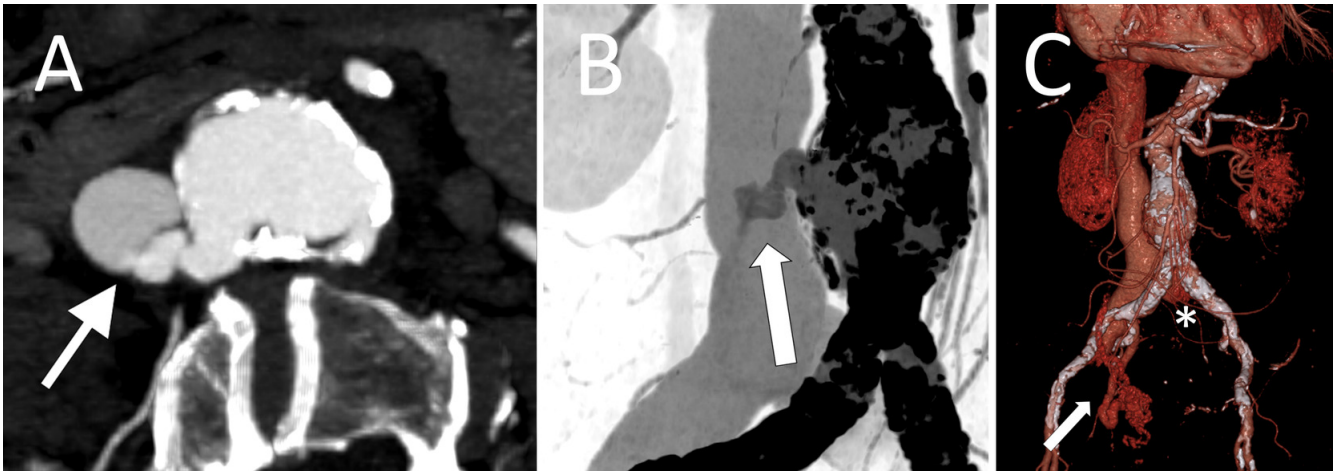


Figure 1. (A) Axial CTA demonstrates communication between the abdominal aortic aneurysm and the inferior vena cava, with early venous contrast opacification (arrow). (B) Coronal maximum-intensity projection depicts the aortocaval communication and opacified inferior vena cava (arrow). (C) Volume-rendered reconstruction demonstrates the vascular anatomy, uneven contrast opacification and dilated pelvic veins.

Intervention and Clinical Course

The fistula was described as clinically asymptomatic and was not treated as an immediate emergency. Endovascular aneurysm repair (EVAR) was performed eight days after its detection (Figure 2). In the hours after the procedure, the patient developed abdominal pain. Contrast-enhanced abdominal CTA showed superior mesenteric artery occlusion and intestinal ischaemia. In view of her poor overall condition, palliative care was instituted, and she died the following day.

Discussion

Aortocaval fistulas have been reported with abdominal aortic aneurysms and with other conditions, including infection, inflammatory or connective-tissue disorders, penetrating trauma and iatrogenic injury [1, 2, 4, 5]. An aortocaval fistula can also occur in association with a late type II endoleak after EVAR [3]. The present fistula was discovered before intervention during CTA for left-leg circulatory symptoms.

CTA can demonstrate the communication between the aorta and the inferior vena cava, early venous contrast opacification and loss of the intervening fat plane [1, 2, 5]. Dilated pelvic veins and an enlarged inferior vena cava may provide additional clues [2]. In this case, the imaging findings supported the diagnosis despite the absence of symptoms specifically attributed to the fistula.

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Post-intervention CT Angiography

