Cureus
Part of SPRINGER NATURE

Open Access Case Report

Immediate Hemobilia Following Percutaneous Liver Biopsy: A Case Report of an Acute Symptomatic Presentation

Samia Amar [1], Karima Sif Nasr [1], Boutaina Essaher [1], Hassan En-nouali [1], Rachida Saouab [1]

1. Radiology, Mohammed V Military Hospital, Rabat, MAR

Corresponding author: Samia Amar, samiaamar23@gmail.com

Review began 08/30/2026
Review ended 10/23/2026
Published 11/08/2026

© Copyright 2026
Amar et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.119300

Abstract

Hemobilia is a rare but potentially serious complication of percutaneous liver biopsy, typically presenting hours to days after the procedure. We report a case of acute symptomatic hemobilia occurring approximately 10 minutes after completion of an ultrasound-guided biopsy of a LI-RADS 4 (Liver Imaging Reporting and Data System) hepatic lesion in a 55-year-old man. The patient developed sudden right upper quadrant pain followed by hematemesis. Immediate bedside ultrasound demonstrated newly developed echogenic material occupying approximately half of the gallbladder lumen, whereas the pre-procedural examination had shown an anechoic gallbladder. Emergency multiphasic computed tomography (CT) revealed hyperattenuating material within the gallbladder, consistent with acute blood products, without evidence of active contrast extravasation or an identifiable vascular lesion. Although no vascular-biliary communication was demonstrated, the clinical presentation and sequential imaging findings strongly supported the diagnosis of acute post-biopsy hemobilia. Given the patient's hemodynamic stability and absence of evidence of ongoing bleeding, conservative management was undertaken, resulting in an uneventful recovery. This case highlights the importance of considering hemobilia during the immediate post-biopsy period and illustrates the complementary roles of ultrasound and multiphasic CT in its diagnostic evaluation.

Categories: Radiology, Oncology
Keywords: hemobilia, liver biopsy complications, multiphasic computed tomography, percutaneous liver biopsy, ultrasonography

Introduction

Percutaneous image-guided liver biopsy remains an established diagnostic procedure for the evaluation of focal hepatic lesions despite substantial advances in noninvasive imaging [1,2]. Although generally considered safe, hemorrhage remains its most clinically significant complication [3,4]. Hemobilia, defined as bleeding into the biliary tract, is among the rarest hemorrhagic complications following liver biopsy. In a multicenter retrospective study of 68,276 percutaneous liver biopsies, only four cases of hemobilia were reported, corresponding to an incidence of 0.06 per thousand biopsies [3].

The clinical presentation of post-biopsy hemobilia is often delayed, with symptoms typically occurring hours to days after the procedure and a mean reported interval of approximately five days [5,6], making immediate presentation unusual. Vascular injury may result in abnormal communication between the vascular and biliary systems, leading to intrabiliary hemorrhage, gastrointestinal bleeding, or biliary obstruction by blood clots [7,8]. Reported cases have demonstrated a spectrum of associated vascular abnormalities, including pseudoaneurysms and vascular-biliary or arterioportal fistulas, some of which may result in delayed or recurrent bleeding and require angiographic embolization [6-9]. Conversely, immediate post-procedural hemobilia has also been reported, including a case detected by ultrasonography in an asymptomatic patient [10]. Ultrasound may reveal echogenic material within the gallbladder or biliary tract [10-12], while multiphasic computed tomography (CT) can demonstrate intrabiliary blood products and assess for potential vascular complications [7,8,13].

We report a case of acute symptomatic hemobilia occurring within approximately 10 minutes of an ultrasound-guided percutaneous liver biopsy performed for a LI-RADS 4 (Liver Imaging Reporting and Data System) hepatic lesion. Unlike the previously reported asymptomatic presentation [10], our case was characterized by the rapid onset of abdominal pain and hematemesis, with conventional ultrasound documenting newly developed echogenic gallbladder contents, followed by multiphasic CT confirmation of acute blood products. This case highlights the importance of recognizing hemobilia during the immediate post-procedural period and illustrates the complementary roles of ultrasound and CT in its diagnostic evaluation.

Case Presentation

A 55-year-old man with a history of chronic hepatitis B was referred to our radiology department for ultrasound-guided percutaneous biopsy of a hepatic lesion previously identified on magnetic resonance

imaging (MRI) performed at an outside institution. The lesion was centered at the junction of hepatic segments IVa, IVb, and VIII and measured 40×39 mm. According to the external MRI report, the lesion demonstrated arterial phase hyperenhancement followed by washout on delayed-phase imaging and was assigned a Liver Imaging Reporting and Data System (LI-RADS) category of LR-4. There was no imaging evidence of cirrhosis. The original MRI images were not available for independent reassessment of the reported imaging features or LI-RADS classification. Following multidisciplinary team discussion, a decision was made to obtain histopathological confirmation before initiating treatment, given the lesion's LR-4 classification. Pre-procedural laboratory evaluation showed the hemoglobin level of 12.5 g/dL, which was slightly below the normal reference range for an adult male (13.5-17.5 g/dL), indicating mild anemia. However, this did not constitute a contraindication to the biopsy. The remaining laboratory parameters were within normal limits: platelet count: 280,000/µL (reference range: 150,000-400,000/µL) and prothrombin activity: 75% (reference range: 70-100%).

