Gallbladder polyp as a manifestation of hemobilia caused by arterial-portal fistula after percutaneous liver biopsy: A case report

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Abstract

Outpatient percutaneous liver biopsy is a common practice in the differential diagnosis and treatment of chronic liver disease. The major complication and mortality rate were about 2-4% and 0.01-0.33% respectively. Arterio-portal fistula as a complication of percutaneous liver biopsy was infrequently seen and normally asymptomatic. Hemobilia, which accounted for about 3% of overall major percutaneous liver biopsy complications, resulted rarely from arterio-portal fistula. We report a hemobilia case of 68 years old woman who was admitted for abdominal pain after liver biopsy. The initial ultrasonography revealed a gallbladder polypoid tumor and common bile duct (CBD) dilatation. Blood clot was extracted as endoscopic retrograde cholangiopancreatography (ERCP) showed hemobilia. The patient was shortly readmitted because of recurrence of symptoms. A celiac angiography showed an intrahepatic arterio-portal fistula. After superselective embolization of the feeding artery, the patient was discharged uneventfully. Selective angiography embolization or surgical intervention is reserved for patients who failed to respond to conservative treatment.

Key words: Gallbladder polyp; Hemobilia; Arterial-portal fistula; Percutaneous liver biopsy

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INTRODUCTION

After the first report of liver biopsy by Paul Ehrlich in 1883[1], percutaneous liver biopsy has become a crucial diagnostic tool in liver diseases. Ultrasonography-guided percutaneous liver biopsy has been shown to increase the diagnostic yield and significantly decrease complications even on outpatients[2-6]. The incidence of hemobilia after percutaneous liver biopsy was reported to be 0.023% among 12 750 patients in a liver transplantation center in 1993[7] accounting for 11.5% of all major complications. In a retrospective study of greater case number, the overall major complication rate of percutaneous liver biopsy was about 2.2%[8], of which hemobilia accounted for 2.7% of all complications (4 cases out of 68 276 patients). Arterio-portal fistula as a cause of liver biopsy related hemobilia was even less frequent. Arterio-portal fistula was seen in only one case in Van Thiel's report[7]. Here, we report a case of hemobilia caused by arterio-portal fistula after percutaneous liver biopsy with an initial presentation of abdominal pain and ultrasound finding of gallbladder polypoid mass.

CASE REPORT

A 68 year-old female patient suffered from chronic C hepatitis for years. She received a percutaneous liver biopsy to evaluate the pathologic change after combination treatment of interferon alfa-2a plus ribavirin therapy. The initial physical examination before liver biopsy was unremarkable. The hemoglobin, prothrombin time, and bleeding time were normal. Percutaneous liver biopsy was conducted under ultrasonography guidance with a 2.8-mm Menghini-type aspiration needle. After liver biopsy, transient hypotension was noted during the first two hours of in-hospital observation. The patient was discharged 6 h later.

Two days later, however, the patient complained of epigastric and right subcostal pain without nausea, melena, hematemesis, or hematochezia. She visited our emergency room where an ultrasonography revealed a polypoid echogenic mass in the gallbladder wall and a mild dilatation of the common bile duct (Figure 1A). An endoscopic retrograde cholangiopancreatography was performed showing blood emanating from the edematous ampullar vater (Figure 2A). The intrahepatic ducts and common bile duct were partially opacified which is consistent with blood impaction of bile ducts (Figure 2B). An endoscopic sphincterotomy was conducted removing blood clot from the common bile duct. The symptoms were alleviated as ultrasonography showed disappearance of gallbladder sludge and polypoid mass. She was discharged seven days later.

Figure 1 depicted A polypoid mass in the gallbladder wall depicted by ultrasonography (A), and A blood clot resolved between 3-7 days after selective arterial embolization. (B).
radiofrequency ablation and percutaneous biliary drainage, of percutaneous liver biopsy, pure ethanol injection, arising from trauma in the biliary tract. With increasing practice following 6 mo. procedure. No recurrence of bleeding was observed during the was uneventful afterward and discharged five days after the demonstration occlusion of the arterio-portal fistula. The patient embolization was performed with gel-foam. A repeat angiography After superselective catheterization of the feeding artery, branch of right hepatic artery and right portal vein (Figure 3). an arterio-portal fistula in segment VII of the liver between a upper quadrant pain. Arteriography was conducted demonstrating the patient was shortly readmitted for recurrence of right portal fistula on angiography revealing. and right portal vein in segment VII of the liver on arterio-Figure 3 Shunting between a branch of right hepatic artery and right portal vein in segment VII of the liver on arterio-portal fistula on angiography revealing.

