

# A Unique Case of Severe Hematochezia: Ruptured Pseudoaneurysm of the Superior Rectal Artery

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## ABSTRACT

Visceral artery aneurysms are rare, with an incidence of 0.01%–2% based on autopsy results. Among the visceral arteries, inferior mesenteric artery aneurysms are the rarest. To our knowledge, we report the first case of acute lower gastrointestinal bleeding in a 45-year-old man, arising from a nontraumatic pseudoaneurysm of the superior rectal artery, a branch of the inferior mesenteric artery. Urgent angiography provided the diagnosis and allowed successful hemostatic intervention via endovascular coil embolization. A subsequent routine colonoscopy revealed an ulcer with central yellow-bluish bulge in the distal rectum correlating with the site of the treated pseudoaneurysm.

## INTRODUCTION

Acute lower gastrointestinal bleed (ALGIB), which is currently defined as blood loss of sudden onset originating distal to the terminal ileum, results from a wide range of entities.<sup>1</sup> A very rare cause of ALGIB is the rupture of visceral artery aneurysms (VAA) and visceral artery pseudoaneurysms (VAPA).<sup>2–5</sup> VAA/VAPAs have a very low reported incidence of 0.01%–2%.<sup>4,6–9</sup> VAA/VAPA of the inferior mesenteric artery and its branches represent the rarest incidence of <1%.<sup>6,10,11</sup> We report a unique case of nontraumatic ALGIB arising from a pseudoaneurysm of the superior rectal artery (SRA).

## CASE REPORT

A 45-year-old man with a history of paraplegia because of complicated surgical management of cervical spondylotic myelopathy, diabetes mellitus, hypertension, gastroesophageal reflux disease, and end-stage renal disease on hemodialysis was brought to the hospital from a rehabilitation facility for painless hematochezia. He noted a copious amount of blood with clots per rectum for a few hours before presentation. There was no history of hematochezia, melena, easy bruising, or constipation. Colonoscopy for an unclear indication 8 years earlier was normal. He had no previous abdominal or vascular surgeries. Medications included pantoprazole and prophylactic subcutaneous heparin, but no other anticoagulation or antiplatelet medications. He was not on any laxatives either.

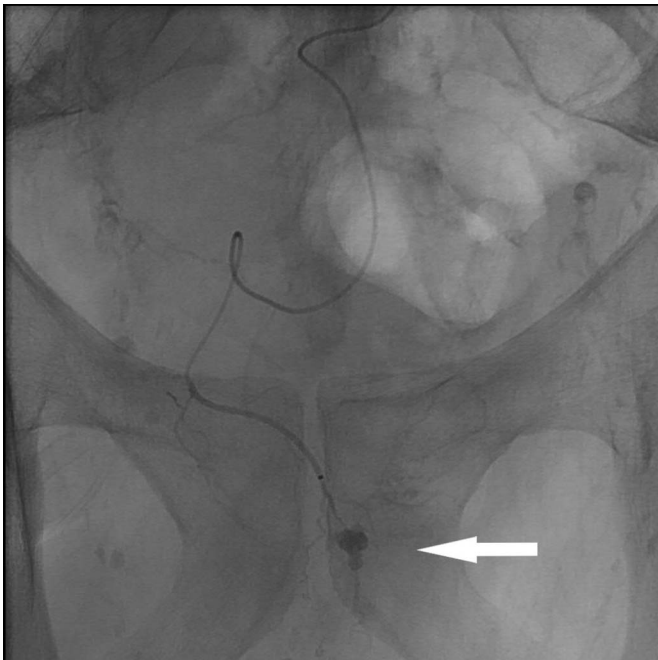
Vital signs revealed tachycardia with a heart rate of 110–120 bpm, but normal blood pressure. The patient was slightly diaphoretic, with pale conjunctiva. Bowel sounds were normal, and there was no abdominal tenderness. A large amount of bright blood was seen flowing out of the anus, but no source of bleed was seen from the perianal region. No hemorrhoids were noted. No stool was palpated in the rectal vault. Blood tests showed a hemoglobin of 7.2 g/dL (baseline: 9–10 g/dL) and platelet count of 314,000 per  $\mu$ L. Owing to the large amount of blood along with tachycardia, he was resuscitated with intravenous fluids and 2 units of packed red blood cells with improvement of the heart rate.

Abdominal and pelvic computed tomography with intravenous contrast showed a circumferential mural thickening of the rectum and sigmoid colon and a large amount of feces throughout the colon, but no diverticulosis. No extravasation of luminal contrast was seen. Extensive and diffuse atherosclerotic disease was also noted in the abdominal aorta and its main branches (Figure 1).

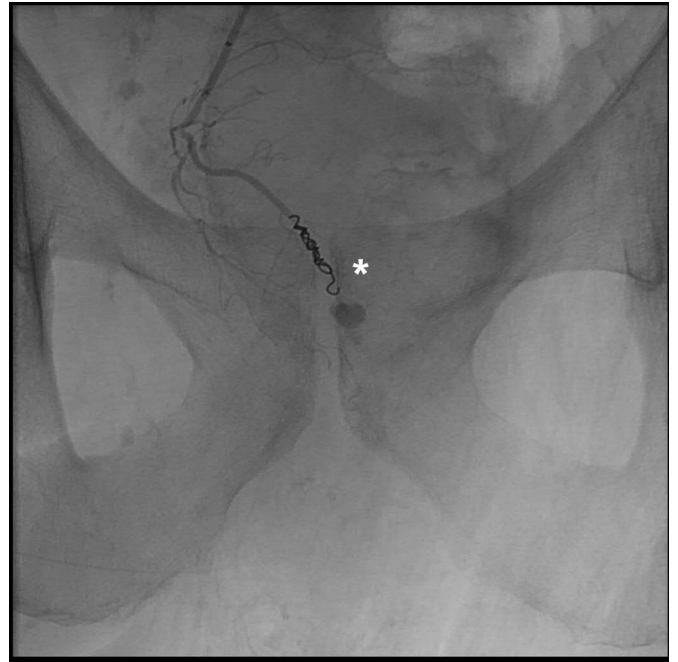


**Figure 1.** Coronal view of computed tomography of the abdomen and pelvis showing a substantial amount of feces and a significant burden of atherosclerotic disease.

