

# Hemobilia Leading to a Diagnosis of Hepatocellular Carcinoma

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## ABSTRACT

Hemobilia from hepatocellular carcinoma (HCC) is rare and is usually noted in established cases of HCC after invasive procedures. Hemobilia can present with serious complications including acute pancreatitis and cholangitis. We describe an unusual case of hemobilia causing obstructive jaundice with suspected cholangitis and acute pancreatitis with subsequent workup revealing HCC.

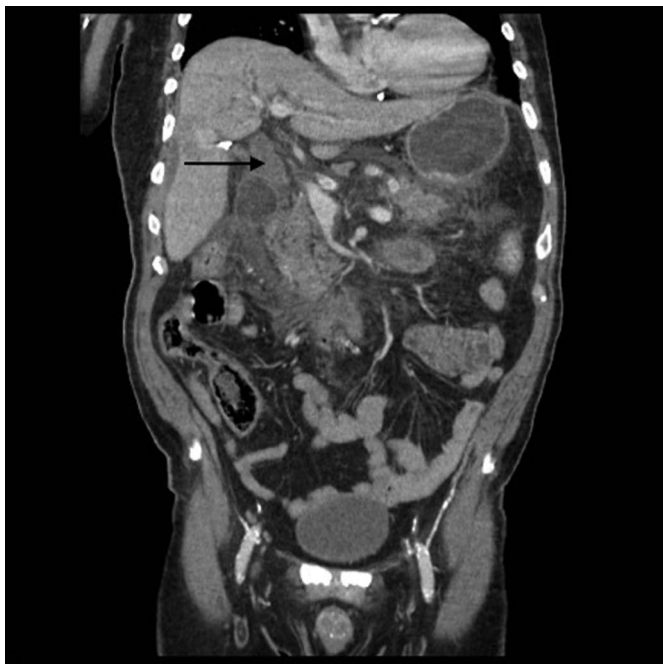
## CASE REPORT

A 61-year-old Hispanic man with long-standing type 2 diabetes, hypertension, and obesity presented with 1 day of abdominal pain, nausea, and vomiting accompanied by subjective fevers. His medical history was also significant for recent hospitalization for right portal vein thrombosis (PVT) of unclear etiology and *Escherichia coli* sepsis for which he was on novel oral anticoagulants and oral antibiotics. At presentation, his vital signs were stable, and he was afebrile. Laboratory profile was significant for a leukocyte count of 15 k/ $\mu$ L with 10%–20% bands, total bilirubin 15.2 mg/dL (direct 12.1 mg/dL), alkaline phosphatase 704 U/L, aspartate aminotransferase 76 U/L, alanine aminotransferase 63 U/L, lipase 3,463 U/L, lactic acid 2.4 mmol/L, international normalized ratio 2.7, and hemoglobin 11.8 g/dL. Abdominal computed tomography revealed persistence of right PVT, moderately extensive peripancreatic edema and fluid, and intra- and extrahepatic biliary dilation with the common bile duct (CBD) measuring 17 mm with hyperdense material within, suspicious for blood (Figure 1). No hepatic mass was noted.

The patient underwent endoscopic retrograde cholangiopancreatography (ERCP) for concerns of obstructive jaundice with acute pancreatitis and suspected cholangitis. At cholangiography, filling defect was noted in the CBD (Figure 2). A biliary sphincterotomy oozed blood. Organized clots were extracted on balloon sweep of the CBD (Figure 3). Clots were not retrieved for pathology or brushings from the CBD obtained, as there were no concerns for neoplasm as the etiology of hemobilia. A 10 mm by 8 cm covered metal stent was placed 7 cm into the CBD for tamponade effect and to keep the CBD patent. The etiology of hemobilia was suspected to be from his previously established PVT and concurrent anticoagulation therapy. The patient underwent abdominal computed tomography angiogram, which showed a focus of hypervascularity measuring 19 mm on the arterial phase within hepatic segment 5, suspicious for a pseudoaneurysm. A subsequent arteriogram showed the right hepatic lesion to be a hypervascular mass concerning for HCC with no apparent pseudoaneurysm or active extravasation (Figure 4). The serum  $\alpha$ -fetoprotein level was elevated at 653 ng/mL. The patient was diagnosed with HCC, based on arteriogram image findings and elevated  $\alpha$ -fetoprotein levels, which was likely the cause of his PVT and subsequent hemobilia in the setting of systemic anticoagulation. Biopsy of the lesions was considered not necessary. No other tumor markers were checked. The patient had no previous diagnosis of liver disease, but previous abdominal ultrasound had shown echogenic liver consistent with fatty infiltration. The patient's hospital course was otherwise unremarkable. During subsequent follow-up, the patient declined to consider any surgical therapies. He opted to undergo transarterial chemoembolization therapy instead.

