



# Acute Cholecystitis and Acute Pancreatitis related to Hemobilia after Percutaneous Liver Biopsy

CASE REPORT

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ABSTRACT

Percutaneous liver biopsy is a reliable method used for the diagnosis and follow-up of many liver diseases. Although it is safe, major complications, such as free intraperitoneal bleeding, hemothorax, pneumothorax, hemobilia, and Pseudoaneurysm, have rarely been reported to be related to the procedure. The reported rate of hemobilia after performing percutaneous liver biopsy is approximately 0.06%. This event usually results from a hepatic artery pseudoaneurysm and can potentially cause fatal bleeding. In addition, acute cholecystitis and pancreatitis are rare complications of hemobilia. To the best of our knowledge, we report the third case of a patient who developed hemobilia, acute cholecystitis, and acute pancreatitis from a pseudoaneurysm after performing percutaneous liver biopsy. The bleeding was successfully controlled by angiographic embolization with glue and lipiodol.

**Keywords:** Liver biopsy, hemobilia, acute cholecystitis, acute pancreatitis

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## INTRODUCTION

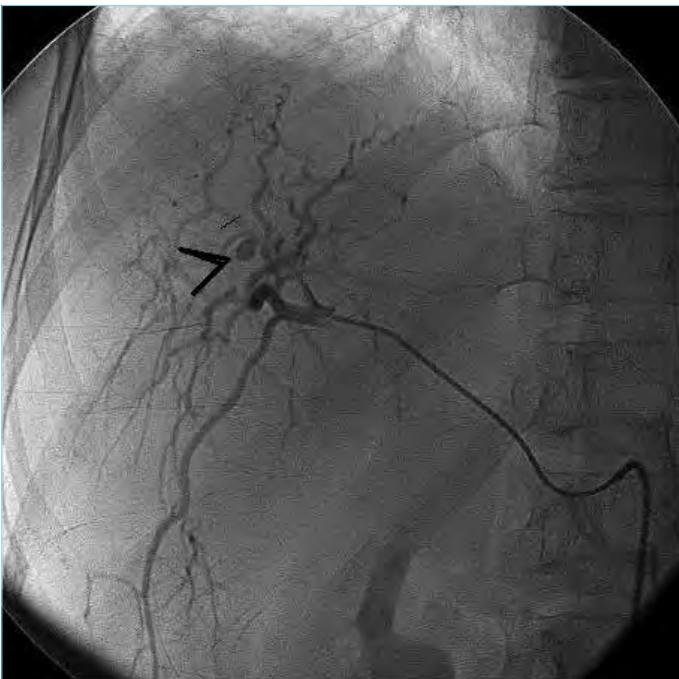
Hemobilia is a rare cause of gastrointestinal bleeding; however, a higher number of invasive hepatobiliary interventions and advancements in imaging technologies have increased the number of reported cases. Van Thiel et al. (1) were reported that the hemobilia incidence after performing percutaneous liver biopsy (PLB) was 0.023% among 12750 patients. In another retrospective study, the percentage of all major complications after performing PLB was 2.2% and hemobilia was responsible for 0.06% of all complications (4 of 68276 patients) (2). Abdominal pain, hematemesis, melena, and hepatitis are among the clinical findings of hemobilia. Acute cholecystitis and pancreatitis after hemobilia are quite rare. In the literature, only nine acute pancreatitis and eight acute cholecystitis cases have been reported as a complication after hemobilia (3). However, acute cholecystitis and acute pancreatitis secondary to hemobilia have been reported in only two cases (4, 5). Primary causes of performing hemobilia-related PLB are pseudoaneurysms on the needle tract and arterioportal fistulas. Treatment for hemobilia is conservative, but for patients with abnormal vital signs, angiographic arterial embolization or surgical intervention should be considered (6, 7).

## CASE REPORT

Ultrasonography-guided liver biopsy (16-G Menghini needle) was performed on a 60-year-old female patient with chronic viral hepatitis. Her hemoglobin level, platelet count, and coagulation parameters before biopsy were normal. On the first entry, a 2-cm biopsy sample was obtained. The patient had no complaints and was discharged 6 hours after the procedure. Three days after biopsy, the patient was admitted to the emergency unit with complaints of pain in the right upper quadrant, hematemesis, and melena. Her physical examination revealed mild jaundice and was positive for Murphy's sign. Her vital signs were stable. Abnormal blood analysis results were obtained: hemoglobin: 10 g/dL, aspartate aminotransferase (AST): 120 IU/L, alanine aminotransferase (ALT): 100 IU/L, gamma glutamyl transferase (GGT): 300 IU/L, alkaline phosphatase (ALP): 510 IU/L, total bilirubin: 5.2 g/dL, direct bilirubin: 3.5 g/dL, amylase: 530 IU/L, and lipase: 1200 IU/L. Abdominal ultrasound showed a hydropic gallbladder, thick walls (5 mm), and heterogeneous hyperechoic materials indicating a hematoma. Abdominal computed tomography (CT) revealed that the gallbladder was hydropic and that the gallbladder walls were distinctively thick; intrahepatic bile ducts, particularly the right ones, were minimally dilated, and on the inside, there were hyperechoic material (Figure 1). The morphology of the pancreas was normal. Upper endoscopy was performed, and a large blood clot was observed on the papilla. The patient was transferred to the gastroenterology department with a diagnosis of hemobilia, acalculous cholecystitis, and acute pancreatitis. Oral feeding was stopped. Intravenous fluids and proton pump inhibitors were started. After 4 days of treatment, amylase-lipase levels were normal; the patient stabilized and was discharged. Twenty-four hours later, the patient was re-admitted to the clinic because



