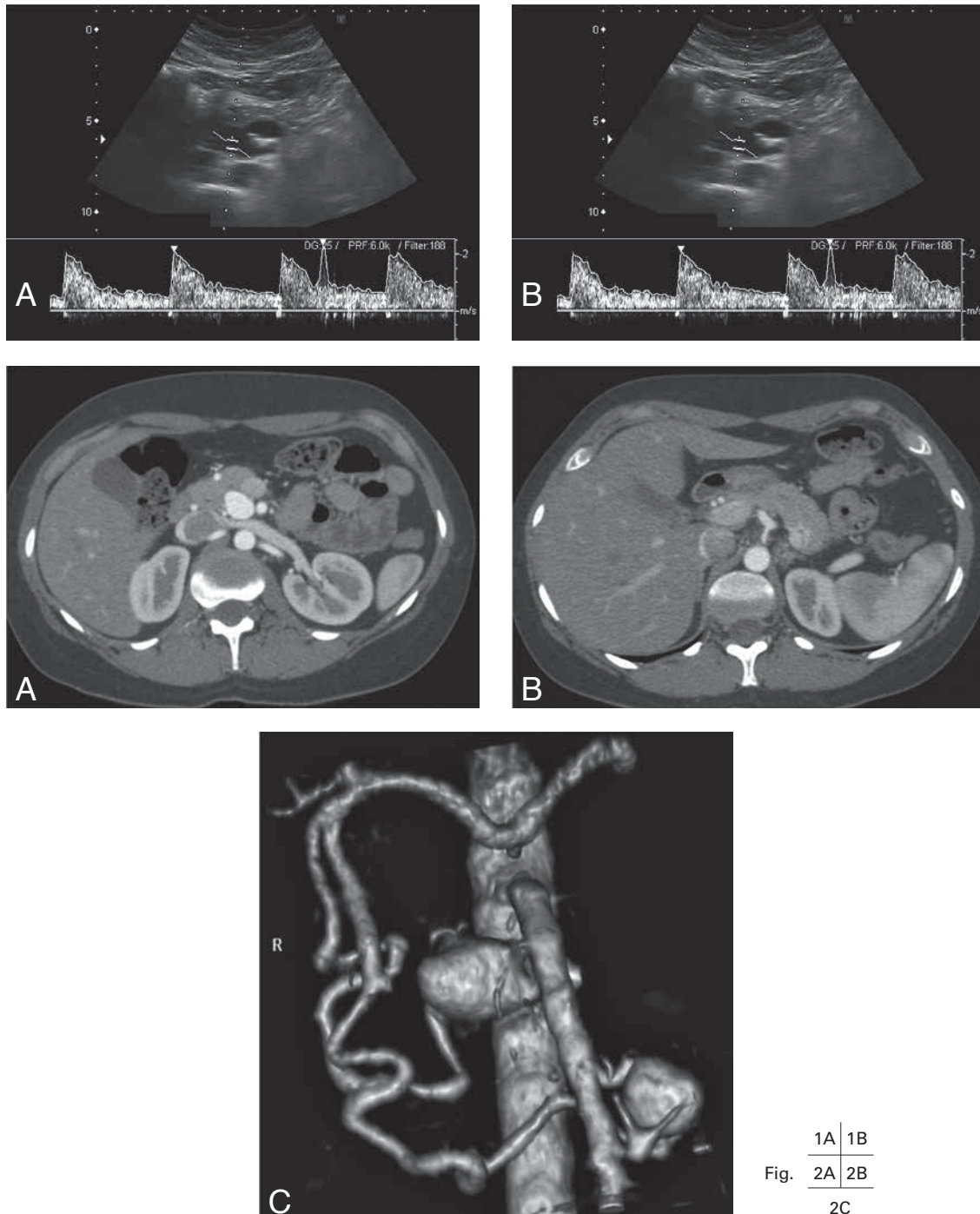


VISCERAL ARTERY ANEURYSM

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Key-word: Aneurysm, pancreaticoduodenal

Background: A 36-year-old female patient with no relevant clinical history was referred to the gastroenterology department for chronic epigastric pain. Blood analysis and gastroscopy were normal. Subsequently, abdominal ultrasonography and CT scan of the abdomen were made.



Work-up

Ultrasonography of the abdomen (Fig. 1) shows on A a sharply delineated hypo-echoic lesion posterior to the pancreas and splenic vein, measuring 2.1 cm × 1.4 cm. Pulsed-Doppler ultrasonography (B) shows a typical low resistance arterial signal in the lesion.

CT Angiography (CTA) of the abdominal vessels (Fig. 2) shows on axial CTA (A) a contrast-enhancing nodule in the arterial phase with a diameter of 2 cm. The nodule is located posterior to the pancreas and on the right side of the superior mesenteric artery. On axial CTA (B) ostial occlusion of the celiac artery is seen with reinjection of the splenic artery and common hepatic artery from the superior mesenteric artery.

Three-dimensional reconstruction CTA (C) demonstrates two visceral arterial aneurysms: the distal (left) aneurysm originates from the anterior pancreaticoduodenal arcade, the proximal (right) aneurysm originates from the posterior pancreaticoduodenal arcade.

Radiological diagnosis

Ultrasonographic and CT findings led to the diagnosis of *visceral artery aneurysm*, in this case particularly two aneurysms, respectively in the anterior and posterior pancreaticoduodenal arcade. Patient was treated with transcatheter coil embolization of both visceral aneurysms.

Discussion

Visceral artery aneurysm has to be considered as a rare pathology, however diagnosis has increased over the last decades because of the increased use of cross-sectional imaging. Early detection is of significant importance because of the definite risk of rupture (25%) and high mortality risk (up to 70%) if rupture occurs. The most common visceral artery aneurysm involves the splenic artery (60%), followed by the hepatic artery (20%). Less frequently involved visceral arteries are the superior mesenteric artery and the celiac artery. Rarely involved arteries are the gastric artery, the gastroduodenal artery, the jejunal, ileal and colic arteries, the pancreaticoduodenal arcade and the inferior mesenteric artery.

Visceral artery aneurysms include both true aneurysms and pseudoaneurysms. Pseudoaneurysms can develop as a result of infectious or inflammatory disease, with pancreatitis as a well known predisposing condition. Also abdominal and iatrogenic trauma can cause a pseudoaneurysm. Most of the true aneurysms are caused by atherosclerosis and degeneration. Other, less frequent causes, include fibromuscular dysplasia and vasculitis.

In this case, the visceral artery aneurysms are probably caused by a strongly increased flow in the pancreaticoduodenal arcade, which serves as collateral supply for the hepatic and splenic artery, due to the occlusive disease of the celiac axis. Several case reports postulate this association between pancreaticoduodenal arcade true aneurysm and celiac axis stenosis or occlusion.

Catheter angiography has been the traditional means of diagnosis. Today noninvasive modalities are used. Ultrasonography is an excellent screening tool, however CT angiography or MR angiography are the preferential tools for diagnosis, procedural planning and close surveillance.

The management of the visceral aneurysms consists of close surveillance, with CT angiography or MR angiography, or active treatment, with surgical or endovascular treatment. The splenic artery aneurysm is actively treated when larger than 2.5 cm and always in pregnant women, when portal hypertension is present and in liver transplant patients. The hepatic artery aneurysm is actively treated when the diameter surpasses 2 cm and always in pregnant women. All the other visceral artery aneurysms are always actively treated, independently from size, because of high rupture risk.

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