

# Hepatic Abscesses Caused by a Rare Fistulous Tract

by Neha Sahni, Dhiraj Gulati, Kamran Heydarpour

## INTRODUCTION

**W**e present a case of a fistula, between the portal vein and the left hepatic duct, discovered during an endoscopic retrograde cholangiopancreatography (ERCP). Fistulas between the portal vein and biliary tract are rare and occur in less than 1 % of patients with biliary tract disease.<sup>1</sup> Current literature reports that portobiliary fistulas may occur spontaneously, after biliary stent placement, following biliary surgery, after trauma, post trasjugular intrahepatic portosystemic shunt (TIPS) placement and also following liver biopsies;<sup>1,2,3,7,8</sup> the case we present was likely a complication of cholangitis. A literature review accompanies this case.

## CASE REPORT

A 79 year-old African American female with a history of cerebrovascular accident, hypertension, congestive heart failure and hyperlipidemia presented to the hospital after having been found at home on the floor with altered mental status. Upon initial evaluation, she complained of vague chest pain and right upper quadrant abdominal pain. On physical examination, her temperature was 100.9 degrees; her blood pressure, heart and respiratory rates were normal. The remainder of the physical examination was unremarkable.

Initial blood tests were as follows: aspartate aminotransferase, 267 IU/L (<33 IU/L), alanine

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## A CASE REPORT

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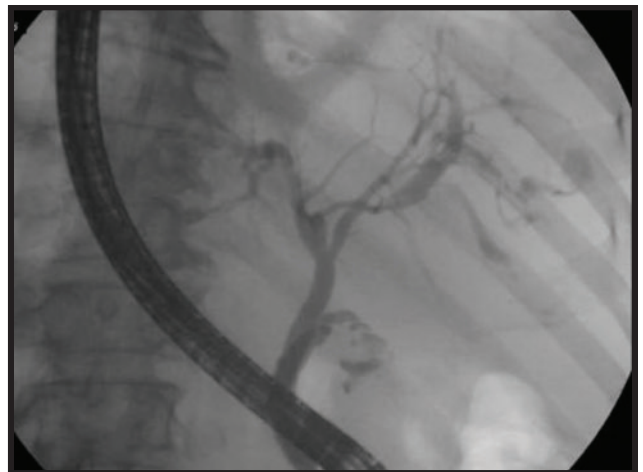
aminotransferase, 105 IU/L (<32 IU/L), total bilirubin of 2.1 mg/dl (0.0-1.5 mg/dl), direct bilirubin 1.3 mg/dl (0.0-0.3 mg/dl), alkaline phosphatase 397 IU/L (35-105 IU/L), international normalized ratio (INR) of 2.0, and a prothrombin time of 17.2 sec (10.6-13.4 sec). The complete blood count revealed a white cell count of 15.3 (4.8-10.8 k/mm cu) and a hemoglobin of 9.3 (12-16 g/dl). A CT of the abdomen revealed multiple hypodense nodules throughout the liver (Figure 1) with a dilated common bile duct. An ERCP was performed for suspicion of acute cholangitis. The common bile duct was injected and a filling defect in the gallbladder was noted to be consistent with a large gallstone. As the biliary tree branches were completely filled (Figure 2), there was a fluid accumulation at the proximal portions of the biliary tree suggesting abscesses. These fluid collections were draining through a ductal structure completely different from that of the biliary tree. Thus, a fistula between the biliary tree and the ductal structures was exposed. Further evaluation revealed that the ductal structure was, in fact, the portal vein. A 7-French 10-cm stent was placed to assure adequate drainage of the bile duct (Figure 3). A CT guided biopsy of the liver lesions demonstrated acute cholangitis with microabscesses. The patient was successfully treated with intravenous antibiotics. The follow-up ERCP performed two months later revealed complete resolution of the fistula.

