



A case of hemobilia secondary to cancer of the gallbladder confirmed by cholangioscopy and treated with a fully covered self-expanding metal stent

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Hemobilia is a rare cause of upper-GI bleeding that may be secondary to iatrogenic biliary injury, malignancy, or vascular malformations.^{1,2} ERCP has an established role in both the diagnosis of and the therapy for hemobilia. This recently has been augmented by the introduction of cholangioscopy.

We present the case of a 90-year-old woman who presented with biliary obstruction demonstrated by deranged liver function test results and elevated lipase (Table 1). She had multiple comorbidities, including end-stage renal failure (with a baseline estimated glomerular filtration rate of 10 mL/min), congestive cardiac failure, and previous cerebrovascular accident that left her frail and requiring significant assistance. Abdominal CT and US scans demonstrated gallbladder wall thickening with dilated intrahepatic and extrahepatic bile ducts (Fig. 1).

On day 3 of her admission, the patient experienced melena, with a resultant fall in hemoglobin but a concurrent rise in bilirubin (Table 1). ERCP demonstrated multiple filling defects within a dilated common bile duct (CBD) (Fig. 2). Hemobilia was suspected and confirmed after endoscopic sphincterotomy, and balloon trawl resulted in the clearance of multiple clots. MRI again demonstrated a thickened and poorly defined gallbladder wall, along with an abnormal ill-defined signal that extended into the adjacent part of the liver (Fig. 3). This,

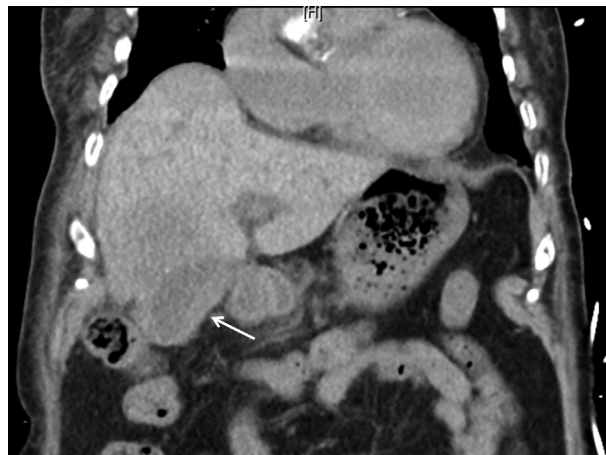


Figure 1. Abdominal CT view demonstrating thickened gallbladder wall.

in keeping with the results of her other investigations, was highly suggestive of a diffusely infiltrative gallbladder cancer.

The patient's age and comorbidities precluded definitive therapy for the suspected malignancy. However, she had ongoing clinically significant hemobilia that required transfusion of 6 units of packed red blood cells over 13 days. Other palliative treatment options thus were considered at a multidisciplinary meeting. Her renal function precluded the administration of contrast material for radiologic embolization. Radiotherapy to the gallbladder bed was considered; however, a consensus decision was made for endoscopy with diagnostic cholangioscopy and possible biliary stent placement (Video 1, available online at www.VideoGIE.org).

Repeated ERCP with cholangioscopy (Spyglass; Boston Scientific, Marlborough, Mass, USA) was performed to localize the bleeding. Cholangioscopy demonstrated active bleeding arising from the cystic duct orifice (Fig. 4). Direct visualization of the cystic duct revealed further clots. When limited contrast material was introduced, gallbladder filling defects were seen, reflecting either further clots or neoplasm (Fig. 5). With a nondilated CBD (6 mm in diameter), a decision was made to place a fully covered self-expanding metal stent (FCSEMS) (Wallflex; Boston

TABLE 1. Laboratory results on admission and progress

Laboratory test	Admission	Day 3
Bilirubin ($\mu\text{mol/L}$)	23	86
ALP (U/L)	693	577
GGT (U/L)	331	272
ALT (U/L)	502	257
AST (U/L)	1006	168
Lipase (U/L)	>3000	
Hemoglobin (g/L)	99	68
Creatinine ($\mu\text{mol/L}$)	333	321
eGFR (mL/min)	10	10

ALP, Alkaline phosphatase; GGT, γ -glutamyltransferase; ALT, alanine aminotransferase; AST, aspartate aminotransferase; eGFR, estimated glomerular filtration rate.

