

A RARE CAUSE OF INTRAABDOMINAL HEMATOMA: RUPTURE OF MESENTERIC ARTERY BRANCH ANEURYSM

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Superior mesenteric artery (SMA) aneurysm is the third most common splanchnic artery aneurysm. Unlike other splanchnic artery aneurysm, isolated aneurysms of the SMA branches are rare. They are usually asymptomatic and difficult to detect until they rupture and cause abdominal pain and hypovolemic shock. Thus, most cases are diagnosed after the occurrence of complications. In this report, we described a 76 year-old woman who had two saccular aneurysms in the superior mesenteric arterial branch(es). One of them was ruptured and partly thrombosed. The patient had acute renal failure secondary to massive intraabdominal hemorrhage.

Key-words: Aneurysm, mesenteric.

Superior mesenteric artery aneurysm (SMA) is the third most common splanchnic artery aneurysm, accounting for 5.5% of these lesions (1). Unlike other splanchnic artery aneurysm, isolated aneurysms of the SMA branches are rare. They are usually asymptomatic and difficult to detect until they rupture and cause abdominal pain and hypovolemic shock. Thus, most cases are diagnosed after the occurrence of complications (2). The aim of this case report was to describe the imaging features of two saccular superior mesenteric artery aneurysms that one of them thrombosed and ruptured and created acute renal failure secondary to a giant abdominal hematoma.

Case report

A 76-year-old woman with hypertension and diabetes was admitted to the emergency department with a 24-hour history of epigastric pain. She also reported several episodes of nausea and vomiting associated with dizziness. Upon admission to the hospital, physical examination revealed abdominal tenderness and a vague mass on palpation. The patient was hypotensive (systolic blood pressure = 80 mmHg), tachycardic (heart rate = 126 beats per minute) and her hemoglobin level was 8.8 g/dL. The patient was stabilized with 2 liters of crystalloid solution. An urgent abdominal ultrasonography revealed a large mass 10 x 6.5 cm. Laboratory findings showed an extremely high level of serum creatinine 9.8 mg/dL and

blood urea nitrogen 222 mg/dL levels. A computed tomography scan of the abdomen was performed without intravenous administration of contrast material due to the patient's increased creatinine level, it revealed a massive intraabdominal hematoma (Fig. 1). After first evaluation, because the patient had acute tubular necrosis progressing to acute renal failure, she was urgently started and maintained on hemodialysis for several times. After hemodynamic and clinical stabilisation, CT angiography and MR imaging with contrast was performed and demonstrated two

saccular aneurysms arising from anterior side branch of the SMA (probably middle colic artery) adjacent to the transverse colon and that a collection compatible with hematoma contrasted circumferential wall but no in central zone (Fig. 2, 3, 4). The larger measured 26 mm in diameter and it was ruptured and partial thrombosed, and the smaller one measured 7 mm in diameter. Surgical repair was performed through a midline transperitoneal approach under general anesthesia. The surgeon performed ligations of arterial branches with true aneurysms. The patient's postoperative course was excellent.

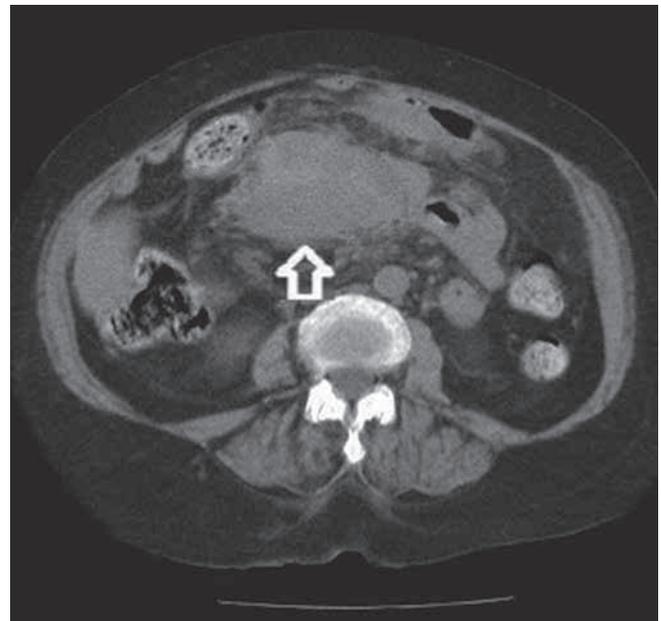


Fig. 1. – Cross-sectional imaging with noncontrast CT shows intraabdominal hypodense mass lesion.

