



Warfarin Overdose Associated Inferior Mesentery Artery Aneurysm Rupture Mimicking Spontaneous Bowel Hematoma

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Inferior mesentery artery (IMA) aneurysm rupture is easily overlooked in patients with abdominal pain due to its uncommon occurrence. It may result in catastrophic consequence once misdiagnosed as spontaneous bowel hematoma in patients with anticoagulant overdose and intra-abdominal hematoma, as treatment strategy for both diseases varies differently. We present a case of a 70-year-old male who came to our emergency department with the chief complaint of abdominal pain over periumbilical area, eventually diagnosed as anticoagulant overdose associated IMA aneurysm rupture without occlusion of superior mesentery artery (SMA) and celiac artery (CA). This case report alerts us to consider the rare other source of bleeding, for instance ruptured inferior mesentery aneurysm, while encountering such an extraordinary large intra-abdominal hematoma in patients on anticoagulant.

Key words: *abdomen pain, inferior mesentery artery aneurysm, spontaneous bowel hematoma*

Introduction

Abdominal pain is one of the most common chief complaint in the emergency department (ED), which encompasses broad varieties of differential diagnosis. Although most of them are non-fatal, life-threatening and catastrophic event may be hidden within the benign neglect. Inferior mesentery artery (IMA) aneurysm is the rarest among all visceral artery aneurysms, with poor prognosis once ruptured.¹ IMA aneurysm has rarely been considered in the differential diagnosis of acute abdominal pain; however, it is as important as aortic dissection and even easier to be misdiagnosed due to its uncommon occurrence. We present a case of a 70-year-old male who visited our ED for the chief complaint of abdominal pain over periumbilical area, eventually diagnosed as anticoagulant overdose associated IMA aneurysm rupture

without occlusion of superior mesentery artery (SMA) and celiac artery (CA). Immediate surgical ligation or resection is usually required under these circumstances according to previous literatures;¹ however, there are some exceptions, as in this case, managed well non-operatively.

Case Report

A 70-year-old man was sent to our ED via ambulance with the chief complaint of abdominal pain over periumbilical area for one day. The patient described the pain as dull, persisted and radiating to his back, without associated symptoms of vomiting, diarrhea or fever. The patient had underlying disease of hypertension, diabetes mellitus and atrial fibrillation under anticoagulant therapy for years. The patient has personal history of smoking about one pack per day

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for more than 50 years. Upon arrival, vital signs were unremarkable and physical examination revealed abdominal tenderness over periumbilical area without rebounding pain or muscle guarding. Bowel sound was hypoactive. Laboratory tests showed mild leukocytosis (11,280/ μ L), anemia (hemoglobin = 8.6 mg/dL), and prolonged international normalized ratio (> 10). Plain abdominal film showed localized bowel gas over left quadrant of abdomen (Fig. 1). Abdominal computed tomography (CT) was arranged for further evaluation, which revealed of large amount hyperdensity hematoma over left upper quadrant adjacent to jejunum (Fig. 2); and a 2-cm diameter hyperdensity nodule over left upper quadrant area within IMA territory (Fig. 2). Vitamin K and antifibrinolytic agents were given instantly, along with blood transfusion of packed red blood cell (RBC) and fresh frozen plasma under the impression of anticoagulant induced spontaneous bowel hematoma. However, the hematoma seemed to be far larger than the usual presentation of spontaneous bowel hematoma, which should be small and localized within submucosal or intramural region. Angiography was then performed to seek for other possible source of the bleeding. Angiography revealed two astonishing IMA aneurysms over the superior branch, each for 1.5 cm and 0.5 cm, with mild vascular leakage (Fig. 3). Diffuse skip ectasia of the inferior branch of the IMA was also noted, which indicate atherosclerosis (Fig. 3). Five vascular coils were deployed to cease the bleeding. CT angiography was arranged to rule out occlusion of CA and SMA,

which is a common etiology of the disease. The result showed patent arterial enhancement over both SMA (Fig. 4) and CA (Fig. 4). The patient was admitted for further observation with conservative medical treatment. Additional colonoscopy and panendoscopy were done during admission, with result showed negative findings. The patient's symptom improves

