

CASE REPORT

Thrombosed Splenic Artery Aneurysm Simulating a Pancreatic Body Mass: Can Two Entities Be Distinguished Preoperatively thus Avoiding Diagnostic and Therapeutic Mistakes?

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ABSTRACT

Context Splenic artery aneurysms are rare and they are usually easy to diagnose. Spiral computed tomography is the most sensitive diagnostic technique for this disease. Its primary treatment is interventional radiology; surgery is indicated in selected cases.

Case report We herein report a case of an elderly male patient with a completely thrombosed aneurysm of the splenic artery. The spiral computed tomography and color-Doppler ultrasonography findings were different; the first showed this entity to be a pancreatic solid tumor and the second showed it to be an aneurysmatic thrombosed dilation of the splenic artery. Thus, laparotomy was performed and the proper diagnosis was made.

Conclusions This case underlines the characteristics of completely thrombosed splenic artery aneurysm with the aim to avoid diagnostic and therapeutic mistakes.

INTRODUCTION

Splenic artery aneurysms (SAAs) are rare findings even if they account for about 60%

of all visceral aneurysms [1]. SAAs are usually single and small lesions, and their size does not usually exceed 3 cm. The diagnosis is usually incidental [2] because the majority of patients (about 60-95%) are asymptomatic, and it is easily reached using spiral computed tomography with multislice reconstructions [3]. In asymptomatic cases, no treatment is needed; in symptomatic patients the aneurysm have to be treat primary by interventional radiology. Surgical treatment and pancreatectomy is sometimes required. We herein report an intriguing case of a thrombosed SAA simulating a solid tumor of the pancreatic body in which surgical treatment was required.

CASE REPORT

An 82-year-old man was admitted to the Geriatric Department on June 8th, 2006 with asthenia and pallor. He was a light alcohol drinker (40 mL/day) and he was not a smoker. The patient had a past surgical history of a partial gastrectomy with splenectomy for gastric cancer and a femoro-popliteus bypass. His medical history included hypertension, carotid atheromasy, transient ischemic attack and benign prostatic hypertrophy. He had no history of pancreatitis, abdominal trauma, diabetes or portal hypertension. Laboratory

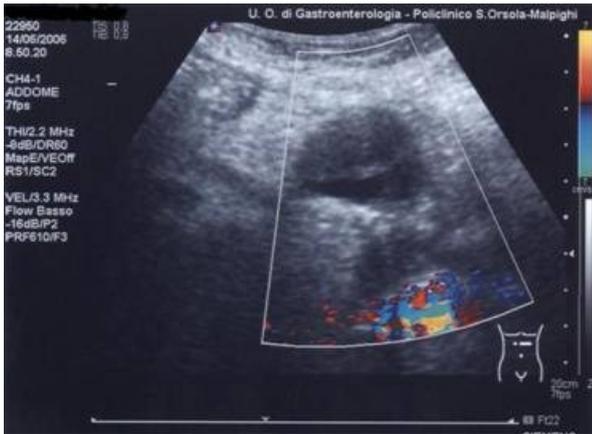


Figure 1. Color-Doppler ultrasonography, transverse section. An hypoechoic, round, shaped solid mass, 3 cm in diameter with a liquid echo-prive area which appears as an aneurysmatic thrombosed dilatation arising from the splenic artery.

examination showed an anemia (red cell count: $4.27 \times 10^6/\mu\text{L}$, reference range: $4.40-5.60 \times 10^6/\mu\text{L}$; hemoglobin: 7.4 g/dL, reference range: 13.0-16.5 g/dL) and the presence of blood in the stool. Serum renal and liver function tests were normal as were serum CA 19-9, CEA and alpha-fetoprotein. An abdominal ultrasound with color-Doppler examination did not show pancreatic lesions but a hypoechoic round shaped solid mass, 3 cm in diameter, with fluid echo-prive area was found: it appeared as an aneurysmatic thrombosed dilatation arising from the splenic artery (Figure 1). Subsequently, a spiral computed tomography revealed a hypodense mass (45-50 HU) of the pancreatic body 3.6 cm in diameter, with no enhancement during the contrast-enhanced phase (Figure 2) and with Wirsung duct dilation: these findings suggested a solid pancreatic tumor.