## DISCUSSION

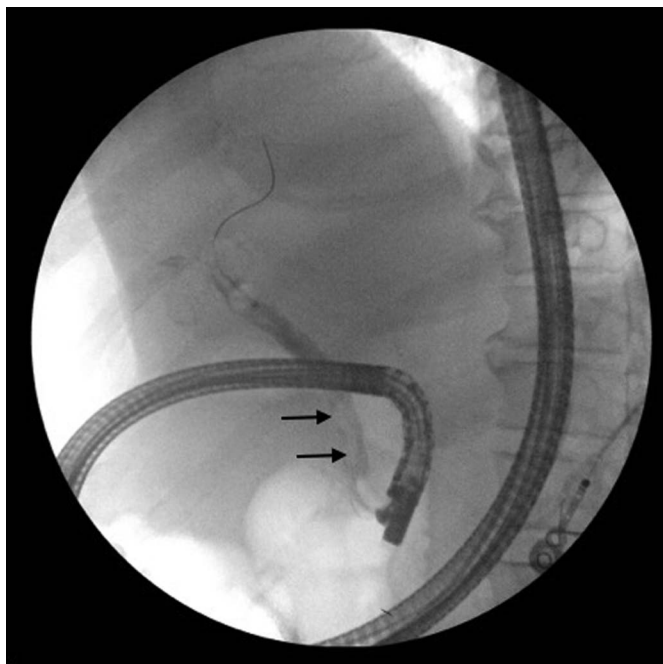
Hemobilia is an uncommon cause of gastrointestinal bleeding resulting from communication between the blood vessels and biliary tract. The most common cause of hemobilia is iatrogenic, accounting for greater than 50 % of cases.<sup>1–3</sup> Other causes include trauma, inflammation, cholelithiasis, vascular disorders, and neoplasm.<sup>4</sup> Hemobilia usually presents as biliary colic. The classic triad of right



**Figure 1.** Computed tomography showing hyperdense material (arrow) within the dilated common bile duct.

upper quadrant pain, jaundice, and gastrointestinal bleeding is rare.<sup>3</sup> Hemobilia can present with serious complications such as acute pancreatitis and cholangitis.<sup>4</sup>

Diagnosis of hemobilia is usually made by esophagogastroduodenoscopy, but angiography is the gold standard.<sup>3</sup> Bleeding usually stops with supportive therapy, but in persistent



**Figure 2.** Cholangiography with filling defect (arrows) in the common bile duct.

or severe bleeding, arterial embolization of the culprit vessel may be needed.<sup>2,4,5</sup> ERCP is warranted in the management of hemobilia when biliary obstruction and its complications are evident.<sup>5,6</sup> The role of ERCP with sphincterotomy is well established in the management of hemobilia.<sup>6</sup> Biliary stents are usually deployed in patients with difficult hemostasis.<sup>4</sup> When conventional methods fail to achieve hemostasis, rarely, surgical therapy such as hepatic artery ligation or hepatic lobe resection may be needed.<sup>4</sup>

HCC-induced hemobilia is rare and is a result of invasion of the biliary system by the hypervascular tumor. It is usually observed in patients with previously established HCC. Tumor progression, recurrence, or repeated treatment of the tumor by radiofrequency ablation or transarterial chemoembolization may cause tumor invasion of the biliary tract and overall carries a poor prognosis.<sup>1,4,5,7</sup> Hemobilia-induced acute pancreatitis and cholangitis is rare, and the mechanism is similar to choledocholithiasis causing pancreatitis and cholangitis. Either blood clot or tumor thrombus impaction at the ampulla leads to pancreatitis and/or cholangitis.<sup>8,10</sup> Neoplasm-related hemobilia causing acute pancreatitis and cholangitis is very rarely reported.<sup>9,10</sup>

HCC-related hemobilia and its complications are managed by controlling bleeding, usually by arterial embolization, and by relieving biliary obstruction by endoscopic sphincterotomy.<sup>9</sup> In refractory cases, because most of these patients are poor surgical candidates, fully covered metal stents have been effectively used to achieve hemostasis.<sup>4,11</sup>

In our case, the patient presented with obstructive jaundice, acute pancreatitis, and suspected cholangitis from hemobilia. The patient underwent emergent ERCP with sphincterotomy and CBD metal stent placement to relieve biliary obstruction and to achieve hemostasis. Further workup resulted in a new diagnosis of HCC. HCC-related hemobilia is usually reported in patients with established HCC undergoing procedures. Hemobilia leading to a diagnosis of HCC, as in our patient, is rarely reported.

