

Successful Percutaneous Management of Ruptured Middle Colic Aneurysm Following Endovascular Aneurysm Repair

Mark E. O'Donnell, DipSEM, MB, MMedSc, MD, FRCS¹,
Kathryn E. Coan, MD¹, Sailendra G. Naidu, MD²,
and Samuel R. Money, MD¹

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Vascular Image Case

A 56-year-old male with end-stage renal failure secondary to hypertension was admitted for endovascular repair of an asymptomatic right common iliac aneurysm that had been identified intraoperatively during his renal transplant via a right retroperitoneal incision. Computed tomography (CT) angiography confirmed a 6.2-cm right common iliac aneurysm. Following bilateral vertical groin incisions to access the common femoral arteries, the patient proceeded to embolization of the right internal iliac artery using a 22-mm Amplatzer II plug. A bifurcated Zenith Flex abdominal aortic aneurysm endovascular stent was successfully deployed followed by the contralateral limb and then bilateral iliac extensions. Completion angiogram demonstrated successful exclusion of the right internal iliac artery and a late type II endoleak from the inferior mesenteric artery (IMA).

The patient was discharged home the following day but represented later that day to our emergency department following a syncopal episode with increased abdominal pain. The CT angiography revealed a left upper quadrant intraperitoneal hematoma with evidence of active contrast extravasation (Figure 1). The endograft was stable. Mesenteric angiography identified a 3-mm pseudoaneurysm arising from a branch of the splenic artery that was embolized. However, subsequent superior mesenteric angiography identified a larger pseudoaneurysm with active contrast extravasation at the junction of the middle colic artery and ascending branch of the IMA (Figure 2). Microcatheter access, because of tortuosity, facilitated coil embolization (Figure 3). Completion angiography confirmed arterial occlusion. He was discharged home on day 4. Six weeks later, he was treated for *Klebsiella* urinary sepsis where CT angiogram demonstrated a hematoma in the left upper quadrant, with no evidence of contrast extravasation. A percutaneous drain was inserted and bacteriological cultures identified *Klebsiella*. He completed a 2-week course of intravenous ceftriaxone followed by oral ciprofloxacin. He showed continued improvement clinically.

Endovascular aneurysm repair (EVAR) is an established treatment modality with a lower perioperative blood loss

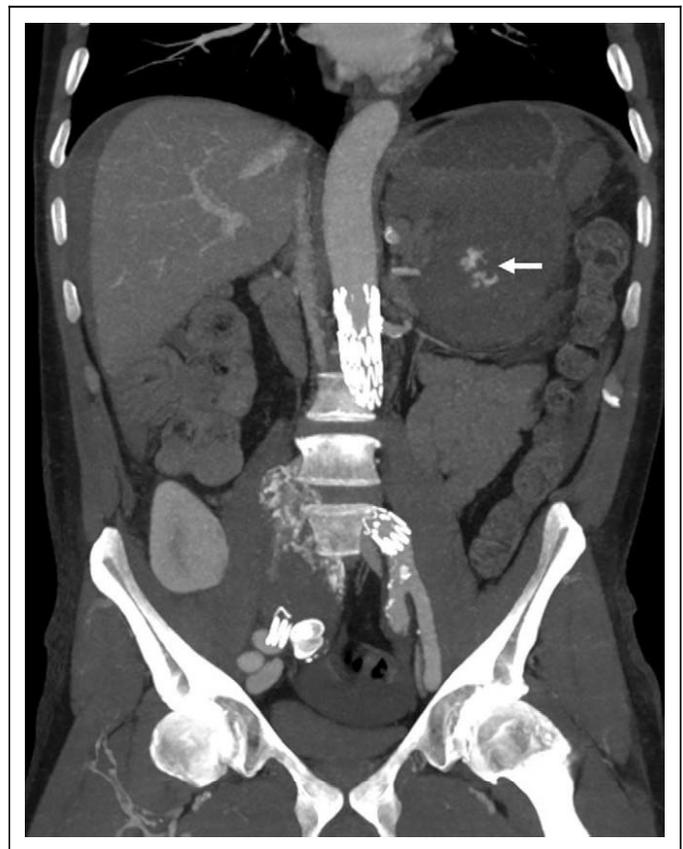


Figure 1. Coronal computed tomography (CT) angiogram demonstrating contrast extravasation (white arrow) in the left upper quadrant with surrounding hematoma. The endovascular stent has maintained a satisfactory position.

