Bleeding Bile (Hemobilia): An Obscure Cause of Upper Gastrointestinal Bleeding: Case Report and Review of the Literature

We report the case of a 76-year-old male who developed acute upper gastrointestinal bleeding (UGIB) and obstructive jaundice secondary to one of the rarer causes of UGIB, hemobilia (bleeding into the biliary tree). Bleeding was due to pseudoaneurysm of right hepatic artery after placement of right and left hepatic duct stents. An emergent hepatic angiogram with embolization was performed with successful hemostasis. Common causes of hemobilia are iatrogenic, trauma, gallstones, inflammation/infection, vascular disorders and neoplasm. The classic hemobilia triad includes bleeding...
INTRODUCTION

Upper gastrointestinal (UGI) bleeding is associated with a serious, sometimes grave prognosis and high cost of care. In the recent study in Spain (1), UGI bleeding caused six times more hospital admissions than lower GI bleeding. In a case-series of 1,000 patients (2), causes of UGI bleeding were:

- Peptic ulcer disease (PUD)—55 percent
- Esophagogastric varices—14 percent
- Arteriovenous malformations—6 percent
- Mallory-Weiss tears—5 percent
- Tumors and erosions—4 percent each
- Dieulafoy’s lesions—1 percent
- Others—11 percent
- Hemobilia is among rare causes of UGI bleeding but it can be severe and even fatal.

CASE REPORT

A 76-year-old male presented to emergency department (ED) with mild, dull mid-epigastria pain and multiple (4–5 times per day) episodes of melena (black, tarry stool) during the last five days. He had neither hematemesis nor hematochezia. The epigastric pain was partially relieved by esomeprazole. He also complained of fatigue, weakness, anorexia, and a ten pound weight loss over the preceding twelve months.

Past medical history was notable for right nephrectomy secondary to renal cancer, long standing ulcerative colitis status post colectomy with ileoanal anastomosis, and prostate cancer treated with external beam radiation therapy.

Two months prior to his acute presentation, the patient developed painless obstructive jaundice. Subsequent imaging revealed an obstruction at the confluence of the right and left hepatic ducts, a large stone in the gallbladder, and a 3.5 cm soft tissue density adja-

DISCUSSION

1. Etiology

Hemobilia is defined as bleeding into the biliary tree from an abnormal communication between a blood vessel (splanchnic circulation) and bile duct (4,5). The nosologic term “hemobilia” was first introduced by Francis Glisson in 1654, describing a young man dying from a massive UGI bleed caused by a sword injury to the liver (3). In modern medicine, Dr. Philip Sandblom draws attention to hemobilia in “Hemorrhage into the Biliary Tract Following Trauma: Traumatic Hemobilia” (1948) (4) and in “Hemobilia (Biliary Tract Hemorrhage): History, Pathology, Diagnosis and Treatment (1972) (5). In later years, causes of hemobilia were further analyzed at the case series level.

Angiography is the definitive diagnostic and therapeutic procedure with a success rate of over 90%. In our patient, angiographic embolization provided only temporary reversal of his condition because stents continued to erode into the hepatic arteries. We present this case to remind clinicians that hemobilia is a possible cause of UGIB, especially in patients who present with jaundice, and in patients with biliary stents it can be fatal.
Bleeding Bile (Hemobilia)

A CASE REPORT

Vascular lesions such as aneurysms of hepatic and cystic artery, vasculitis of cystic artery or portal vein (12–14) tend to cause hemobilia major—massive and life threatening bleeding (5–7). Hemobilia associated with cholelithiasis, acalculous inflammatory conditions (ascariasis (10), hepatic abscesses (11), cholecystitis/cholangitis) and neoplasms is usually minor.

Review of case-series (Table 1) demonstrates an increase in iatrogenic causes of hemobilia during more recent years. The rate of iatrogenic hemobilia varies from 1% with liver biopsy (16) or 4% with transhepatic cholangiography (17) to 14% with transhepatic drainage (18) and 40% to 85% during hepatobiliary surgeries (6–8). Hemobilia was also reported with therapeutic anticoagulation (19).

