



Rupture of A Large Splenic Artery Aneurysm

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Abstract

Background: Splenic artery aneurysm is the most frequent aneurysm of the visceral arteries (60 percent of cases) with an incidence of 10.4 percent of cases. There is a higher prevalence in women (4:1) associated frequently with pregnancy. The incidence of splenic artery aneurysm is increasing, with reported third most frequent after aorta and iliac arteries.

Case presentation: We report the case of a 55-year-old man without associated pathology presented with sudden onset of severe epigastric pain radiating to the back. An abdominal CT scan illustrates the rupture of a large splenic artery aneurysm. Definitive diagnosis was based upon the surgical evaluation and CT imaging results.

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Keywords: Splenic aneurysm; Large aneurysm; Digestive aneurysm; Aneurysm; Giant aneurysm.

Case presentation

A fifty-five-year-old male, with no pathology associated and normal weight, admitted to the emergency department with sudden onset of severe epigastric pain, radiating to the back and right shoulder, abdominal hyperesthesia, started 4 hours before presentation. At the first evaluation, the patient presented signs of hypovolemic shock, such as sweating, pallor, thirst, tachycardia, and low blood pressure (pulse: 70 bpm, blood pressure: 90/50 mmHg, which decreased in 20 minutes to 70/50 mmHg). The surgical evaluation revealed signs of acute abdomen, sensitive to palpation, with signs of peritoneal irritation, Berezneagovski's, Blumberg's, and Mendel-Razdolski's signs were positive.

The hematological profile indicated mild anemia (Hb=11 g/dl), mild leukocytosis (14 420 U/l) with neutrophilia and lymphopenia. There were no features suggestive of pancreatitis or liver injury. The coagulation profile was within normal limits.

Contrast-enhanced computed tomography of the abdomen revealed a sacciform aneurysmal dilatation of the splenic artery at the junction with the left gastroepiploic artery, with dimensions of 6,4/5,2/5,5 cm (AP/T/CC), with parietal calcifications [10]. Another finding was contrast extravasation forming a voluminous hematoma extended from the omental bursa to the root of the mesentery, perirenal spaces, and left iliac fossa, incorporating the pancreas (Figure 1). The appearance of perfu-

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sion alterations was also observed throughout the low opacification of the splenic artery in the distal segment (Figure 2). The spleen was well-vascularized.

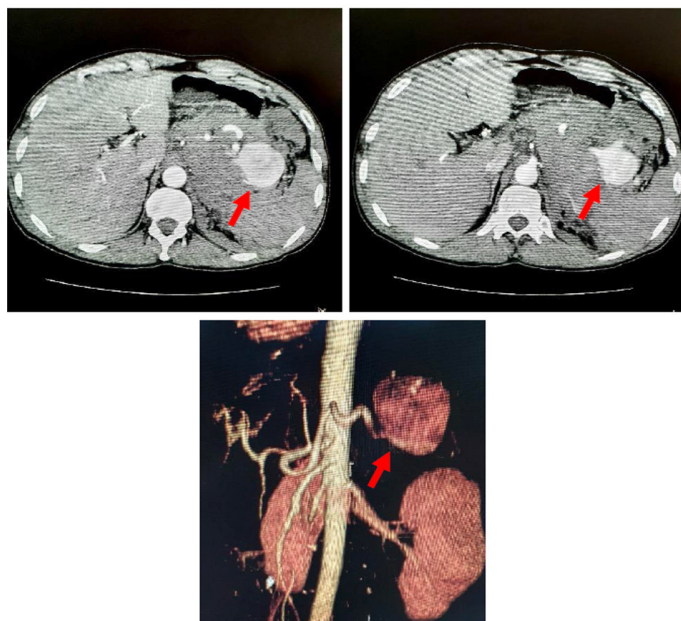


Figure 1: Contrast-Enhanced Abdominal CT to the right side and Angio-CT reconstruction to the left side highlights large splenic aneurysm.

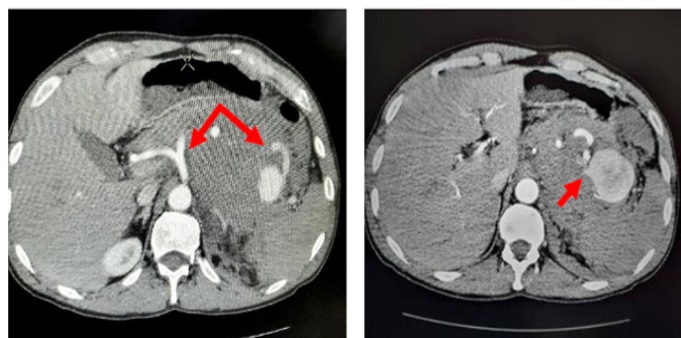


Figure 2: CE Abdominal CT highlights: (A). Well-vascularized celiac trunk more intensely opaque than the splenic artery; (B). contrast-extravasation suggesting rupture of the aneurysm.

