Hepatic artery aneurysm causing obstructive jaundice

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Abstract: Hepatic artery aneurysms (HAA) are rare and represent 14-20% of all visceral artery aneurysms. The vast majority of HAA are single and are located extrahepatically and nowadays about half of the HAA are iatrogenic, as a consequence of the widespread use of interventional diagnostic and therapeutic biliary procedures. Abdominal trauma, infection, inflammation and atherosclerosis are other common predisposing factors. Most of the HAA are asymptomatic, and 60-80% of the patients are diagnosed when the aneurysm has complicated with rupture and bleeding, obstructive jaundice due to external bile duct compression or rupture of the HAA into the biliary tree with clots occluding the lumen. We present a case of HAA presented with obstructive jaundice. Irrespective of clinical presentation the diagnosis of HAA is always based on imaging studies.

Keywords: Hepatic artery; complications; aneurysm; jaundice

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Case presentation

A 76-year-old man with a previous history of ischemic stroke was presented with painless jaundice. Physical examination on admission was unremarkable, his total serum bilirubin was 288 mmol/L with no other significant abnormal laboratory findings. Abdominal ultrasound showed cystic-appearing, hypoechoic mass at the hepatic hilum (*Figure 1A*) and dilatation of the intrahepatic bile ducts. A subsequent computed tomography (CT) confirmed the presence of a cyst-like lesion at the hepatic hilum, which was filled with contrast in the early arterial phase (*Figure 1B,C*). A virtual CT-angiography demonstrated 64 mm large hepatic artery aneurysm and circumferential calcification of the common hepatic artery at its origin (*Figure 2A*). A compression of the common bile duct from the aneurysm was considered as the cause of the jaundice, and was confirmed by endoscopic retrograde cholangiography (*Figure 2B*). Endoscopic stenting of common bile duct was performed and the jaundice relieved. The patient declined further management of the aneurysm by surgery or interventional radiology and received only ursodeoxycholic acid as a maintenance therapy. At follow-up 12 months later, the patient had no symptoms.

Hepatic artery aneurysms (HAA) are rare and represent 14-20% of all visceral artery aneurysms (1,2). The vast majority of HAA are single and are located extrahepatically (3). Nowadays about half of the HAA are iatrogenic, as a consequence of the widespread use of interventional diagnostic and therapeutic biliary procedures. Abdominal trauma, infection, inflammation and atherosclerosis are other common predisposing factors (1,4). The presence of multiple HAA and non-atherosclerotic origin of the aneurysm were identified as risk factors for rupture (2). Most of the HAA are asymptomatic, and 60-80% of the patients are diagnosed when the aneurysm has complicated (5) with rupture and bleeding (haemobilia/gastrointestinal, intraabdominal or retroperitoneal), or as in our case with painless obstructive jaundice due to external bile duct compression. However jaundice can be also caused by rupture of the HAA into the biliary tree with clots occluding the lumen, which represents clinically with Quinke's triad (abdominal pain, gastrointestinal bleeding and jaundice). Unusual presentation of HAA as cholangitis and portal hypertension are also reported (6). Irrespective of clinical presentation the diagnosis of HAA is always based on imaging studies.

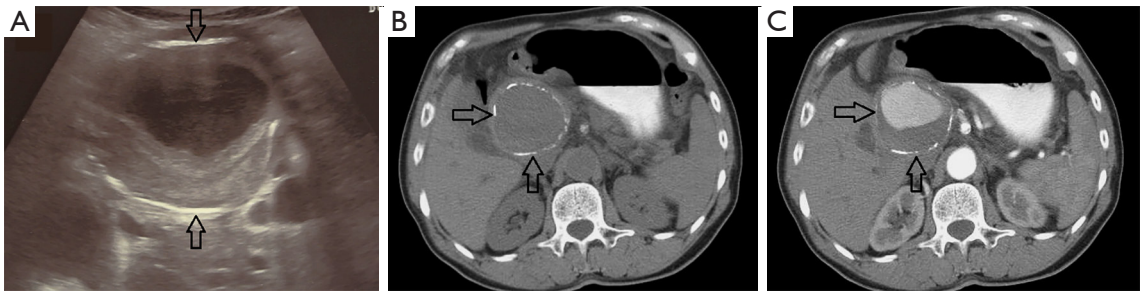

Figure 1 (A) Abdominal ultrasound demonstrating hypoechoic mass with hyperechoic wall (arrows) at the hilum of the liver; (B) non-contrast CT of the liver confirmed the presence of cyst-appearing lesion with hyperdence wall (arrows) at the hepatic hilum; (C) contrast-enhanced CT demonstrating the lesion filling with contrast in arterial phase. CT, computed tomography.

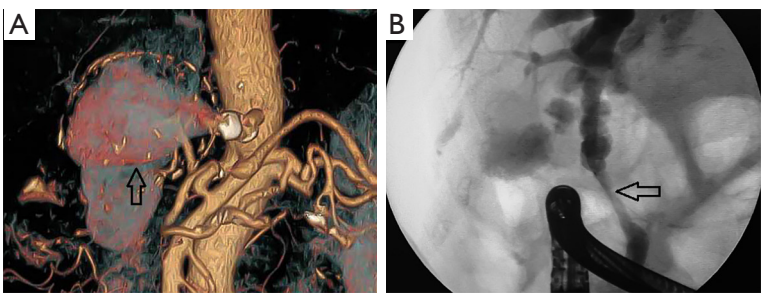

Figure 2 (A) Virtual three-dimesional CT angiography reconstruction demonstrating hepatic artery aneurysm filled with contrast (arrow); (B) endoscopic retrograde cholangiography demonstrating segmental narrowing of the common bile duct due to slight medial compression (arrow) and proximal dilatation of intrahepatic bile ducts. CT, computed tomography.

There are several options to treat HAA with surgery and/or interventional radiology (2,7), and they should be considered individually bearing in mind both general condition of the patient and multiple local factors (location and size of the aneurysm, presence of collateral circulation to the liver, local infection, rupture). There is still no single treatment modality considered as best treatment option for all patients having aneurysm of hepatic artery.

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