Acute pancreatitis secondary to hemobilia after percutaneous liver biopsy

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Abstract: Percutaneous liver biopsy (PLB) is a valuable diagnostic tool. Complication rates vary depending on the technique used, experience of the physician, number of passes, bleeding parameters and other factors. Hemorrhage is a common complication after PLB and can present as intraperitoneal bleeding, intrahepatic or subcapsular hematoma, or rarely as hemobilia. Acute pancreatitis is a rare complication of hemobilia. We describe a single case of acute pancreatitis caused by biliary obstruction due to hemobilia following PLB. The obstruction was successfully managed with biliary stent drainage.

Keywords: pancreatitis, chronic hepatitis C, liver biopsy

Case presentation

A 56-year old male with chronic hepatitis C presented to a local community hospital with a 3-day history of epigastric abdominal pain after a percutaneous liver biopsy (PLB) had been performed 7 days earlier (in the same facility) as part of his hepatitis C pretreatment staging. It was done using a freehand technique, with a Jamshidi needle, requiring two passes to obtain 3 cm of tissue. His prothrombin time, platelet count, and bilirubin level were normal before the biopsy. His alanine aminotransferase (ALT) was 82 U/L (17–60 U/L) and hemoglobin was 14 g/dl (13.5–17.2 g/dl). The patient did well until 3 days prior to presentation when he began having epigastric abdominal pain associated with nausea. His past medical history was significant for cholecystectomy several years ago and intermittent alcohol abuse. On physical examination, there was noticeable scleral icterus. Abdominal exam revealed tenderness to palpation in the epigastric region but no peritoneal signs. Laboratory test revealed white blood cells $13\,200/\text{mm}^3$ ($4000\text{--}10\,000/\text{mm}^3$), hemoglobin 13.7 g/dl, aspartate aminotransferase 45 U/l (18–43 U/l), ALT 142 U/l, total bilirubin 9.1 mg/dl (0.5–1.5 mg/dl), and lipase 6058 U/l (13–60 U/l). The patient denied hematemesis or blood in the stool. Because of the acute pancreatitis with evidence of biliary obstruction, it was decided by his local gastroenterologist that a magnetic resonance imaging (MRI) with

magnetic resonance cholangiopancreatography (MRCP) would help identify potential complications related to the liver biopsy, as well as provide better visualization of the biliary and pancreatic ducts. The MRI scan showed changes consistent with acute pancreatitis and mild intra and extra-hepatic biliary dilation (Figure 1) with no evidence of fluid collections or abscess formation in the abdomen. At that point the patient was transferred to our university hospital for possible endoscopic retrograde cholangiopancreatography (ERCP). After evaluating the patient, we decided that ERCP was indicated due to the bile duct obstruction and acute pancreatitis. During this test, there was clear evidence of a blood clot occluding the ampulla (Figure 2). The cholangiogram demonstrated an irregular filling defect throughout the bile duct consistent with a clot (Figure 3). A sphincterotomy was performed with removal of large blood clots. An occlusion cholangiogram revealed no remaining filling defects. The patient did well postprocedure and the bilirubin trended down until 48 hours later when the bilirubin began to rise again associated with a return of the patient's abdominal pain. There was no evidence of active bleeding by clinical parameters (blood pressure and heart rate), and no evidence of blood in the stool. His hemoglobin level was unchanged. Angiography was considered but was felt to have a low yield of success due to the lack of evidence of active bleeding. Repeat procedure 3 days after the

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Figure 1. Magnetic resonance imaging showing changes consistent with acute pancreatitis and mild intra and extrahepatic biliary dilation.

Figure 2. Blood clot occluding the ampulla during endoscopic retrograde cholangiopancreatography.

initial ERCP again showed a clot occluding the ampulla. The clots were removed with a balloon and a 10 French 7 cm biliary stent was placed to aid in drainage. After this second procedure, the patient did well with resolution of his symptoms and jaundice.

Implications for clinical care

Complication rates with PLB vary depending on the technique used, experience of the physician, number of passes, bleeding parameters, and other factors [Gilmore *et al.* 1995; Maharaj and

Figure 3. Cholangiogram demonstrating an irregular filling defect throughout the bile duct.

Bhoora, 1992; Piccinino *et al.* 1986; Sharma *et al.* 1982; Perrault *et al.* 1978]. Hemorrhage after PLB may occur and can present as intraperitoneal bleeding, intrahepatic or subcapsular hematoma, or rarely as hemobilia. Acute pancreatitis is a rare complication of hemobilia. We describe a single case of acute pancreatitis caused by biliary obstruction due to hemobilia following PLB. The obstruction was successfully managed with biliary stent drainage.

There are widely divergent opinions about the values at which abnormal coagulation indexes become contraindications to PLB; however, in most US centers, an international normalized ratio (INR) >1.5 and platelet count $<50\,000/\text{mm}^3$ appear to be a strong contraindication for the procedure [Grant and Neuberger, 1999]. Abdominal pain after a PLB could represent just a minor complication like a local small subcapsular hematoma of the liver, a more serious fluid collection (biloma, hematoma or abscess formation) or severe intraperitoneal hemorrhage. Initial evaluations with transcutaneous ultrasonography or CT scan of the abdomen are the preferred first-line diagnostic methods; however, in this particular case, MRI was performed with the idea of better visualization of the biliary and pancreatic ducts due to the clinical presentation.

Hemobilia is a known rare complication of PLB and was first reported in 1967 [Cox, 1967]. In one large series of reported complications

from liver biopsies, hemobilia was noted in only 4 of 68 276 patients [Piccinino *et al.* 1986]. The average time between liver biopsy and onset of hemobilia is around 5 days [Merrell and Schneider, 1991].

Hemobilia presenting as acute pancreatitis after a PLB is rare. It is believed to induce pancreatitis in the same way as gallstones, with occlusion of drainage from the ampulla. The first report of hemobilia causing acute pancreatitis came in 1975 as a complication of a percutaneous trans-hepatic cholangiogram [Redman and Joseph, 1975]. Since this, there have been ten reported cases described in the literature of acute pancreatitis following PLB and hemobilia [Albuquerque *et al.* 2005; Nowak *et al.* 2005; Machicao *et al.* 2002; Sood *et al.* 2002; Asselah *et al.* 2001; Gomez-Valero *et al.* 2001; Jornod *et al.* 1999; Kim *et al.* 1999; Van Os and Petersen, 1996; De Ribot *et al.* 1995]. In 1999, there were two patients who developed pancreatitis secondary to hemobilia from PLB and were the first ones treated with ERCP and sphincterotomy [Jornod *et al.* 1999; Kim *et al.* 1999]. Since then, there have only been three other cases (including ours) where ERCP has been successful as a diagnostic and therapeutic modality [Albuquerque *et al.* 2005; Nowak *et al.* 2005]. Angiography with embolization is also a tool that has been successful in the treatment of this rare complication; however, its utility is limited to the amount of bleeding, requiring a bleeding rate of at least 0.5 to 1.0 ml/min [Nusbaum and Baum, 1963]. Our case is the first to use a stent to aid in the drainage of blood from the biliary tree to prevent reformation of clots with repeat blocking of the ampulla. This therapy was probably successful due to the low bleeding rate that the patient had. In conclusion, hemobilia after a PLB presenting as acute pancreatitis is a rare, but potentially life-threatening condition. The rate of bleeding should be taken in account to decide which procedure to use as first-line treatment.

Conflict of interest statement

None declared.

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