

Biliary-hepatic vein fistula in a living donor liver candidate

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CASE SUMMARY

A 50-year-old woman with no significant past medical or surgical history presented to the clinic for living donor liver evaluation. As part of our institutional protocol, she received standard blood tests and magnetic resonance imaging. In addition, an ultrasound-guided biopsy was performed due to her age to rule out any associated pathology.

IMAGING FINDINGS

The biopsy was performed with an 18-gauge Biopense needle to obtain a core sample of liver, with one pass, and no complications were noted following the procedure. No histopathologic diagnosis was found on the liver biopsy. Imaging demonstrated a noncirrhotic liver, conventional hepatic arterial anatomy, trifurcation of intrahepatic bile ducts, fat quantification of 4.2% to 4.7%, and an adequate liver volume (Figure 1).

She was deemed an appropriate living donor candidate and underwent an exploratory laparotomy, cholecystectomy, and intraoperative cholangiogram. The intraoperative cholangiogram demonstrated reflux of contrast from the right posterior hepatic duct into the adjacent liver parenchyma and subsequent appearance of the contrast in an adjacent peripheral right hepatic vein branch (Figure 2). A repeat cholangiogram demonstrated a similar finding, with slightly decreased flow

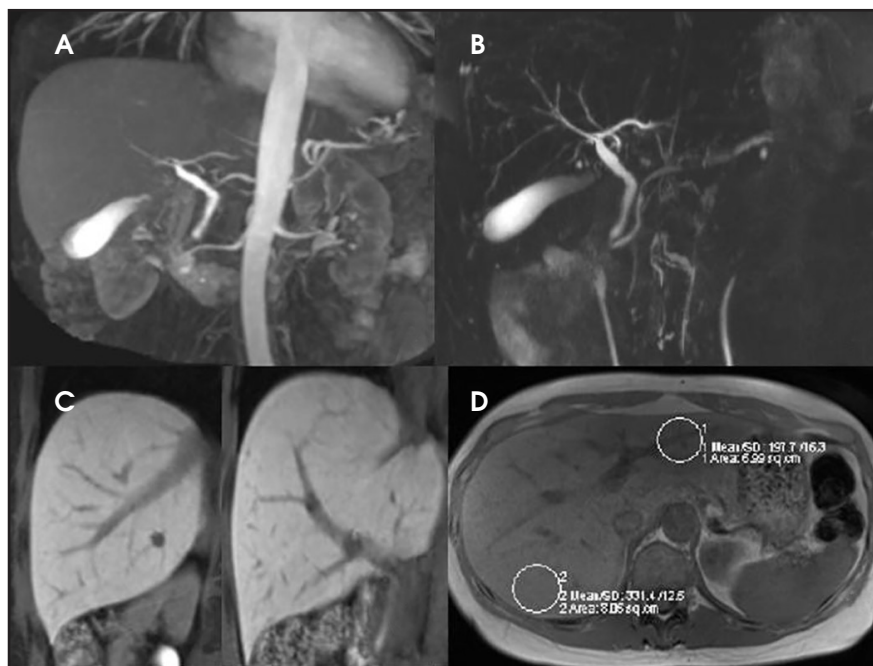


FIGURE 1. Donor imaging, showing normal results: (A) magnetic resonance angiogram demonstrating normal hepatic anatomy; (B) three-dimensional magnetic resonance cholangiopancreatography showing trifurcation of intrahepatic bile ducts; (C) hepatic and portal vein anatomy; (D) fat quantification.

of contrast into the right hepatic vein branch (Figure 3).

DIAGNOSIS

Biliary-hepatic vein fistula

DISCUSSION

A number of case reports and case series have demonstrated the clinical consequences of a liver biopsy for the donor, including hepatic vein to portal vein fistulas, hepatic vein–biliary

fistulas, hepatic artery to portal vein fistulas, and hepatic hematomas. Biliary venous fistulas may result in recurrent bacteremia, jaundice, hemobilia, bilihemia, anemia, fever, liver failure, and death.^{1–12} In rare cases, patients suffer from bilirubinuria with subsequent cholemic nephrosis and renal failure.^{3,5} The majority of biliary-venous fistulas are not clinically apparent and do not require treatment, but symptomatic patients may require assessment with

