

Pre-emptive Embolization for Post Liver Biopsy Asymptomatic Type 2 Hepatoportal Fistula

by Youran Gao, Craig Greben, Tai-Ping Lee

A hepatoportal fistula is an abnormal communication between the hepatic artery and the portal vein that may be congenital or acquired. Often the fistula is small and asymptomatic, however, in rare instances the fistula may grow in size and become clinically significant. We present a case of a moderate to large, asymptomatic type 2 hepatoportal fistula developing after liver biopsy and its management.

INTRODUCTION

Hepatoportal fistulas are arteriovenous communications between the splanchnic artery and the portal vein that can be either congenital (type 3) or acquired (type 1 small peripheral, type 2 large central).¹ Type 1 fistulas are usually transient and asymptomatic, whereas type 2 fistulas can cause portal hypertension complicated by variceal bleed or ascites. Herein, we describe a case of a patient who developed a moderate to large fistula after liver biopsy which was embolized with *n*-butyl-2-cyanoacrylate (NBCA) prior to developing symptoms.^{2,3}

CASE

A 75 year-old woman with autoimmune hepatitis with overlap syndrome was seen at a follow up clinic visit. She underwent an ultrasound guided left lobe liver biopsy one year prior for worsening liver enzymes. The biopsy, which was without complication, confirmed chronic hepatitis with prominent mononuclear portal

inflammation. Her liver enzymes returned to baseline within three months without specific intervention. Upon her return to the hepatology clinic one year after liver biopsy, a routine ultrasound of the abdomen was performed. The ultrasound showed a moderate to large communication of the left hepatic artery with the left portal vein with reverse flow on color Doppler ultrasonography. Magnetic resonance imaging (MRI) with contrast confirmed the presence of a moderate sized communication between the left hepatic artery and the left portal vein. Injection of contrast showed retrograde flow into a branch of the portal vein. Although the patient was asymptomatic, she was referred to interventional radiology for embolization due to the size of the fistula. Segment 2 of the left hepatic artery was successfully embolized using 0.3 cc 40% *n*-butyl-2-cyanoacrylate (NBCA). A post embolization contrast study demonstrates elimination of fistula. The procedure was without complications and well tolerated.

DISCUSSION

The first instance of hepatoportal fistula was described by Goodhard in 1889.⁴ It is an aberrant communication between the hepatic artery and the portal vein. Etiologies include congenital, blunt or penetrating trauma, rupture of the hepatic artery, iatrogenic causes (liver biopsy,

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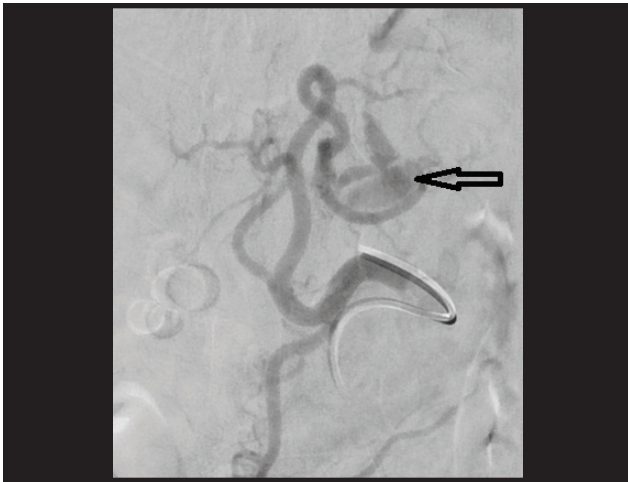


Figure 1. Left hepatic angiography showing segment 2 hepatic artery to left portal vein fistula (arrow).

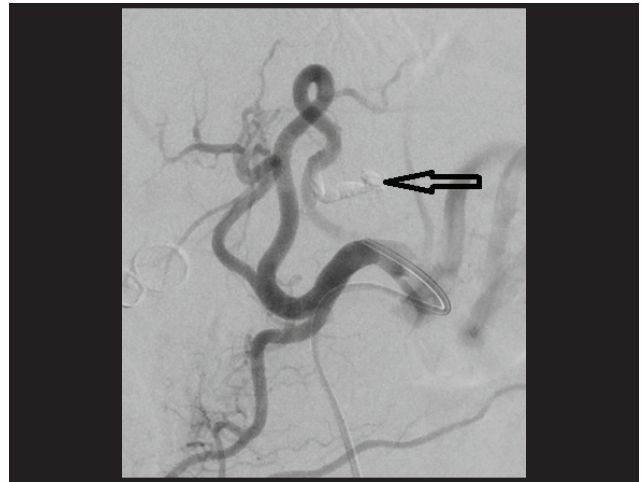


Figure 2. Hepatic Angiography showing post hepatoporal fistula embolization with n-butyl-2-cyanoacrylate (arrow).

percutaneous biliary drainage, surgery, etc), hepatitis, neoplasm and infections.⁵ If the fistula becomes large enough it may lead to reverse flow from the hepatic artery to the portal vein bypassing the sinusoids. This leads to portal hypertension and its sequelae including ascites and variceal bleeding.

Liver biopsy plays an important role in managing patients with chronic liver diseases. Type 2 hepatoporal fistula is a rare but serious complication from liver biopsy. The first case was reported by Preger in 1967 and since then the occurrence rate after liver biopsy is around 5-10% with majority of them small and located peripherally.⁶ Doppler ultrasound showing communication with arterial and portal vein and possible reversal of flow is usually the initial screening modality. Computed tomography (CT) or MRI.

Moderate to large Type 2 hepatoporal fistulas have a higher chance of progressing. Early detection and treatment should be taken before liver damage and portal hypertension takes place. Surgical ligation of the communication has been replaced by endovascular transcatheter arterial embolization.⁷ Agents such as stainless steel microcoils and NBCA all have yielded good results with low complication rates.⁸

In our case, we demonstrate the importance of color Doppler ultrasonography in detection of hepatoporal fistulas. It highlights the need to do serial ultrasounds with Doppler after liver biopsies. A hepatoporal fistula

that is changing in size, moderate or large should be considered for radiological guided embolization. Pre-emptive treatment using NBCA for embolization can prevent development of portal hypertension and its complications. ■

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