Pseudoaneurysm of splenic artery complicating chronic pancreatitis:

Case report
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Section: Abdominal imaging
Area of Interest: Abdomen
Procedure: Diagnostic procedure
Procedure: Contrast agent-intravenous
Procedure: Contrast agent-oral
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Colour Doppler
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Aneurysms Cysts Case Type: Clinical Cases
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Patient: 43 years, male

Clinical History:

A 43-year-old male patient was admitted to the outpatient department with acute chronic pancreatitis. He was referred for fever, abdominal pain and vomiting. Patient had been drinking alcohol for several years and had a medical history of pancreatitis at least four times in the past.

Imaging Findings:

An ultrasound examination of the abdomen [Fig. 1] revealed features consistent with chronic pancreatitis involving the head of the pancreas, dilatation of the common bile duct and intrahepatic bile ducts, and thickening of the gallbladder wall. Also there was a cystic lesion with hyperechoic margins, below the pancreas. Colour Doppler ultrasound [Fig. 1b] confirmed the vascular nature of the mass.

SDCT (Single Detector CT) with intravenous contrast [Fig. 2] showed complete contrast filling of the lesion that was contiguous to the splenic artery, thus leading to the diagnosis of pseudoaneurysm of the splenic artery. Also it confirmed the diagnosis of pancreatitis.

MRI [Fig. 3a-c] showed disorganisation of the pancreas (pancreatitis). Once again pseudoaneurysm of splenic artery was confirmed with dilatational contrast filling during the arterial phase (4.8 x 3.7 cm) at the height of the celiac artery towards the left, along the direction of the splenic artery.

Discussion:

A splenic vessel pseudoaneurysm is an uncommon condition, however, it is not a rare finding in patients with chronic pancreatitis[1, 2, 3]. The splenic artery is the most common artery affected accounting for as many as 60% of all splachnic artery aneurysms. Most of the patients are either asymptomatic or have symptoms of pancreatitis. There are referrals to two types of aneurysms. The first type is caused by both the enzymatic auto digestion of the vessel wall from the pancreatic enzymes and from the external pressure weakening the vessel wall applied from the presence of pseudocysts.

The second type is thought to occur due to the vessel wall rupture into the pseudocyst converting it into
pseudoaneurysm.
Risk of rupture can be as high as 37% with a mortality rate approaching 90%[4] when untreated. Therefore early diagnosis and treatment are imperative.

Digital Angiography has been assumed to be the gold standard for the diagnosis of splenic artery aneurysm and pseudoaneurysm. The presence of pseudoaneurysm is suspected on grey scale US followed by colour Doppler ultrasound which reveals the vascular nature of the mass [3, 5, 6]. CT confirms the finding. With current MDCT technology, patients can be imaged quickly during the arterial phase, which is vital for detecting these lesions [7]. Especially, if a MDCT scanner of a newer generation is available, the high resolution of 3D renderings with isotropic data sets from submillimeter detector thickness will allow correct identification of even small pseudoaneurysms. MRI-MR angiography techniques have also been described with good results.

Although transcatheter embolization has gained acceptance for treatment of other visceral aneurysms, it carries a significant failure rate when used for pseudoaneurysm of the splenic artery, especially when there is associated pseudocyst. Splenectomy, with or without pancreatectomy, has proved durable, with no reported failure, and remains the current standard of treatment for these vascular lesions. Although conservative management has produced excellent results in a few reports, from our experience and the literature, we recommend that all splenic artery pseudoaneurysms be repaired, regardless of size or symptoms [8-13].

Our patient had both splenectomy and an aneurysctomy.

Conclusion: Splenic artery pseudoaneurysms are rare entities, especially the giant variety. Gold standard of diagnosis assumed to be digital angiography but MDCT with the high resolution of 3D renderings with isotropic data sets from submillimeter detector thickness allows also correct identification of this entity.

Differential Diagnosis List:  Splenic artery pseudoaneurysm, Pancreatic pseudocyst, Cystic pancreatic tumour

Final Diagnosis:  Splenic artery pseudoaneurysm

References:

**Figure 1**

**a**

**Description:** Complete contrast filling of the lesion, leads to the diagnosis of pseudoaneurysm of the splenic artery. Fluid collections around the pancreas. **Origin:** Metaxa P., Department of Radiology, Limassol GH, Cyprus

**b**

**Description:** Adjacent to the left hepatic lobe a cystic mass is located (pseudocyst). **Origin:** Metaxa P., Department of Radiology, Limassol GH, Cyprus
Figure 2

Description: Pseudoaneurysm of splenic artery with dilatational contrast filling during the arterial phase, with dimensions 4.8 x 3.7 cm, at the height of the celiac artery towards the left, along the direction of the splenic artery. Origin: Metaxa P., Department of Radiology, Limassol GH, Cyprus
Disorganisation of the pancreas. Pseudoaneurysm of splenic artery

Origin: Metaxa P., Department of Radiology, Limassol GH, Cyprus
Description: Distension of the intrahepatic bile ducts. Pseudoaneurysm of splenic artery (arrow). Fluid collections around the pancreas Origin: Metaxa P., Department of Radiology, Limassol GH, Cyprus
Description: Cystic lesion with hyperechoic margins, below the pancreas. Origin: Metaxa P., Department of Radiology, Limassol GH, Cyprus
Description: The colour Doppler ultrasound confirmed the vascular nature of the mass. Origin: Metaxa P., Department of Radiology, Limassol GH, Cyprus