

Traumatic Pseudoaneurysm of the Inferior Mesenteric Artery Branch: A Rare Cause of Lower GI Bleeding and Treatment with Selective Coil Embolization

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To the Editor,

A forty-five-year-old man presented to emergency services with history of assault on the abdomen by a blunt object. He presented with diffuse abdominal pain and inability to pass stools and flatus. On examination, diffuse abdominal tenderness was present with guarding and rigidity. Emergency plain CT revealed perforation with free air in abdomen. Free air surrounding ileum and sigmoid loops was noted, suggesting the possibility of perforation. Patient was taken for immediate laparotomy in which about 2–2.5 L of hemoperitoneum was present. Sigmoid mesocolon perforation was noted with dusky appearing sigmoid colon. Resection of injured bowel with anastomosis was performed. Two perforations in the ileum were noted approximately 120 cm from the ileocecal junction and about 5 cm of ileum at that region appeared dusky. Resection of around 30 cm of ileum was done and brought out as ileostomy. Two mesenteric tears were noted involving mesentery of ileum, which were closed. He was on elective ventilation for 2 days and extubated. On tenth post-operative day, he developed hematemesis, and it was thought to be due to his alcoholic liver disease and was conservatively managed. Patient was transfused with 4 units of fresh frozen plasma during procedure. Twenty days after the resection and anastomosis, he developed bleeding per rectum of about 500 ml (of both fresh

blood with clots). Emergency CECT revealed pseudoaneurysm probably arising from the inferior mesenteric artery branch that probably communicated with the sigmoid colon (Fig. 1A, B). The pseudoaneurysm was located in the region of the sigmoid mesocolon tear. The pseudoaneurysm measured about 2.2 × 2.0 cm. No active extravasation was noted. In this case, recent laparotomy along with poor general condition of the patient meant endovascular intervention was the only option available. Patient was taken up for emergency coil embolization, as another episode of hematochezia might be fatal. Informed written consent for the procedure was taken from the patient and his wife. As it was done as emergency life-saving step, approval from Institutional Review Board was not required. Through left brachial arterial access, the inferior mesenteric artery (IMA) was catheterized using a 4F diagnostic catheter, and diagnostic angiogram was done. The left brachial approach was chosen as femoral approach was unsuccessful in reaching the sigmoid branch as normally inferior mesenteric artery has acute angle take-off from the aorta. Digital Subtraction Angiography (DSA) confirmed a pseudoaneurysm arising from the sigmoid branch of IMA between the left colic and superior rectal branches (Fig. 2A). The pseudoaneurysm measured about 2.2 × 2.0 cm with distal branch continuing toward the sigmoid. There were no branches distal to the pseudoaneurysm. Due to nature of pseudoaneurysm in the setting of acute massive rectal bleeding of more than 500 ml, coil embolization was considered in the proximal artery rather than within the pseudoaneurysmal sac itself. The left colic and marginal artery appeared normal, and hence, it was thought collateralization may develop even if the sigmoid branch is occluded without colic ischemia. The catheter was advanced into the sigmoid branch close to ostium of the pseudoaneurysm and 018' pushable coil (03 × 20 mm)

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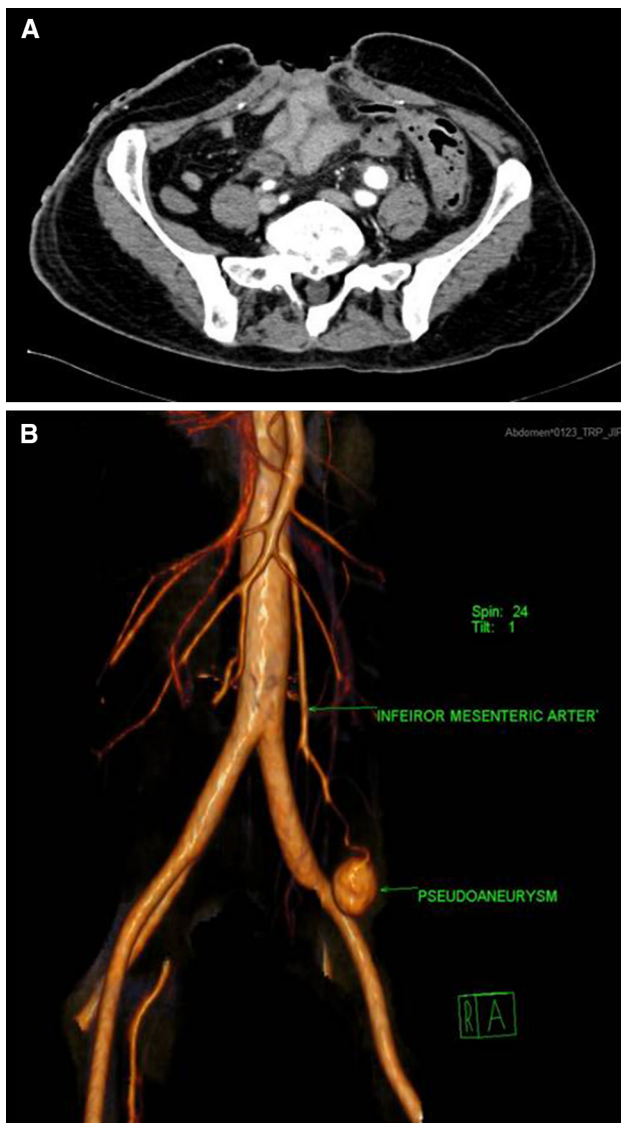


Fig. 1 CT angiography **A** showing the pseudoaneurysm anterior to left common iliac vessels and volume rendered (VR) image **B** showing pseudoaneurysm arising from inferior mesenteric artery branch

(Cook) was deployed. No coils were deployed within the pseudoaneurysm and in the artery distal to it. After the placement of one coil, check injections did not reveal any filling of pseudoaneurysm. Post-procedure check DSA showed complete exclusion of the pseudoaneurysm with preservation of blood supply to sigmoid by collaterals (Fig. 2B). Two days after, the patient underwent contrast CT that confirmed the non-filling and exclusion of the aneurysm without any adjacent bowel changes. Subsequent follow-up of the patient did not reveal any recurrence of rectal bleeding or any symptoms suggestive of colonic ischemia.