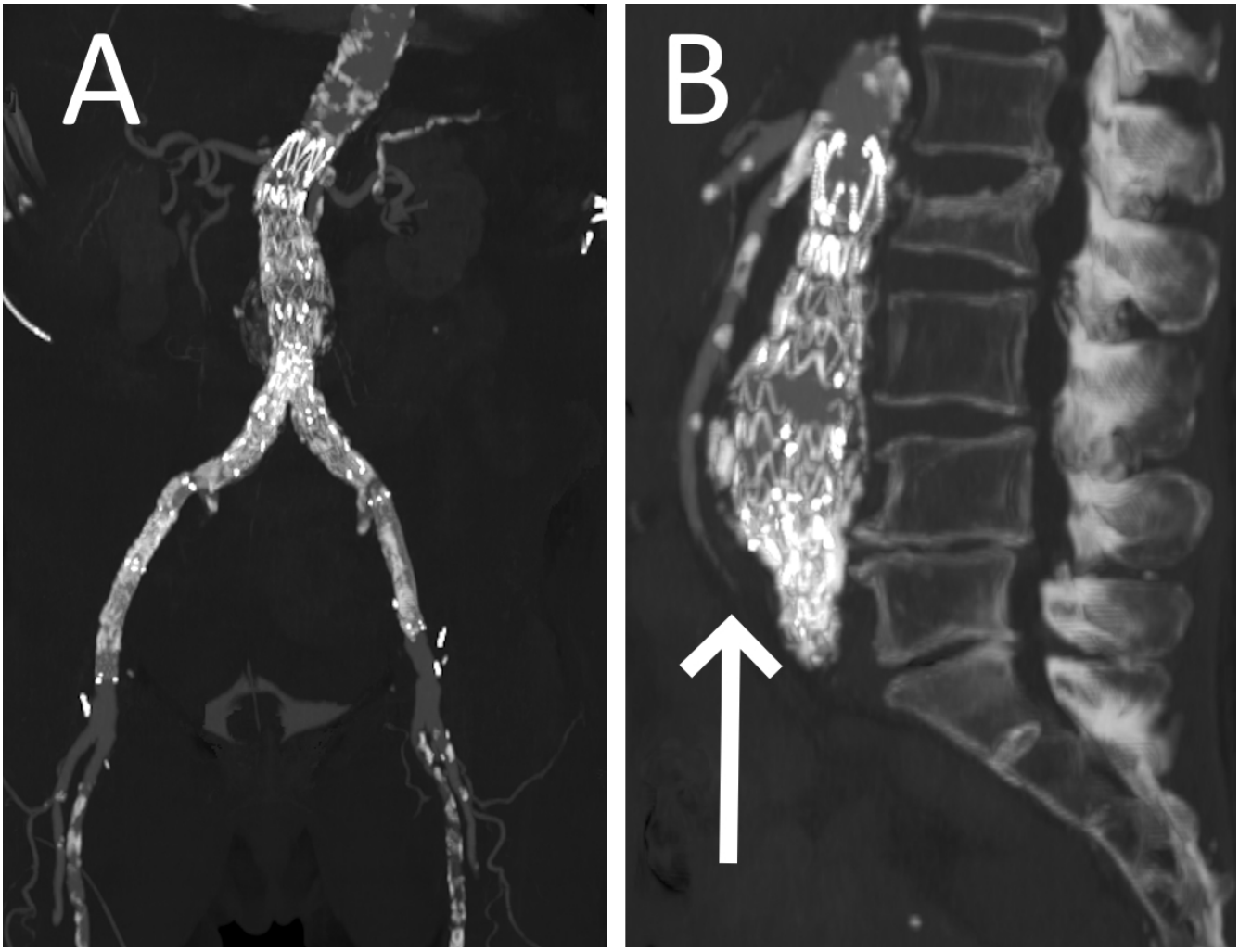


Figure 2. (A) Coronal maximum-intensity projection after stent-graft placement in the abdominal aorta and common iliac arteries. (B) Sagittal maximum-intensity projection of the abdominal aorta after EVAR.

Both open and endovascular repair have been described for aortocaval fistulas [1, 3, 5]. In this patient, EVAR was performed eight days after detection. New abdominal pain after the procedure prompted repeat CTA, which showed superior mesenteric artery occlusion and intestinal ischaemia. The mechanism of occlusion cannot be established from this case report.

Conclusion

An aortocaval fistula may be detected incidentally on CT angiography performed for another indication. In this case, the fistula was clinically asymptomatic at detection, whereas abdominal pain after EVAR prompted repeat imaging that showed superior mesenteric artery occlusion and intestinal ischaemia. The temporal sequence is reported without assigning an unproven mechanism of occlusion.

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Declarations

Conflict of Interest

The authors declare that there were no conflicts of interest within the meaning of the recommendations of the International Committee of Medical Journal Editors when the article was written.

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