Immediately before the procedure, a planning ultrasound examination demonstrated a thin-walled gallbladder with anechoic luminal contents and no evidence of sludge or intraluminal echogenic material (Figure *1A*). Under real-time ultrasound guidance, the lesion was accessed through an intercostal approach, and three core biopsy specimens were obtained using a semi-automatic 16G×15 cm semi-automatic Tru-Cut core biopsy needle with a 15G× 10 cm coaxial introducer, both manufactured by Geotek (Ankara, Türkiye). No biopsy tract plugging was performed. Approximately 10 minutes after completion of the biopsy, while still in the procedure room, the patient developed sudden right upper quadrant pain followed within minutes by hematemesis. Immediate bedside ultrasound demonstrated newly developed echogenic intraluminal material occupying approximately half of the gallbladder lumen (Figure *1B*). Given the temporal relationship to the biopsy and the marked interval change in gallbladder contents, acute hemobilia was suspected.

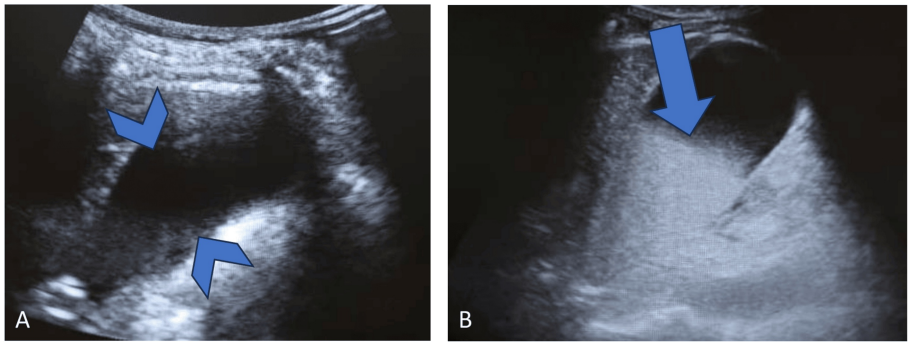


FIGURE 1: Sequential ultrasonographic findings before and immediately after percutaneous liver biopsy

(A) Pre-procedural grayscale ultrasound image demonstrating a thin-walled gallbladder with anechoic luminal contents (arrowheads) and no intraluminal echogenic material. (B) Grayscale ultrasound image obtained immediately after the onset of right upper quadrant pain and hematemesis, approximately 10 minutes after liver biopsy, demonstrating newly developed echogenic material occupying approximately half of the gallbladder lumen (arrow), consistent with acute hemobilia.

To evaluate for ongoing hemorrhage and identify a potential vascular source, an emergency multiphasic contrast-enhanced computed tomography (CT) was performed approximately 15 minutes after symptom onset. Unenhanced CT demonstrated hyperattenuating gallbladder contents measuring approximately 52 Hounsfield units (HU), consistent with acute intracholecystic blood products in the clinical context (Figure *2A*), as well as small foci of gas along the biopsy tract and within the biopsied lesion, compatible with the recent intervention (Figure *2B*). No hyperattenuating material was identified within the remaining biliary tree. Arterial and portal venous phase images demonstrated no active contrast extravasation, pseudoaneurysm, or identifiable arteriobiliary fistula. No hemoperitoneum was observed. The precise source of bleeding could not be established, as no vascular-biliary communication was directly identified on CT.

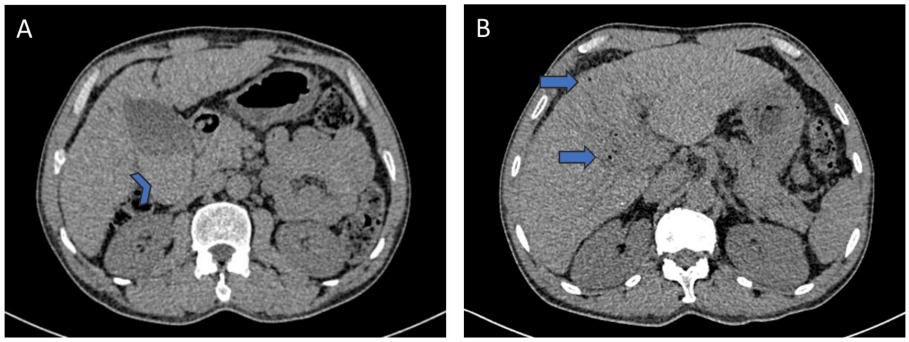


FIGURE 2: CT findings of acute hemobilia following percutaneous liver biopsy

(A) Axial unenhanced CT image demonstrating hyperattenuating material within the gallbladder lumen (arrowhead), consistent with acute blood products. (B) Axial unenhanced CT image demonstrating small foci of gas along the biopsy tract and within the biopsied hepatic lesion (arrows), compatible with the recent intervention.

