Case Report

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Giant Splenic Artery Aneurysm. An Incidental Finding With Potentially Catastrophic Consequences

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1. Abstract

A splenic artery aneurysm is defined as a dilation of this artery exceeding 1 cm in diameter or more than 50% of its usual diameter. It is the most frequent visceral aneurysm, accounting for up to 60% of them [1–2], and the third most common aneurysm overall, after aortic and iliac aneurysms. Its prevalence in the general population is estimated at 0.01–0.2%, and it is usually discovered incidentally, detected on imaging studies performed for unrelated reasons [3]. The risk of spontaneous rupture is estimated at 2–10%, exceeding 30% in aneurysms larger than 5 cm.

2. Case report

We present a 57-year-old man who presented to the Emergency Department with mild epigastric/retrosternal pain of a few hours' duration. His relevant past medical history included hypertension, hiatal hernia, and a laparoscopic bypass performed in 2022 for obesity.

On examination, the patient presented mild epigastric tenderness without guarding or palpable mass. Blood tests showed the following notable values: bilirubin 2.6, AST 590, ALT 285, with the remaining parameters within normal limits.

Given these findings and suspicion of biliary pathology, an abdominal ultrasound was requested. Following preliminary ultrasound findings, the Radiology Department proceeded to request an abdominopelvic CT scan.

Imaging revealed a distended gallbladder with mild adjacent fat stranding and some wall thickening, with intraluminal gallstones, consistent with acute cholecystitis. As an unexpected finding, a large saccular aneurysm measuring approximately 7.8 × 5 × 5.5 cm was identified, arising from the inferior aspect of the mid-to-distal third of the splenic artery, with an irregular wall containing small calcifications and an extensive mural thrombus on its medial side. The patent lumen measured 6 × 3.3 × 5.3 cm. No indirect signs of active bleeding were observed, but its size and characteristics indicated a high risk of rupture.

Given these findings, Interventional Radiology was consulted. After reviewing the imaging, and due to the large aneurysmal size, percutaneous embolization was deemed not feasible. Urgent but deferred surgery was indicated due to the high risk of rupture and potential massive hemorrhage.

In the operating room, a heavily calcified splenic artery was visualized, containing a giant aneurysm (image) measuring 8 × 6 cm in close contact with the splenic hilum and displacing surrounding structures, as well as very early cholecystitis. A wide laparotomy with splenic mobilization was performed. A laborious splenectomy was carried out with ligation of the splenic artery proximal to the aneurysm (made difficult by extensive calcification), along with standard cholecystectomy.

3. Discussion

Splenic artery aneurysms have a low prevalence (0.02–0.1%), and are more frequent in middle-aged to older women. Those exceeding 5 cm in diameter are extremely rare.

The vast majority (97.5%) are asymptomatic, and diagnosis is typically made through imaging performed for unrelated reasons, as in this case.

True aneurysms involve all three layers of the arterial wall (intima, media, and adventitia), and their development is associated with degenerative processes and hemodynamic changes that chronically weaken the arterial wall, such as atherosclerosis, increased flow during pregnancy, and portal hypertension, which increases wall tension in these vessels [1].

Pseudoaneurysms, on the other hand, result from contained rupture of the arterial wall, forming a cavity that communicates with the arterial lumen and is contained by the adventitia and surrounding tissues. This mechanism is typical of traumatic or iatrogenic injuries, or characteristically in the context of pancreatitis [4].

Indications for treatment depend on the type of lesion (aneurysm vs. pseudoaneurysm), size, growth, and other factors modifying rupture risk [6]. Establishing a consensus on treatment indications is challenging, mainly due to limited data in the literature.

The most recent guidelines from the European Society of Vascular and Endovascular Surgery, as well as other literature, recommend treatment in several situations: symptomatic aneurysms and pseudoaneurysms [6–8], patients with portal hypertension, progressive aneurysmal growth, or pregnant patients, as they carry

an especially high rupture risk, with maternal mortality of 75% and fetal mortality >95%.

Regarding asymptomatic true aneurysms, treatment is recommended for those exceeding 3 cm or showing growth. A different approach applies to pseudoaneurysms, which, by definition and regardless of size, have a high rupture risk (<37%), and treatment is recommended in all possible cases [6–9].

Endovascular treatment using coil embolization or stent placement is considered the first-line therapy, achieving success rates above 90% with few complications, the most frequent being splenic infarcts or abscesses.

Surgical intervention is indicated in cases of ruptured aneurysms or pseudoaneurysms with hemodynamic instability 10]. Surgery is also recommended when endovascular treatment is not feasible due to excessive tortuosity, complex hilar involvement, or extreme size, as in our case. Distal or mid-splenic artery aneurysms typically require associated splenectomy.

Although this pathology is incidentally discovered in most cases, early treatment is essential to prevent rupture and subsequent massive intra-abdominal hemorrhage, especially in high-risk cases such as the one presented.

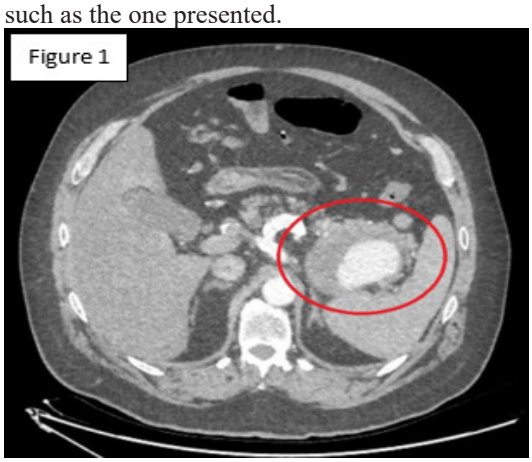

Figure 1. Radiological findings after performing an abdominal CT scan showing a giant splenic aneurysm with mural thrombus

Figure 2. Measurements of resected splenic aneurysm

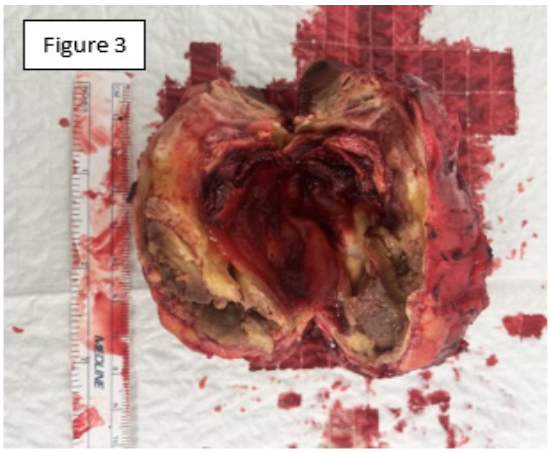

Figure 3. Open aneurysm where the different layers of the wall can be seen, as well as the mural thrombus.

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