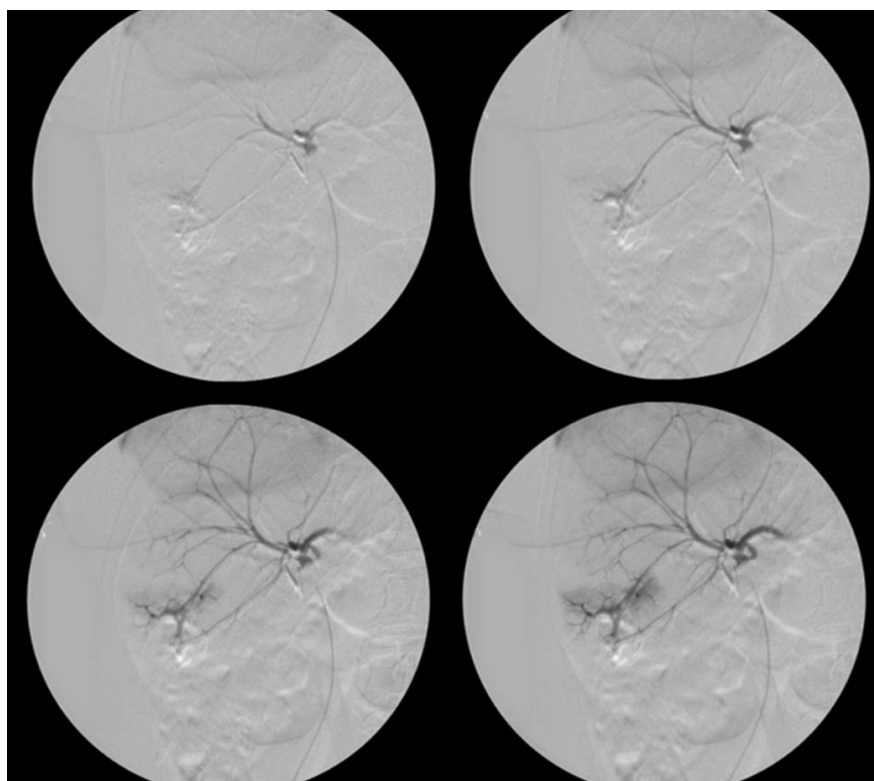


FIGURE 2. Intraoperative cholangiogram with contrast showing the right posterior hepatic duct appearing in the right hepatic vein branch.

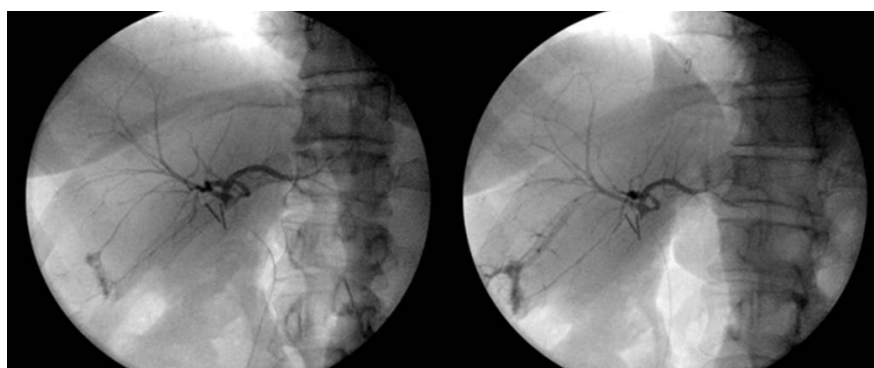


FIGURE 3. Delayed intraoperative cholangiogram showing decreased flow of contrast from the right posterior hepatic duct to the right hepatic vein.

cholangiography or arteriography with subsequent procedures.

In living donor candidates, care must be taken to minimize or eliminate any adverse effects of donation. A determination should be made regarding the use of percutaneous liver biopsy in donor evaluation, which may result in serious clinical consequences for both parties. Although these biopsies can provide helpful information, the serious consequences of resulting complica-

tions should lead to reconsideration of the requirement for percutaneous liver biopsy in living donor candidates — or at least strict scrutiny about the candidates for whom biopsies are deemed essential.

CONCLUSION

Percutaneous liver biopsy is included in living donor candidate evaluations in many institutional protocols. However, this invasive procedure is not without complications.

This report details a case of a living donor candidate who underwent a percutaneous liver biopsy that resulted in an asymptomatic biliary-hepatic vein fistula, discovered at the time of operation.

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Prepared by Dr. Fernandez while a Transplant Surgeon; Dr. Kim while Assistant Director of Living Donor Liver Transplantation and Surgical Director of the Neuroendocrine Tumor Center; Dr. Goldstein while Medical Director of the Liver and Pancreas Disease Center and Assistant Director of Simmons Transplant Institute; and Dr. Testa while Surgical Director of Living Donor Liver Transplantation at Baylor University Medical Center, Dallas, Texas