**Figure 1.** Abdominal CT image shows a hydropic gall bladder and distinctively thickening of the gall bladder walls



**Figure 2.** Angiography of the right hepatic artery. A pseudoaneurysm in the right hepatic artery branch

of repeated complaints of hematemesis and melena. His physical examination indicated a blood pressure of 100/60 mmHg and pulse of 100 beats/min; his hemoglobin levels dropped from 10 g/dL to 8.5 g/dL. Hepatic angiography was performed after administering parenteral fluids and 2 units of erythrocyte suspension replacement. Hepatic angiography revealed a non-bleeding, 10-mm pseudoaneurysm on the right hepatic artery (Figure 2). After superselective catheterization, the pseudoaneurysm was occluded by glue and lipiodol (Figure 3). The patient did not show any more bleeding thereafter and was discharged with full recovery. Written informed consent was obtained from the patient.

## DISCUSSION

Hemobilia is defined as bleeding within the biliary system. In the past, hemobilia-related trauma was common. Today, iatrogenic



**Figure 3.** Angiography obtained after embolization of the branch leading to and from the pseudoaneurysm

injuries of the biliary tract cause 60% of hemobilia cases due to the increasing number of invasive procedures such as PLB, percutaneous biliary drainage, and radiofrequency ablations. Other causes include gallstones, inflammation, vascular malformations, and tumors. Post-PLB hemobilia is quite rare (2, 6). The literature has documented only 32 such cases. Reported causes of biopsy-related hemobilia are arterioportal fistulas and pseudoaneurysms. Advanced age, many needle entries, and underlying cirrhosis and malignancy increase the risk of complications (7). In our patient, despite the few needle entries, the reason for hemobilia was correlated to the cirrhotic liver.

Classical clinical findings of hemobilia are upper gastrointestinal bleeding, biliary colic, and hepatitis (Quinke's triad). However, this triad is present in only 20% of patients. The gap between performing PLB and the outset of hemobilia can be within the following several hours or may extend until the 21<sup>st</sup> day. The average onset time is 5 days (3). Our patient presented to the clinic 3 days after successful PLB and showed all symptoms in Quinke's triad.

For the diagnosis of hemobilia, ultrasonography and CT are reliable and non-invasive methods. Within the biliary system, an echogenic shadow resembling gallbladder sludge is visible. Upper gastrointestinal endoscopy helps detect bleeding from the papilla, but if the bleeding is intermittent, this method may not usually be useful. Endoscopic retrograde cholangiopancreatography (ERCP) is useful for locating and extracting blood clots. Angiography is preferred for the diagnosis and treatment of pseudoaneurysms, arterioportal fistulas, and arterioportal fistulas (5, 6).

Patients with hemobilia rarely suffer from complications such as acute cholecystitis or acute pancreatitis. By acting like a gallstone, a blood clot in the gallbladder may lead to biliary colic, obstructive jaundice, acute cholecystitis, or acute pancreatitis (8). In the litera-

ture, there are only two cases of patients with acute cholecystitis and acute pancreatitis after performing PLB. Albuquerque et al reported on a 21-year-old female patient with chronic glomerulonephritis and HCV. Although hepatic angiography was initially useful for controlling the symptoms, cholecystectomy was required after the recurrence of hemobilia (4). The second case was reported by Egritas et al. (5) after PLB was performed for the etiological analysis of hepatosplenomegaly on a 7-year-old patient; the patient received supplementary treatment. Our patient was initially treated by conservative management such as IV fluid replacement and blood transfusion; however, ongoing hemobilia required the occlusion of the pseudoaneurysm by hepatic angiography and glue and lipiodol embolization. In the follow-up, ERCP was not required as the cholestatic enzyme levels were low.

Selective hepatic angiography is a reliable method for diagnosing pseudoaneurysms. It not only directly reveals the pseudoaneurysm but also is effective for stopping the bleeding by embolization of the related vessel. If this fails, surgery intervention should be kept in the mind (9, 10).

## CONCLUSION

Percutaneous liver biopsy is a reliable method for evaluating liver diseases. However, complications like hemobilia and secondary acute cholecystitis and pancreatitis have been rarely described after PBL. Hepatic angiography embolization is an effective method for managing patients who suffer from uncontrollable bleeding.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Conceived and designed the experiments or case: BDO., GK. Performed the experiments or case: BDO., GK. Analyzed the data: BDO. Wrote the paper: BDO. All authors have read and approved the final manuscript.

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