

CLINICAL IMAGE

Hemobilia from arteriobiliary fistula

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CASE DESCRIPTION

A 59-year-old female presented to hospital with hematemesis, she had a history of autoimmune hepatitis requiring liver transplant complicated by hepatic artery thrombosis requiring vascular interventions. Post-transplant she developed intrahepatic duct ischemic strictures and underwent multiple endoscopic retrograde cholangiopancreatography (ERCP) interventions with balloon dilations and stent placements. Her biliary strictures improved and subsequently all the stents were removed. *There were no immediate complications following the ERCP with no evidence of fistulous connection on fluoroscopy image (Fig. 1).* Few months later, she presented to hospital multiple times with hematemesis and melena requiring blood transfusions. Endoscopic work up was unrevealing, pillcam deployment and antegrade double balloon enteroscopy could not identify an obvious source to explain the large GI bleeding. Eventually on one of the episodes of large volume hematemesis with hypotension requiring large volume transfusion and intubation; on upper endoscopy active hemobilia was visualized (Fig. 2).

An emergent catheter guided mesenteric angiogram noted Ateriobiliary fistula between R hepatic artery and common hepatic duct (Fig. 3), transcatheter coil/Gelfoam slurry embolization of the right hepatic artery was done (Fig. 4). Post-embolization angiogram shows closure of fistula (Fig. 5), hematemesis resolved following the procedure.

DISCUSSION

Hemobilia is defined as the presence of blood in the biliary tree. Presentation is with signs and symptoms of an upper GI bleed. Hemobilia is often missed due to the low frequency encountered

in clinical practice and at times because of the intermittent nature of bleeding. Hemobilia can potentially cause life-threatening bleeding as in the case described.

Pathology happens due to development of a fistulous connection between hepatic vasculature and biliary system. With the increase in number of hepatobiliary procedures most cases reported now are iatrogenic, other known causes include liver trauma as well as hepatic tumors [1]. *Case series from Nicholson et al reported GI bleeding from R hepatic artery injury in 0.6% of patients undergoing laparoscopic cholecystectomy; though a small percentage it amounts to a large absolute number given the high frequency of laparoscopic cholecystectomy [2].*

Upper GI bleeding with history of recent or previous interventions to liver (parenchyma or vessels) or biliary tree shall raise a suspicion of hemobilia. Timely performed upper GI endoscopy can establish the diagnosis with identification of passage of blood from the duodenal papilla or presence of a clot occluding the papilla. Success rate in identification of hemobilia with endoscopy have been variable; one small case series have reported a positive identification rate of 60% [3].

Non-diagnostic endoscopy in clinically stable patients shall be evaluated with CT angiography (CTA). This allows for identification of direct (passage of contrast into biliary tree) or indirect evidence of blood in biliary tree. CTA is also helpful in planning angiographic intervention by assessing vascular anatomy especially in cases with prior history of surgery or in recipients of liver transplant.

Magnetic resonance cholangiopancreatography can also well establish the presence of blood in biliary tree however does not allow for evaluation of blood vessels and is time consuming.

Immediate catheter-based angiography is indicated if endoscopy confirms hemobilia and/or in patients with hemodynamic instability, Angiography offers not only a diagnostic

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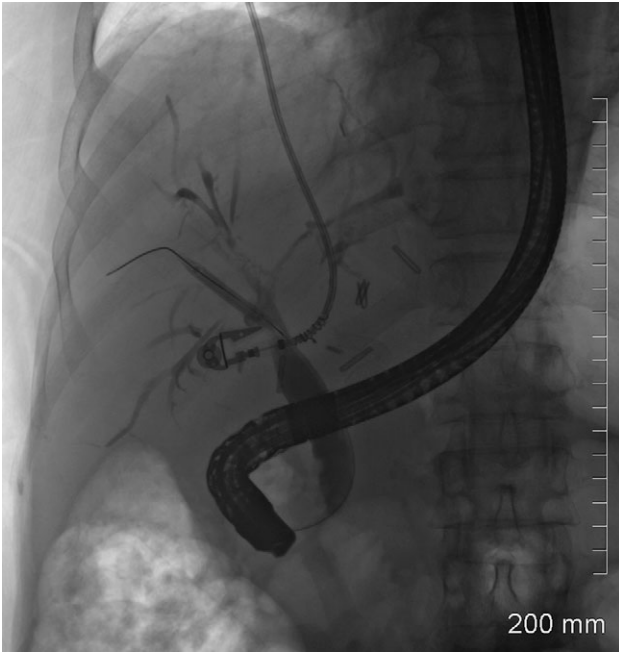


Figure 1: ERCP image: post stents with no fistulous connection.

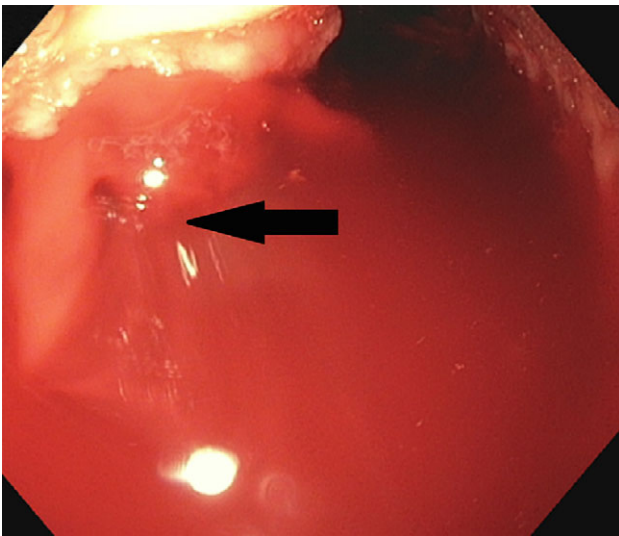


Figure 2: Hemobilia: endoscopic image of active bleeding from ampulla.

but also therapeutic options to control bleeding with coil embolization, thrombin injection or stent placement [1]. In addition, ERCP may be needed to clear the biliary obstruction from clotted blood in biliary tree.

AUTHOR CONTRIBUTION

Each person listed as an author has participated in the creation of this manuscript including drafting of the article and critical revision of the article for important intellectual content.

CONFLICT OF INTEREST STATEMENT

None declared.



Figure 3: Areteriobiliary fistula: fistula between R hepatic artery and common hepatic duct.



Figure 4: Angio intervention: attempted closure of arteriobiliary fistula.



Figure 5: Post coil: successful closure of fistula with no arterial contrast flow into common hepatic duct.

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