DISCUSSION

Hemobilia was first described by Glisson in 1654[3] in a postmortem diagnosis of a young adult stabbed by a sword in the liver. Sandblom in 1948[10] used hemobilia[11,12] as a term of hemorrhage arising from trauma in the biliary tract. With increasing practice of percutaneous liver biopsy, pure ethanol injection, radiofrequency ablation and percutaneous biliary drainage, iatrogenic trauma of biliary tract has been responsible for up to 60% of the hemobilia[13-20] whereas accidental abdominal injury was previously dominant[21]. Ultrasound guided liver biopsy was aimed to decrease complications following percutaneous liver biopsy[4]. However, a controversial report by Van thiels in 1993[17] demonstrated a higher complication rate (3.6%) using an ultrasound-guided cutting needle in 2 of 55 patients who were mostly with a hepatic neoplasm. The underlying disease, coagulative status, the type and the diameter of biopsy needles used[30], and the numbers of needle passes[22] seemed to determine the rate of complications rather than if ultrasonography guided[23], although ultrasound assisted biopsy helped to avoid undesired puncture of surrounding organs.

Classical clinical features of hemobilia include right upper quadrant pain, jaundice, and gastrointestinal hemorrhage[22,24] with less than 50% patients showing full triads[25]. The interval between percutaneous liver biopsy and the symptom onset may be as early as the same day on biopsy up to 21 d after percutaneous liver biopsy with a mean of 5 days[22,26]. The findings of hemobilia on ultrasonography varied depending on the rapidity and severity of the bleeding. Acute intrahepatic bleeding typically manifested as echogenic, non-acoustic polypoid mass[27,28]. The echo texture became reticular, stranding sludge as the clot began to lyse. The border of the clot became concave. The appearance of gallbladder polypoid mass as seen in this case underscored the importance of a high index of suspicion of hemobilia in patients undergoing percutaneous liver biopsy with previously normal ultrasonography. After treatment with arterial embolization, the echogenic sludge disappeared between 3-7 d as demonstrated in this case (Figure 1B).

Endoscopic retrograde cholangiopancreatography as well as endoscopy were confirmative in the diagnosis of hemobilia in 40-60% of the cases[10], when showing blood emanating from the ampulla or within the biliary trees[23]. Sphincterotomy and blood clot extraction could release the tension of the biliary trees and alleviate the pain caused by distension of the ducts[29]. Angiographic findings of hemobilia included arterio-portal fistula, arterio-biliary fistula and pseudoaneurysm. Arterio-portal fistula as a complication of percutaneous liver biopsy (PLB) was seen in only one of 3 hemobilia cases in Van’s series[7]. Okada et al[30] estimated the incidence of arterio-portal fistula after PLB was approximately 5%, but normally asymptomatic. The actual incidence of arterio-portal fistula induced hemobilia has not been well documented as it was mostly case reported.

Hemobilia recovered spontaneously in most of the cases depending on the severity of the bleeding[30]. Selective arterial embolization for hemobilia was first reported in 1976[31]. The success rate was more than 90-95% using gel-foam or histoacryl with a low morbidity[8,17,22,31,32]. Laparotomy for hepatic arterial ligation or hepatectomy was reserved for cases that failed to respond to conservative treatment and hepatic arterial embolization[11,12,33].

In conclusion, arterio-portal fistula after percutaneous liver biopsy is usually asymptomatic. Hemobilia resulting from arterio-portal fistula remains mostly case reported. Selective arterial embolization provides a successful modality of treatment if conservative treatment fails. Surgical treatment is reserved for selective cases that do not respond to the angiographic embolization.

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