## DISCUSSION

This case is a good demonstration of a rare fistula in the gastrointestinal (GI) tract. Portobiliary fistulas can occur spontaneously, following biliary stent placement, biliary surgery, trauma, post TIPS placement, as a result of liver biopsy<sup>1,2,3,7,8,10</sup> and, in our case, as an unusual complication of ascending cholangitis. Repeated inflammation, with development of scar tissue between adjacent organs, can cause the formation of fistulas.<sup>1,5</sup> In this patient, it was the upsurge of pressure in the hepatic duct from prolonged cholangitis that led to an outpocketing and an eventual fistulous tract between the hepatic duct and portal vein, which lie in close proximity. Per previous case reports, portobiliary fistulas may present with right upper quadrant pain, hemobilia and bleeding per rectum resulting in anemia.<sup>1,4,6,9</sup> The pathophysiology of rectal bleeding is that leakage of blood from the portal vein into the hepatic duct, common bile duct and then to the GI tract occurs. The lack of bleeding in the patient presented



**Figure 1.** Contrast enhanced abdominal CT scan: Demonstrating multiple scattered lesions in the liver.



**Figure 2** Biliary tree branches at ERCP.

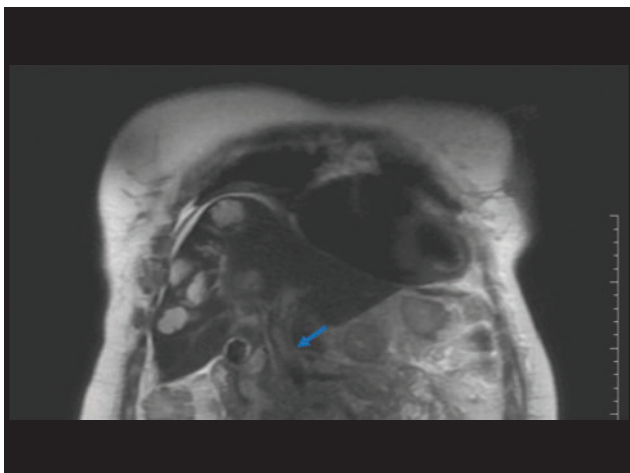


**Figure 3.** Fistula between the portal vein and the left hepatic duct at ERCP.

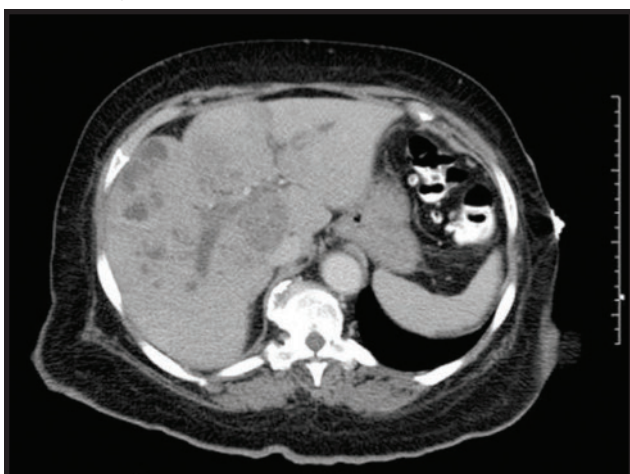
Red Arrows: Abscesses in Liver

Blue Arrow: Portal Vein

Green Arrow: Fistula between Portal Vein and Left hepatic duct



**Figure 4.** Coronal View MRI: Complete obstruction of portal vein by thrombus.



**Figure 5.** CT scan of abdomen: Revealing thrombus extending into the right portal vein.

above can be explained by Figures 4 and 5. Magnetic resonance imaging (MRI) revealed a thrombus in the portal vein, proximal to the fistula, blocking the vein from bleeding into the GI tract. It was also suspected that the thrombus contributed to the fistula formation by eroding the portal vein wall.

Given the elevated liver enzymes, INR and bilirubin and the hepatic nodules seen on the abdominal CT,

cancer was highly suspected. Liver biopsy confirmed cholangitis and ruled out malignancy. Blood cultures were positive for *Staphylococcus simulans* and *Enterococcus* species, most likely starting in the biliary ducts spreading through the fistula into the portal vein to the liver creating abscesses.

Ultimately, a stent was placed to maintain drainage of the duct as well as relieve the high pressures in the duct due to the cholangitis. It was the relief of this pressure that allowed for the natural closure of the fistula, as proven by the repeat ERCP done two months later. Treatment may also have included surgical resection of the fistula had it not resolved. ■

#### Acknowledgement:

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