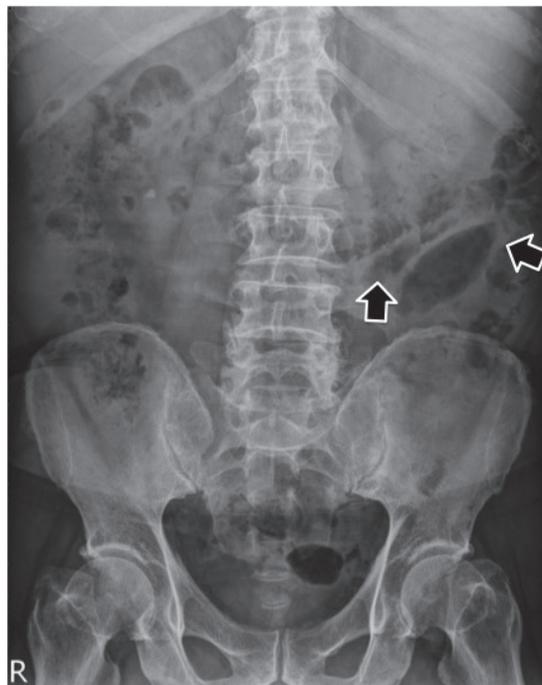


Fig. 1. Localized bowel gas over left quadrant of abdomen (arrows).

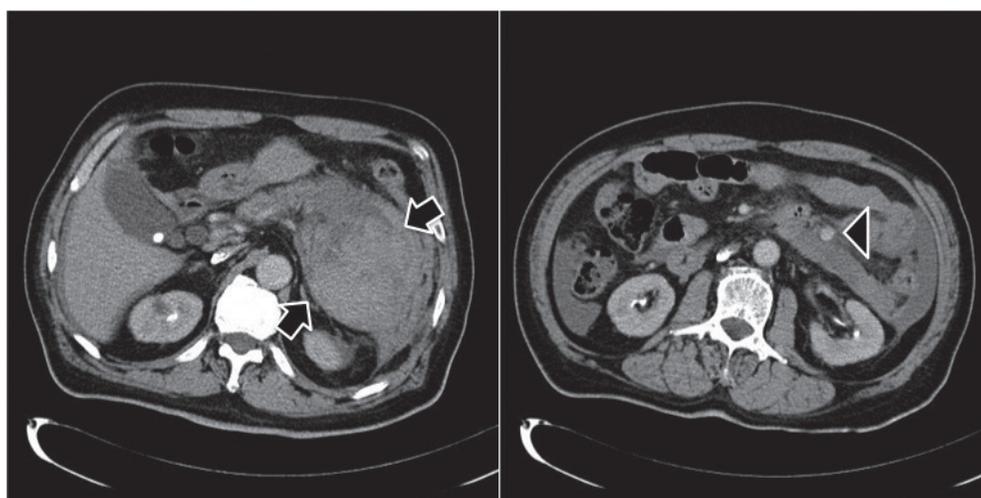


Fig. 2. Large amount hyperdensity hematoma over left upper quadrant adjacent to jejunum (arrows). A 2.0 cm diameter hyperdensity nodule over left upper quadrant area within inferior mesentery artery territory, suspecting vascular aneurysm (arrow head).

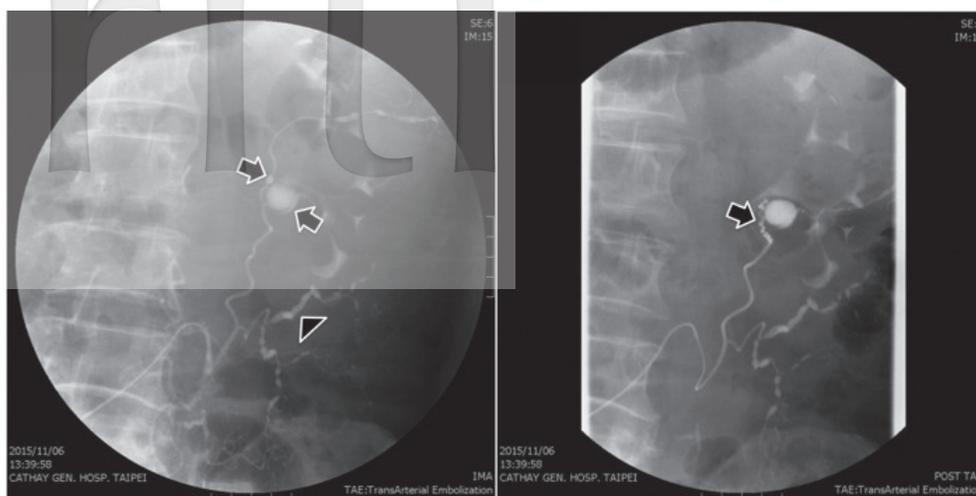


Fig. 3. Two inferior mesenteric artery (IMA) aneurysms over the superior branch, each for 1.5 cm and 0.5 cm, with mild vascular leakage (arrows). Diffuse skip ectasia of the inferior branch of the IMA was also noted, which indicate atherosclerosis (arrow head).