In order to resolve diagnostic doubt between SAA and solid pancreatic tumor, the patient underwent laparotomy. Surgical exploration of the abdomen showed the mass identified preoperatively which appeared macroscopically as an aneurysm of the splenic artery embedded within the pancreatic parenchyma (Figure 3a). Intraoperative color-Doppler ultrasonography showed a thrombosed aneurysm of the splenic artery, beginning 3 cm from the celiac axis and extending to the distal part of the splenic artery. A distal pancreatectomy (Figure 3b)

was performed because the aneurysm was embedded within the pancreatic tissue and because it was completely thrombosed up to the distal third of the vessel. The postoperative course was uneventful, exocrine and endocrine pancreatic functions remained normal and the patient was discharged on postoperative day 8. A histopathological examination showed an aneurysmatic, atherosclerotic and thrombosed vessel with peripancreatic hemorrhagic aspects, which confirmed the diagnosis of SAA. At a follow-up of six months the patient is alive and well, without exocrine or endocrine pancreatic insufficiency.

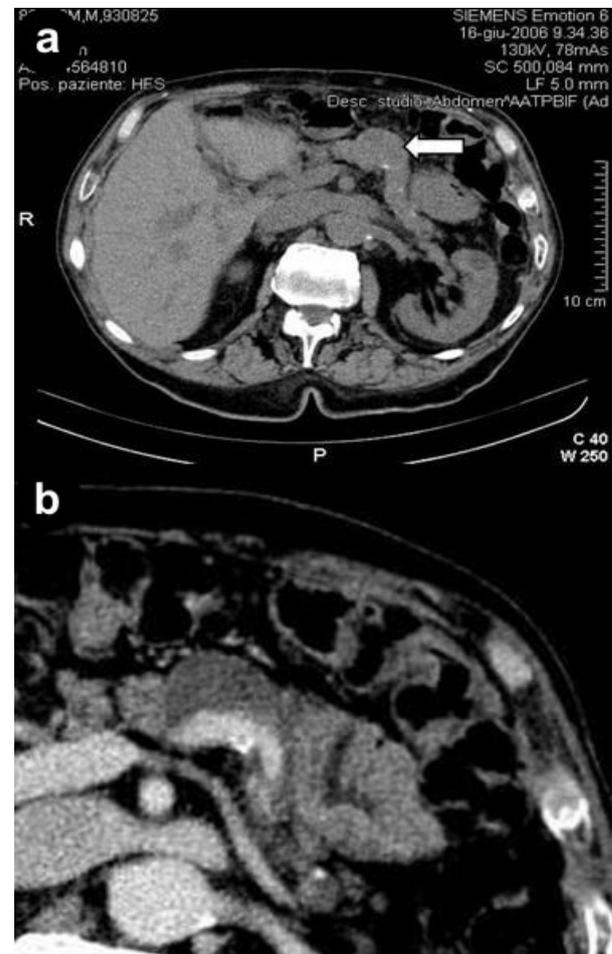


Figure 2. A non contrast-enhanced CT scan demonstrated an hypodense, round shaped, solid mass (45-50 H.U.) of the pancreatic body with a calcified parenchymal peripheral spot (a. arrow). A contrast-enhanced CT scan (venous phase) confirmed the presence of a solid mass, homogeneously hypodense, with no enhancement, simulating a pancreatic neoplasm (b.).

DISCUSSION

SAAs are the most common aneurysms of the splanchnic artery [4]. About 1,800 cases of SAAs have been reported in the literature [5, 6, 7, 8, 9]. The average age of patients having this malformation is 50.6 years (range 14-78 years) and the size of the aneurysm ranges from 2 to 5 cm [5, 10] even if the majority of SAAs are less than 2 cm. In the group of patients having a rupture of the aneurysm, an SAA has an average size of 5.5 cm. In the majority of patients (74-87%) the SAAs were located in the distal third of the splenic artery, in 22% they were in the middle third and, in the remaining, they were in the proximal third [5, 8, 10, 11, 12, 13, 14]. Forty percent of the patients present multiple SAAs and 48-71% of all aneurysms are solitary [5, 8, 10, 11, 13, 14, 15, 16, 17]. They are usually asymptomatic [4] and the diagnosis is generally made incidentally [5, 10, 18]. Spiral CT scan is the gold standard imaging technique for the diagnosis of SAA [3]. The diagnosis is simple if the SAA is not complicated; diagnostic difficulties can be related to the presence of a completely thrombosed aneurysm. In these cases, CT findings could be mimicking a solid pancreatic tumor because the contrast-enhanced CT did not show enhancement of the thrombosed aneurysm. Therefore, if the central lumen of the aneurysm is not enhanced the diagnosis could be very difficult. However, in these cases, it is useful to perform multislice reconstructions which can distinguish a mass arising from the splenic artery or from the pancreatic tissue [3]. Color-Doppler ultrasonography is a simple and safe imaging technique: a small lumen in a thrombosed aneurysm can be seen and the flow in the arterial lumen can be measured [4]. In patients with asymptomatic, small SAA no treatment is needed. Endovascular interventions are the treatments of choice of SAAs if they are symptomatic or have a diameter of more than 3 cm. Sometimes surgical treatment is suggested and consists in the excision of SAA or in a distal pancreatectomy, including the