Aneurysms and pseudoaneurysms are relatively rare in inferior mesenteric artery (IMA) compared to other visceral arteries [1]. The commonest sites of visceral artery

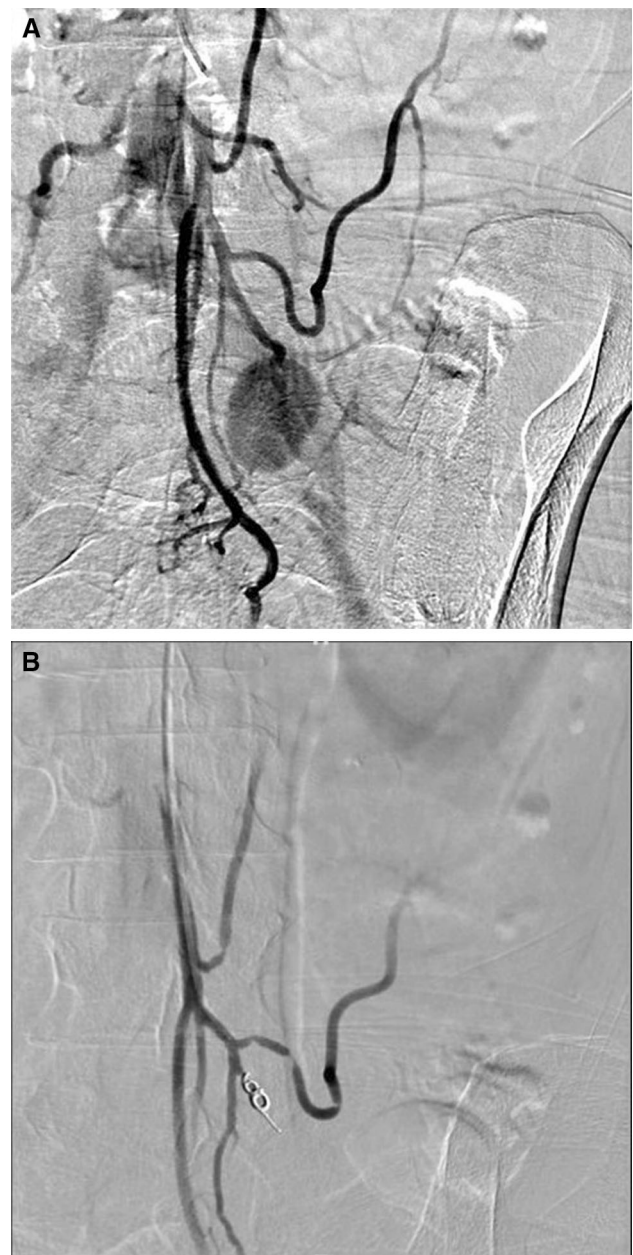


Fig. 2 Inferior mesenteric digital subtraction angiography (DSA) **A** showing pseudoaneurysm arising from the sigmoid branch in between the left colic and superior rectal branches. Faint opacification of aortic bifurcation and iliac arteries is noted. Post-coiling **B** DSA reveals complete exclusion of aneurysm. Minimal guidewire-induced vaso-spasm is present in left colic branch

pseudoaneurysms are the splenic artery–gastroduodenal artery, hepatic artery, superior mesenteric artery, and celiac trunk and are commonly associated with pancreatitis [2–4]. Visceral artery pseudoaneurysms are common secondary to pancreatitis. Till now approximately 60 cases of IMA aneurysms have been reported [5]. Atherosclerosis has been reported as the most common etiological cause followed by mycotic, polyarteritis nodosa, dissecting hematoma, Takayasu's disease,

iatrogenic, aortitis, segmental mediolytic arteritis, tuberculosis, Behcet's disease, and neurofibromatosis type 1 [5, 6]. Majority of the IMA aneurysms are localized in proximal trunk of IMA. Symptoms may include asymptomatic pulsatile mass or a dull abdominal pain and catastrophic collapse and shock when they rupture. The incidence of IMA aneurysm rupture varies between 20 and 50 %. There has been no reference to inferior mesenteric sigmoid branch pseudoaneurysm in the literature. One case of traumatic superior rectal artery aneurysm [7] and one case of left colic artery pseudoaneurysm secondary to pancreatitis [8] have been reported, presenting with lower and upper gastrointestinal bleeding, respectively. Both these patients had undergone successful coil embolization. The salient features in our case are the delayed presentation after surgery, the sigmoid branch location, the brachial approach used for access, and the preserved colonic blood supply due to collaterals. Various surgical approaches have been described for IMA aneurysm including ligation of parent vessel (if collateralization sufficient), resection, resection and re-implantation (if close to origin), by-pass, or prosthesis. At present, endovascular treatment offers safe and less-invasive treatment option for IMA pseudoaneurysm treatment and should be considered first line, even in hemodynamically stable patients.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Human and Animal Rights “This article does not contain any studies with human participants or animals performed by any of the authors. For this type of study, formal consent is not required.”

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