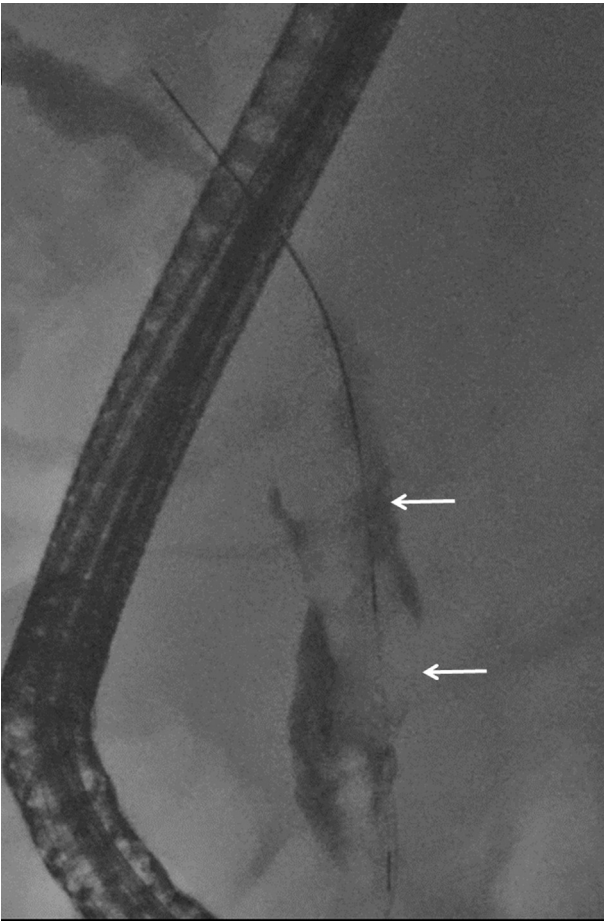


Figure 2. Cholangiographic view showing filling defect in a dilated common bile duct.

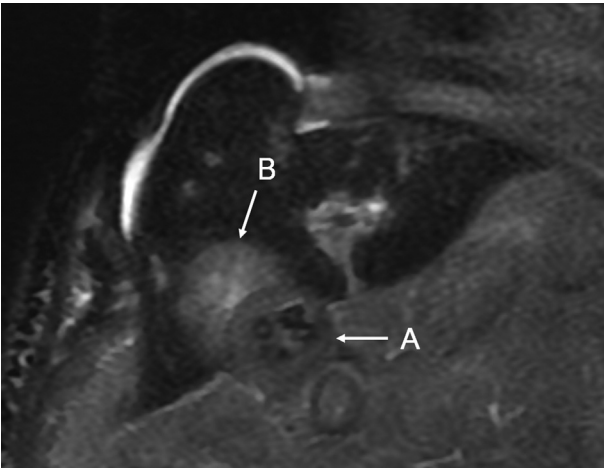


Figure 3. Magnetic resonance imaging view demonstrating (A) thickened and poorly defined gallbladder wall and (B) ill-defined abnormal signal extending into the adjacent part of the liver.

Scientific) to cover the cystic duct origin (Fig. 6). Postprocedure recovery was uneventful, with no further melena and normalization of liver function test results. There were no further bleeding episodes at her 4-month



Figure 4. Hemobilia directly visualized from cystic duct.



Figure 5. Filling defects seen in gallbladder.

follow-up visit; however, the patient died due to progressive renal failure.

ERCP and cholangioscopy are effective diagnostic and therapeutic modalities for hemobilia. Other treatment options for hemobilia include surgery and radiologic embolization. In this case, imaging suggested an underlying gallbladder malignancy; however, management options were limited. Cholangioscopy confirmed that the bleeding appeared to arise from the gallbladder. The FCSEMS was

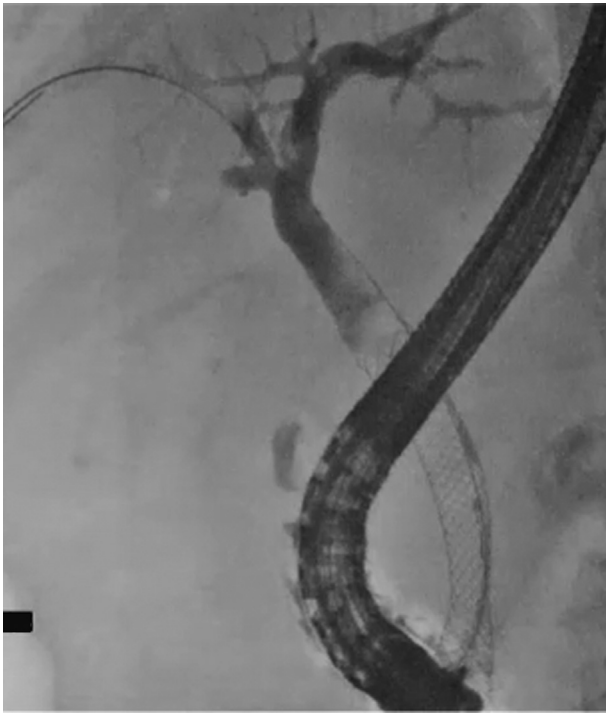


Figure 6. Fully covered self-expanding metal stent inserted to overlie the cystic duct.

placed to occlude the cystic duct orifice, presumably inducing tamponade, and possibly, but less likely, direct tumor or vascular compression.

The use of FCSEMSs in malignant biliary obstruction may result in cholecystitis in approximately 8% of patients, particularly in cases of nonhilar strictures with cystic duct occlusion.³ Thus, we attempted to mitigate the risk of cholecystitis with prophylactic antibiotics and by limiting both cholangioscopic irrigation and injection of contrast material into the gallbladder. Significant CBD dilatation

would preclude stent placement because FCSEMS migration occurs in approximately 10% of cases.³

Although previous reports describe the use of SEMSs to palliate malignant hemobilia by direct tumor compression,^{1,4,5} this case used an FCSEMS to control hemobilia arising from the gallbladder.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviations: CBD, common bile duct; FCSEMS, fully covered self-expanding metal stent.

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