Owing to the substantial amount of active bleeding, an urgent angiography by interventional radiology (IR) was determined to be the most appropriate approach and was performed. This study demonstrated a pseudoaneurysm emanating from the right SRA with a small amount of active extravasation into the rectum (Figure 2). Tornado Microcoils (Cook Medical, Bloomington, IN) were



**Figure 2.** Computed tomography angiography showing a pseudoaneurysm arising from a branch of the superior rectal (white arrow).



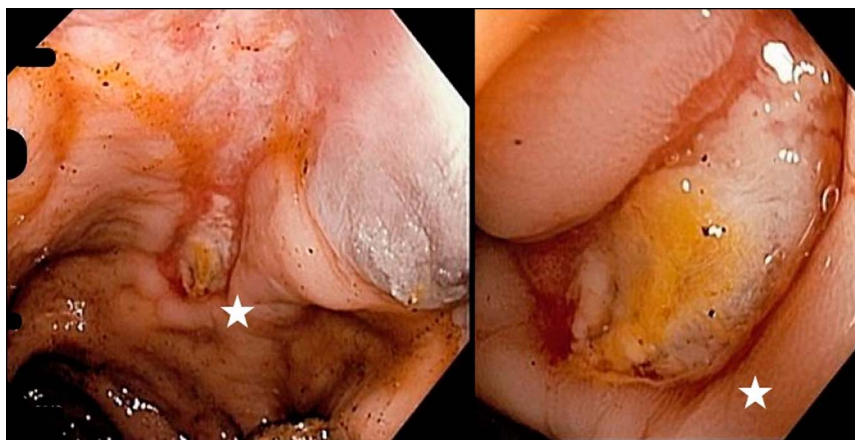
**Figure 3.** Computed tomography angiography after placement of a Tornado Microcoil just proximal to the pseudoaneurysm. The asterisk shows the location of the Tornado Microcoil just proximal to the pseudoaneurysm on a Computed tomography angiography scan.

deployed at the level of the pseudoaneurysm and were followed with a tiny amount of Gelfoam. Imaging after embolization demonstrated no further filling of the pseudoaneurysm or contrast extravasation (Figure 3). Hemostasis was achieved, and the hemoglobin remained stable for the next few days. Colonoscopy before discharge showed a 15-mm ulcer with a yellow-bluish bulge on the right anterior wall of the rectum, but no diverticula or arteriovenous malformations were identified throughout the colon (Figure 4).

## DISCUSSION

Although traumatic rupture of a VAPA involving the SRA have been reported, this case represents the first one to result from nontraumatic rupture of a pseudoaneurysm of the SRA, to our knowledge.<sup>2,3</sup> It was diagnosed and successfully treated through IR. An alternative approach could have been rapid bowel preparation with quick administration of oral laxative along with enemas. One would speculate that the use of vasoconstricting agent (eg, epinephrine) injection followed by hemoclip placement, electrocautery therapy, or over-the-scope clips could have been attempted, but such a large vascular defect might have been difficult to control with these modalities.

The SRA is one of the terminal branches of the inferior mesenteric artery supplying blood to the rectum all the way to the internal anal sphincter.<sup>12</sup> VAPA involving rectal arteries are very rare. Acute lower gastrointestinal bleed in cases of rupture have a high mortality. Compared with true aneurysm, the pseudoaneurysm's rate of rupture is much higher (76.3% vs 3.1%), requiring immediate treatment.<sup>13</sup>



**Figure 4.** Colonoscopy picture showing a rectal ulcer about 1 cm above the anorectal line (white star).

Endovascular therapy is a minimally invasive method encompassing coils and vascular plugs, injection of liquid embolic agents, placement of covered or flow-diverting stents, and percutaneous thrombin injection.<sup>4</sup> Although there are multiple modalities to treat lower gastrointestinal bleed endoscopically, cases presenting as brisk bleeding and those with hemodynamic instability could reasonably be triaged to IR-based minimally invasive endovascular interventions as a first-line approach.<sup>14</sup> Microcoils can be used in embolization of visceral artery aneurysms in target arteries with diameters less than 3 mm.<sup>5</sup>

Although our patient denied severe constipation, a large amount of feces was seen on computed tomography in the colon and rectum, raising suspicions that his VAPA could have resulted from local stercoral injury against substantially atherosclerotic arteries in the rectum. Probable fecal stasis because of slow transit after the development of quadriplegia could have unmasked the arterial defect and resulted in the bleeding.

## DISCLOSURES

Author contributions: G. Marusca and A. Yeddi wrote the manuscript and revised it for intellectual content. W. Kiwan and NA Masalmeh edited the manuscript and reviewed the literature. S. Newberger and R. Kakos revised the manuscript for intellectual content. M. Ehrinpreis approved the final manuscript. A. Yeddi is the article guarantor.

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Informed consent was obtained for this case report.

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