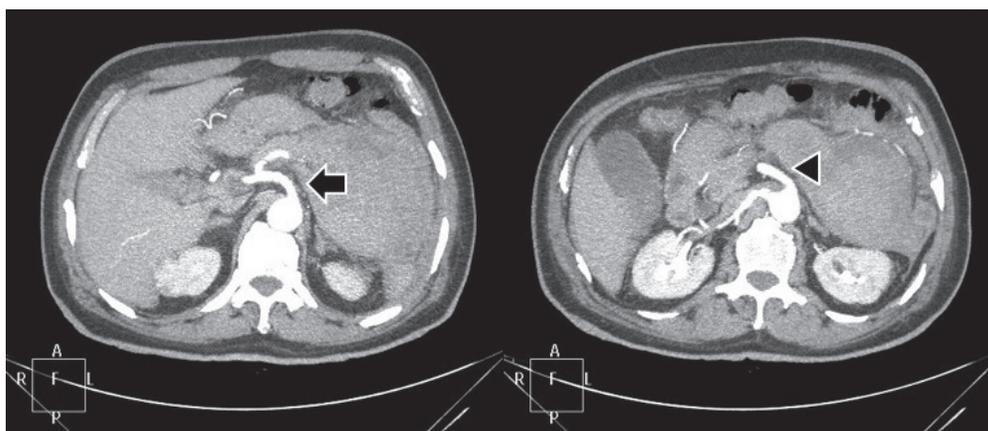


Fig. 4. Patent contrast medium enhancement over celiac artery (CA) (arrow). Patent contrast medium enhancement over superior mesenteric artery (SMA) (arrow head).

gradually, and was discharged under stable condition 5 days later.

Discussion

As the diagnostic facility improves, reports of IMA aneurysms have increased gradually. However, IMA aneurysm still remains the rarest among all visceral artery aneurysms, which accounts for less than 1% within the distribution of aneurysms of the splanchnic vessels.² Etiology of the disease varies, including infection, polyarteritis nodosa, mediolytic arteritis, Behçet disease, neurofibromatosis, mesenteric venocclusive disease.³ Atherosclerotic disease was the

most common cause of IMA aneurysm;¹ other possible pathophysiology of the disease include concurrent occlusion of the SMA and CA, which greatly increases the turbulent blood flow in the IMA, regarding as the “jet disorder” phenomenon. This may produce localized high arterial pressure leading to aneurysm formation in unadapted vessels.⁴ Most IMA aneurysms are localized in proximal trunk of IMA and are usually asymptomatic until rupture.¹

Common clinical manifestations were low back pain, pulsatile abdominal mass, collapse and hemorrhagic shock due to rupture.⁵ Both CT angiography and angiography may be fast and efficient to diagnose the disease. For patients with compromised renal

function, sixty-four slice CT may be an alternative for its ability to visualize critical morphological features using a reduced contrast medium.⁶ Surgical intervention should be considered if an IMA aneurysm is greater than 2 cm at the proximal or 1 cm at the distal of the IMA.⁶ If both CA and SMA are patent, the IMA aneurysm can be treated simply by resection or ligation.¹ It is best to re-vascularize both the CA and SMA whenever feasible for three reasons: firstly, suppressing the “jet disorder” phenomenon; secondly, minimize intra-abdominal organ ischemia; finally, prevents intra-abdominal organ ischemia after surgery.¹ As in the presented case, the patient had patent SMA and CA, with atherosclerotic IMA vessels, which was managed successfully with trans-arterial embolism alone without complication.

The relationship between the use of anticoagulants and aneurysm rupture may still be controversial and lack of evidence. No randomized clinical trial is available to support higher aneurysm rupture rates following the use of anticoagulants. However, some small sample sized retrospective studies could not convincingly exclude higher rates of aneurysmal hemorrhage in anticoagulant patients.^{7,8}

We should beware of the differential diagnosis of spontaneous bowel hematoma in patients on anticoagulant, presenting with abdominal complaints and raised international normalized ratio (INR) value.⁹ As in this case, the patient matches most of the description above. However, instead of the classic spontaneous bowel hematoma which CT features of circumferential, hyperdense segmental wall thickening, coiled spring sign and pseudo-kidney sign,¹⁰ the patient had a rather colossal hematoma without obvious evidence of bowel wall thickening. Treatment strategy varies vastly, as spontaneous bowel hematoma was often treated conservatively, whereas ruptured IMA aneurysm should be treated aggressively with either surgical intervention or trans-arterial embolization. The patient may end up differently if diagnosed inaccurately.

Conflicts of Interest Statement

None of the authors have any conflicts to disclose.

Author Contributions

All of the authors participated in the design of

the study, acquisition, and interpretation of data, and drafting of the manuscript. All of the authors read and approved the final manuscript.

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