## DISCLOSURES

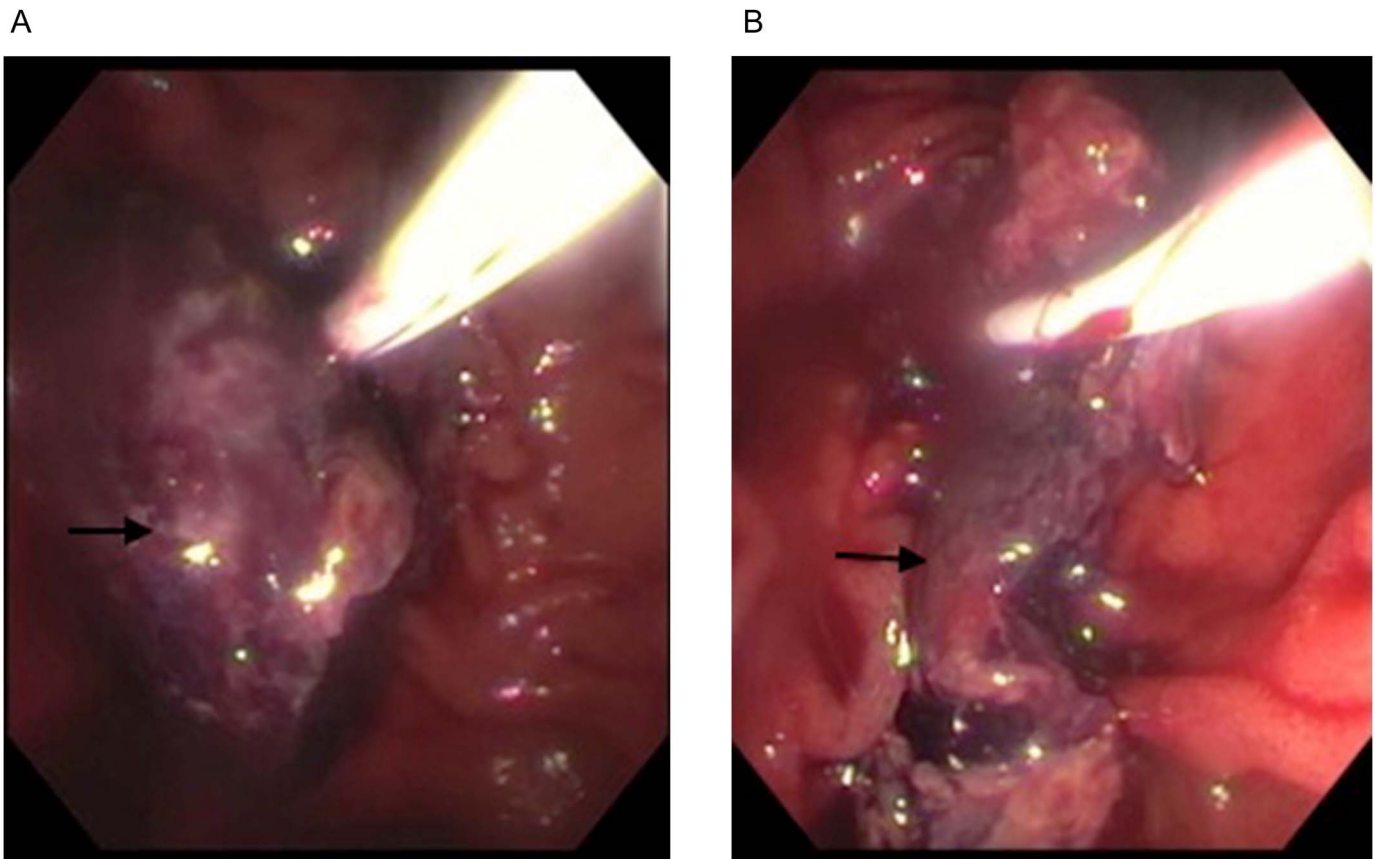
NS Gollol-Raju wrote manuscript and is the article guarantor. S. Jayananda and P. Mudireddy revised the manuscript.

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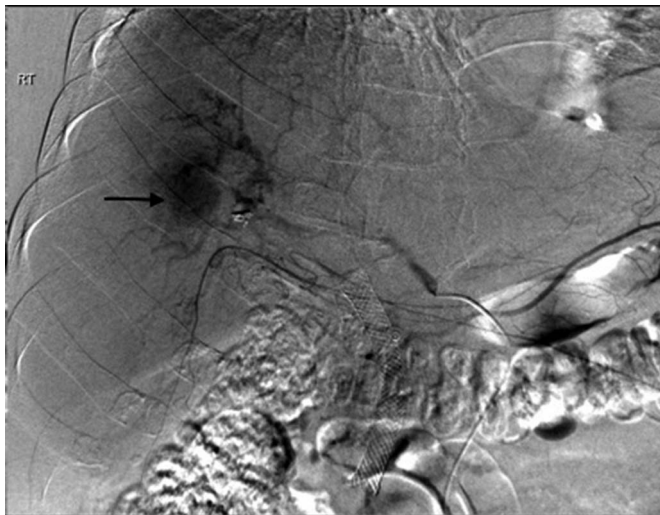
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Informed consent was obtained for this case report.

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**Figure 3.** (A) and (B) Balloon extraction of large clots (arrows) from the common bile duct.



**Figure 4.** Hypervascular lesion (arrow) of the right hepatic lobe on arteriogram.

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