¹Division of Vascular and Endovascular Surgery, Mayo Clinic, Phoenix, AZ, USA

²Division of Vascular and Interventional Radiology, Mayo Clinic, Phoenix, AZ, USA

Corresponding Author:

Samuel R. Money, Division of Vascular and Endovascular Surgery, Third Floor Specialty Building, Mayo Clinic, 5777 East Mayo Boulevard, Phoenix, AZ 85054, USA.

Email: money.samuel@mayo.edu



Figure 2. Mesenteric angiography identifying a pseudoaneurysm with active extravasation at the junction of the middle colic artery and ascending branch of the inferior mesenteric artery. The previous splenic artery coil embolization using proximal and distal 6-mm and 8-mm “.018” Nester[®] coils (Cook Medical, Bloomington, Indiana) combined with Gelfoam[®] (Pfizer, NY, USA) is evident where the presumed source of bleeding was initially identified.

compared to open repair where potential sources of bleeding relate to the arterial access site or as a consequence of iatrogenic injury.¹ No such concerns were identified in our case. Apart from a small late type 2 endoleak, postdeployment angiogram was otherwise satisfactory. On readmission, initial concerns related to correct identification and cause of hemorrhage followed by emergent treatment. Although the initial CT scan suggested the splenic artery as the culprit that was treated by coil embolization, the authors stress the importance of conducting a full mesenteric angiogram even in the presence of a treated lesion, particularly in this case, where we identified additional active contrast extravasation.

It remains unclear exactly as to the exact etiology of the hemorrhage. Clearly, concerns regarding wire placement and iatrogenic injury during the EVAR itself were suggested. Although there was no exogenous placement of the Lunderquist wire during the EVAR, the authors emphasize the tortuous anatomy of the middle colic artery that required a microcatheter to facilitate access for the embolization. The authors' second hypothesis related to the possible effect of flow dynamic adjustment following deployment of the endograft,

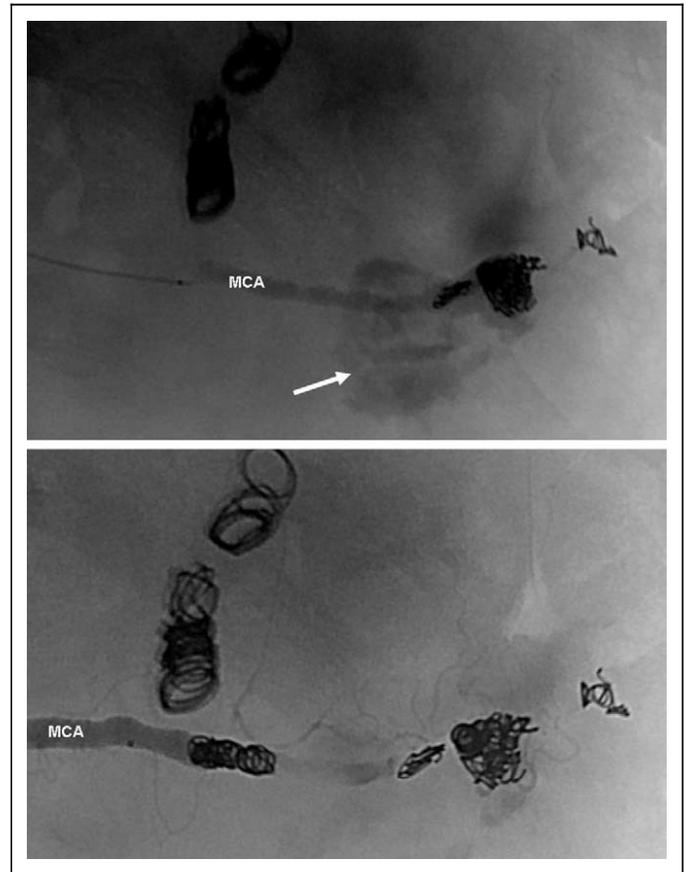


Figure 3. Mesenteric angiography identifying active extravasation of contrast from a middle colic artery (MCA) pseudoaneurysm (white arrow). Coil embolization of the pseudoaneurysm and distal middle colic artery was performed using a combination of VortX “.018” (3.2 mm and 3.7 mm) and Nester[®] (2 mm and 3 mm) coils (Cook Medical, Bloomington, Indiana). Previously inserted coils within the splenic artery are also evident.

whereby the patient may have had mesenteric microaneurysmal disease. However, this is mere speculation as we did not identify any evidence of mesenteric aneurysmal disease during the review of the initial CT angiogram.

Declaration of Conflicting Interests

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Reference

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