aneurysm, when it is embedded within the pancreatic tissue [5].

In our case, the patient was asymptomatic because asthenia and pallor could be hardly considered as specific symptoms for the splenic aneurysm and diagnosis was incidental with ultrasound and CT scan. Moreover the patient was an 82-year-old man, with previous history of vascular disease and gastric cancer surgery, in which splenectomy was performed. These latter data could suggest a SAA in which the aneurysm was likely the result of the prior operation and not a spontaneous splenic artery aneurysm. Color-Doppler ultrasonography revealed a small lumen in a solid mass (thrombosis) and a thrombosed SAA was suspected; CT scan showed a pancreatic mass because the lumen of the SAA was not enhanced; moreover the Wirsung duct was dilated. Diagnostic difficulties were true: the association of old age and previous splenectomy with ultrasound

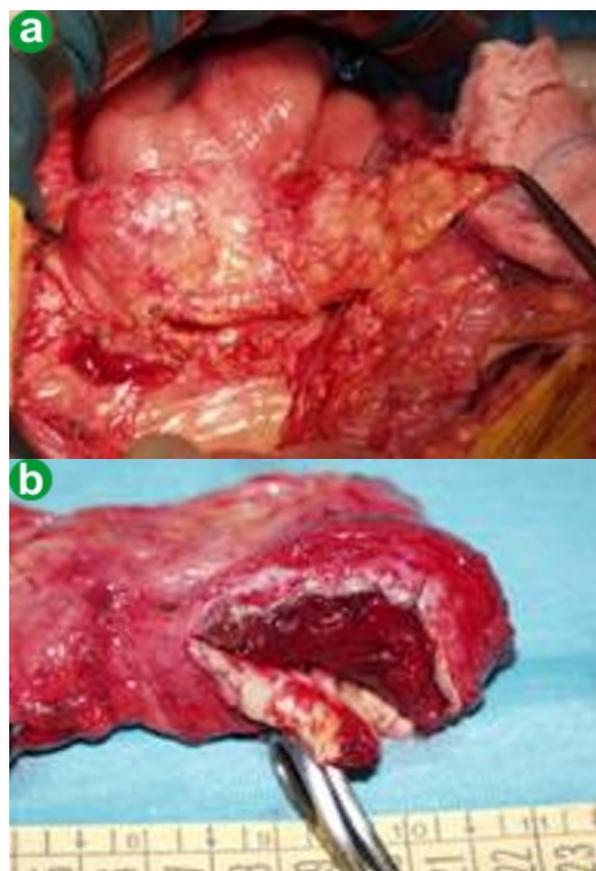


Figure 3. The aneurysm arises from the splenic artery and it is embedded in the pancreatic tissue (a.). It completely thrombosed the splenic artery (b.).

findings could be related to thrombosed SAA. CT scan, indeed, which is considered the best imaging technique for recognizing aneurysms of the splenic artery, revealed the association of pancreatic mass and Wirsung duct dilation in a patient without previous episodes of acute or chronic pancreatitis that is a typical finding of a pancreatic tumor. The good general condition of the patient and the CT scan findings suggested laparotomy. The distal pancreatectomy, preserving as more as possible pancreatic parenchyma, was performed because the SAA was more than 3 cm in diameter and was embedded in the pancreatic parenchyma, extending to the distal part of the vessel.

In conclusion, the present case showed the difficulties in the differential diagnosis between thrombosed aneurysms of the splenic artery and pancreatic masses. To distinguish the two entities is very important a correct anamnesis and is mandatory to recognize the origin of the mass (pancreas, splenic artery) and/or the presence of a vascular lumen in a solid mass (thrombosis).

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Keywords Aneurysm; Pancreatectomy; Splenic Artery; Tomography, Spiral Computed

Abbreviations SAA: splenic artery aneurism

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