2. Diagnosis

The classic “hemobilia triad” described by Quinke in 1871 includes UGI bleeding (hematemesis in 60% of cases and/or melena in 90%), biliary colic in 70% of cases and obstructive jaundice in 60% of cases (20). Only 22% of patients present with all three symptoms (7). Hemobilia can be painless and should be considered when a patient presents with a GI bleed that is accompanied by jaundice. Obstructive jaundice can be caused by an obstructive biliary lesion or by blood clot. The latter is formed because bile and blood do not mix. The blood clot may later pass with bile flow or remain in the duct leading to persistent jaundice. A prompt EGD is warranted and duodenoscope can be used to observe bleeding from the ampulla of Vater. The following features on transabdominal ultrasound (US) may be suggestive of hemobilia:

A. Blood-containing material in the bile ducts is echogenic, non-shadowing and can merge with liver parenchyma.
B. With a clot adhering to the wall of a bile duct, the size of the duct can be underestimated.
C. Transitions from hyper- to hypoechoic material in the bile ducts suggest hemobilia.
D. Blood at the walls of the gallbladder can mimic acute cholecystitis.

A computed tomography CT scan allows imaging of blood vessels but it is less sensitive in dilatation of the bile ducts or to detection of intraductal material. Abdominal angiography is the gold standard for diagnosing hemobilia with an approximate 90% likelihood of finding the bleeding site.

CASE REPORT (Continued)

An emergent hepatic angiogram revealed a large pseudoaneurysm of the right hepatic artery adjacent to previously placed metallic stent. Hemostasis was achieved by successful injection of 5 mm coils into the

(continued on page 40)
A CASE REPORT

Bleeding Bile (Hemobilia)

(continued from page 38)

site of arterial erosion (Figure 3). The patient’s hospital course was further complicated by cholangitis, which was conservatively treated with antibiotics. Obstructive jaundice gradually resolved and the patient was discharged home...

3. Treatment
The main treatment goals are to first achieve hemostasis followed by removal of the biliary obstruction. As previously mentioned, the success rate of angiography with selective embolization is almost 90% (21–22). Other management options include coagulation of the bleeding vessel, surgery or observation. Angiography selective embolization is associated with less morbidity than surgical intervention, but still carries a risk of hepatobiliary necrosis (6%), abscess formation (9%), bleeding (6%), and gallbladder fibrosis (2%) (7,8,23,24).

In order to avoid liver ischemia, a potentially fatal complication, patency of the portal vein must be assured...
during embolization of hepatic artery. Transient rise in transaminases usually resolves within six weeks. Sepsis is a relative contraindication to embolization (24). Surgery is considered if:

- The cause of hemobilia is usually treated surgically, i.e., cholelithiasis, hemorrhagic cholecystitis, or respectable neoplasms.
- The angiography with embolization fails.
- ERCP fails to relieve obstructions.

Surgical hemostasis is achieved by selective ligation of the bleeding artery or resection of the aneurysm. Second-line options include non-selective ligation or liver resection. Patients with hemobilia minor, for instance after liver biopsy or cholangiography, can be closely observed without intervention until cessation of bleeding.

CASE REPORT (Outcome)

Several weeks later the patient was re-admitted with recurrence of the same disease. He refused angiogram/embolization and subsequently expired from intractable hemorrhage/hemobilia.

4. Mortality

Over the last 30 years, mortality from hemobilia has decreased from 25% to <5% (7). This decline can be explained by both a shift toward hemobilia minor due to an increase in iatrogenic causes (Table 1) along with the success of angiographic embolization in hemobilia major (7). Vascular causes of hemobilia carry the highest mortality risk.

CASE SUMMARY

The patient presented with the “hemobilia triad”: GI bleeding (melena, bloody stool), abdominal pain and obstructive jaundice. The pain was not a typical colic, but rather a dull, achy one. These signs and symptoms along with the pertinent history of biliary tract lesions and therapeutic interventions was suggestive of hemobilia as the source of the UGI bleed. Hemobilia was major, profuse, and pointed toward a vascular (arterial) etiology. In the modern “era of stents,” arterial erosions and vascular hemobilia are likely to become more frequent causes of UGI bleed. As depicted by this case,
A CASE REPORT

Bleeding Bile (Hemobilia)

this clinical scenario can recur and be fatal. Interventions, such as stent insertions, can have unintended secondary effects either immediate or delayed as in the case presented. These untoward secondary effects do not render the interventions wrong or unethical provided their initial intent is curative or palliative.

References