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Discussion

SMA aneurysm is the third most common splanchnic artery aneurysm, accounting for 5.5% of these

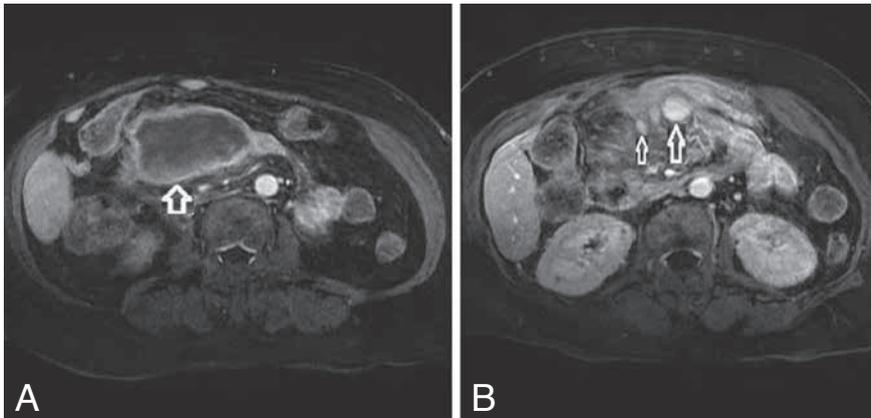


Fig. 2. — T1-weighted contrast enhanced fat-suppressed axial plane (A) shows that a collection compatible with hematoma contrasted circumferential wall but no in central zone. T1-weighted contrast enhanced fat-suppressed axial plane (B) shows two saccular aneurysms arising from side branches of the SMA adjacent to posterior side of the transverse colon and containing dense and homogen contrast material in the lumen like abdominal aorta.

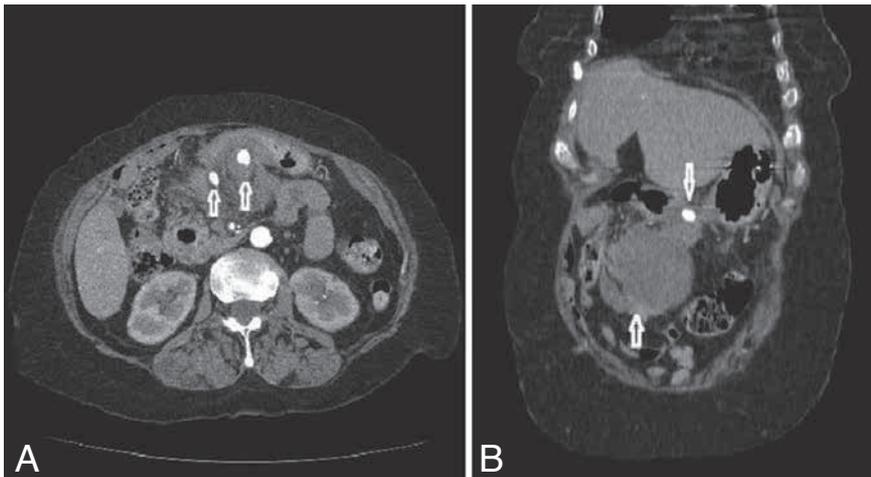


Fig. 3. — CT angiography (A) showing that two saccular aneurysms that on the left had partially thrombosed dissecting lumen and dense contrast material within both aneurysm sac like aortic lumen. CT angiogram in the coronal plane (B) demonstrates that a saccular aneurysm containing diffuse contrast material and partial thrombosis in the lumen and a hematoma which is right posteroinferior side of aneurysm and in contact with it.

lesions (1). These aneurysms may be saccular or fusiform and are most commonly placed at the first proximal 5 cm of the artery. The most common cause of SMA aneurysm is considered to be infection; however a recent report suggested that an infectious etiology accounted for less than 5% of these aneurysms. Other causes include atherosclerosis, connective tissue disease, cystic medial necrosis, pancreatitis and trauma (3). However, the etiology of the superior mesenteric aneurysm in our patient has not been established.