The surgeon performed an emergency laparotomy and undergone surgical clip ligation to exclude the aneurysm. Furthermore, partial evacuation of the mesenteric hematoma was performed. No splenectomy was necessary because of the macroscopic aspect (collateral vascularization). The postoperative evolution was subsequently accompanied by blood tests normalization and the patient recovered fully.

An abdominal Doppler Ultrasound and second abdominal CT scan were performed after the surgery, illustrating a well-vascularized spleen receiving blood from the short gastric vessels by left gastro-epiploic arteries, with no signs of a splenic infarct. Also, a decrease in size of the mesenteric hematoma was seen (Figures 3,4).



Figure 3: Abdominal CT-scan highlights spleen vascularization through short gastric and left gastroepiploic arteries.

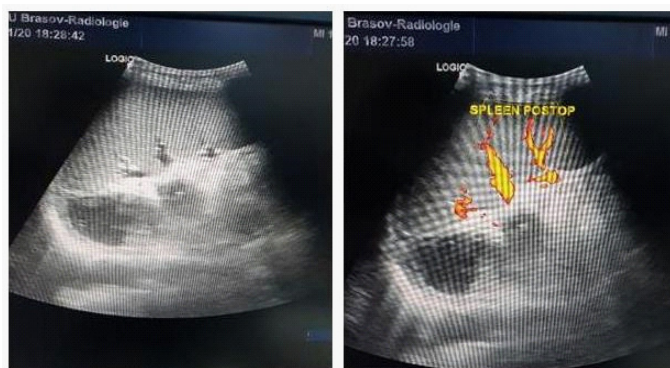


Figure 4: Abdominal CT-scan highlights spleen vascularization through short gastric and left gastroepiploic arteries.

Discussion

The third most common intra-abdominal aneurysm is splenic artery aneurysm, with a frequency in some studies as high as 10 percent [3]. Widespread use of abdominal CT-imaging has increased the detection of incidental aneurysms [4]. Usually, they become symptomatic as they reach 20 cm [1]. Digestive artery aneurysms are uncommon. Splenic artery aneurysm is the most frequent aneurysm of the visceral artery (60 percent of cases). In 10 to 25 percent of cases, the rupture of this kind of aneurysm leads to death [5]. It is considered as an arterial aneurysm, an artery with a diameter greater than one centimeter. Aneurysmectomy consists of the proximal and distal ligation of the aneurysm, followed by the aneurysm exclusion [6]. Available data indicates that splenic symptomatic artery aneurysms greater than 2 cm in diameter, particularly those detected during pregnancy, childbearing age, or after liver transplantation, are at high risk of rupture [3].

About 2-10% of aneurysms begin with spontaneous rupture and in these cases, the patient presents with severe pain in the epigastrium, left upper quadrant, left shoulder (the sign of Kehr), and hemodynamic instability. Bleeding can go through Winslow's hiatus to the peritoneal cavity, resulting in a hemodynamic shock ("double break" phenomenon). Sometimes the rupture within the splenic vein results in an arteriovenous fistula and portal hypertension [7,8].

However, a high-flow arteriovenous fistula can produce 'Mesenteric Steal Syndrome,' which causes small bowel ischemia. Therefore, treatment is indicated in symptomatic aneurysms or those with risk factors for rupture as aneurysm with a diameter greater than 2 cm, pseudoaneurysms, portal hypertension, portocaval shunt, pregnancy, arterial fibrodysplasia, or arteriosclerosis [9].

Minimal invasive techniques could lower hospitalization and need greater attention (stent-grafts, coil embolization, liquid embolization, double layer micromesh stents, double-lumen balloons, microvascular plugs) [11].

Conclusion

We presented a patient with no pathology associated, admitted to the hospital with sudden onset of severe epigastric pain, radiating to the back, started four hours before presentation. The patient presented with signs of hypovolemic shock and acute abdomen, with peritoneal irritation. Abdominal CT-imaging illustrated the rupture of a large splenic artery aneurysm with a voluminous intraperitoneal hematoma. After laparotomy, the aneurysm has been excluded with the partial evacuation of the hematoma and preservation of the spleen. The evolution is accompanied by blood test normalization and full recovery.

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