The most common symptom is intermittent abdominal discomfort that progresses to persistent severe

epigastric pain. Nausea, vomiting, hemobilia, jaundice and gastrointestinal bleeding may occur occasionally. SMA aneurysms may thrombose, causing mesenteric ischemia or rupture, resulting in excessive hemorrhage, thus rupture is the most fatal complication and when occurred mortality rate reaches up to 30% (4). In our patient, SMA aneurysm was ruptured and she had acute renal failure caused by significant bleeding into intraabdominal space and in our opinion the hematoma is located in the transverse mesocolon or in the mesentery.

Arteriography is an excellent interventional tool, which can be used

for both detection and treatment in an acute setting. In practice however, multidetector CT angiography is probably the most frequently used technique for the diagnosis. Recent advances in CT vascular imaging and multi-detector CT with 3D post-processing allows for an accurate representation of vascular course and caliber (5, 6). Intimal flap and mural thrombus are key factors for diagnosing rupture and dissection at the SMA using contrast-enhanced CT images. However, the intimal flap cannot always be detected; therefore, the mural thrombus might be the only imaging evidence. In addition, contrast enhanced 3D MR angiography and ultrasound are also widely used and they have provided a highly accurate representation of abdominal splanchnic vessels (7, 8). In our patient, abdominal USG revealed a large mass 10 x 6.5 cm. After clinical stabilization CT angiography with contrast showed two saccular aneurysms arising from anterior side branch of the SMA adjacent to the transverse colon. The larger aneurysm was ruptured and a significant amount of intraluminal thrombus.

SMA aneurysms should be treated sooner once the diagnosis is established in order to minimize morbidity and mortality (4, 9). Several methods of treatment of SMA aneurysm have been reported including ligation of the SMA with or without excision, obliterative aneurysmorrhaphy, revascularization of the SMA with autogenous vein graft or prosthetic graft, and recently endovascular placement of the covered stent grafts (3). Surgery was performed to our patient because of the size, thrombus formation in the sac, the risk of intestinal ischemia and presence of massive bleeding. The surgeon performed ligations of arterial branches with true aneurysms under general anesthesia. The patient's postoperative course was uneventful.

In conclusion, the purpose of this report is to describe the pitfalls of diagnosis and define an appropriate management strategy in patients with SMA branch aneurysm. SMA aneurysm should be suspected in all patients complaining of abdominal or back pain, hypotension, and presenting with a pulsatile mass. The mass may be obscured in patients with a large abdominal circumference. An episode of syncope can be indicative of orthostatic hypotension secondary to bleeding. Early diagnosis would be useful, since the natural

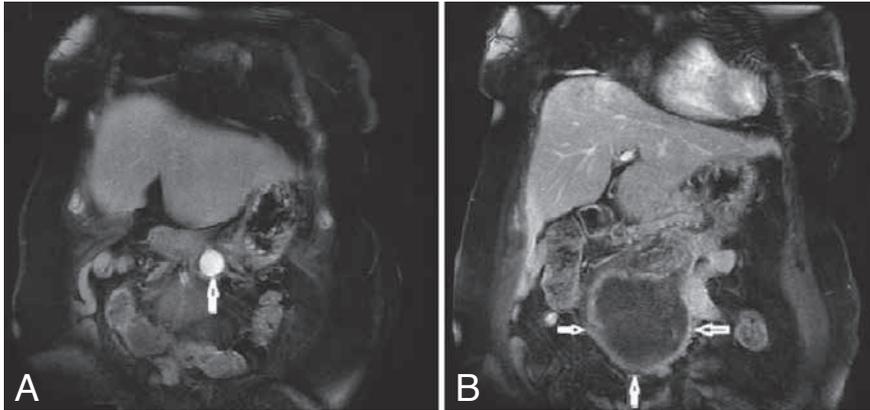


Fig. 4. — T1-weighted contrast enhanced fat-suppressed, coronal plane (A) shows a saccular aneurysm arising from side branch of the SMA observing a homogeneous and intense contrast in the lumen. T1-weighted contrast enhanced fat-suppressed, coronal plane (B) shows that a collection suggesting hematoma contrasted circumferential wall and extending from the left posterolateral wall of saccular aneurysm.

course can be tragic without timely treatment.

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