Because the patient remained hemodynamically stable and there was no imaging evidence of ongoing hemorrhage, conservative management with close clinical observation was elected. Hemoglobin measured approximately six hours after the biopsy was 12.3 g/dL, compared with a pre-procedural value of 12.5 g/dL, and remained stable at 12.3 g/dL on repeat testing the following day. Coagulation parameters were not reassessed after the procedure. No further episodes of hematemesis or melena occurred during hospitalization, and the patient's abdominal pain progressively resolved without the need for transfusion, endoscopic intervention, angiography, or embolization. He was discharged after three days of uneventful clinical observation. At outpatient follow-up five weeks later, he remained asymptomatic, and no additional imaging was considered necessary.

Discussion

Post-biopsy hemobilia typically presents hours to days after liver biopsy, with a mean reported interval of approximately five days [5,6]. Menozzi et al. reported an asymptomatic case detected immediately after ultrasound-guided liver biopsy, in which grayscale ultrasound demonstrated newly developed echogenic gallbladder contents and contrast-enhanced ultrasound identified active bleeding [10]. In contrast, our patient developed right upper quadrant pain followed by hematemesis within approximately 10 minutes of biopsy. The particular interest of our case lies in this hyperacute symptomatic presentation and its sequential documentation by conventional ultrasound and multiphasic CT, rather than in the timing alone.

Post-biopsy hemobilia may result from vascular injury involving communication with the biliary system [7,8]. Associated vascular abnormalities reported in the literature include pseudoaneurysms, arteriobiliary fistulas, and arterioportal fistulas [6,8,9,11]. Lin et al. [11] described post-biopsy hemobilia associated with an intrahepatic arterioportal fistula, while Yilmaz [6] reported multiple arterioportal fistulas complicated by acute cholecystitis and pancreatitis. In our patient, the precise mechanism could not be established, as multiphasic CT demonstrated no active contrast extravasation, pseudoaneurysm, or identifiable vascular-biliary communication. A transient communication that had sealed before imaging remains a possible but unconfirmed explanation.

Sequential imaging played a central role in the diagnostic evaluation. The abrupt appearance of echogenic gallbladder contents on bedside ultrasound, compared with the pre-procedural examination showing anechoic gallbladder contents, strongly suggested acute hemobilia in the context of abdominal pain and hematemesis. Intracholecystic blood may have variable sonographic appearances, including echogenic or mass-like material, as described by Laing et al. and Lin et al. [11,12]. Subsequent unenhanced CT demonstrated hyperattenuating gallbladder contents consistent with acute blood products, while contrast-enhanced phases allowed assessment for potential vascular complications. Importantly, the absence of active extravasation or an identifiable vascular lesion does not exclude hemobilia, as bleeding may be intermittent or self-limited [7,8,13].

The clinical presentation of hemobilia is variable. The classical Quincke triad comprises gastrointestinal bleeding, right upper quadrant pain, and jaundice, although all three manifestations occur together in only a minority of patients [7,8]. Our patient presented with abdominal pain and hematemesis without jaundice. Management depends on hemodynamic stability, the severity and persistence of bleeding, and the presence of vascular abnormalities. While persistent or recurrent hemorrhage, hemodynamic instability, or an identifiable arterial lesion may warrant angiographic evaluation and transcatheter embolization [7,8,13,14], conservative management may be appropriate in stable patients without evidence of ongoing bleeding. In

our case, sustained hemodynamic stability, stable serial hemoglobin measurements, absence of recurrent hematemesis or melena, and lack of active extravasation on CT supported close observation without angiographic intervention.

Biopsy tract plugging has been investigated as a strategy to reduce hemorrhagic complications following percutaneous liver biopsy, with retrospective studies reporting favorable outcomes [15,16]. However, its specific effectiveness in preventing hemobilia remains uncertain.

Conclusions

The immediate onset of abdominal pain and hematemesis in our patient highlights the importance of considering hemobilia during the early post-procedural observation period. Comparison of pre- and post-procedural ultrasound findings may facilitate its recognition. This case also illustrates the complementary roles of ultrasound and multiphasic CT in the diagnostic evaluation of post-biopsy hemobilia.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Samia Amar, Karima Sif Nasr, Boutaina Essaher, Hassan En-nouali, Rachida Saouab

Acquisition, analysis, or interpretation of data: Samia Amar, Karima Sif Nasr, Boutaina Essaher, Hassan En-nouali, Rachida Saouab

Drafting of the manuscript: Samia Amar, Karima Sif Nasr, Boutaina Essaher, Hassan En-nouali, Rachida Saouab

Critical review of the manuscript for important intellectual content: Samia Amar, Karima Sif Nasr, Boutaina Essaher, Hassan En-nouali, Rachida Saouab

Supervision: Samia Amar, Rachida Saouab

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Rockey DC, Caldwell SH, Goodman ZD, Nelson RC, Smith AD: Liver biopsy. Hepatology. 2009, 49:1017-44. 10.1002/hep.22742
2. Neuberger J, Patel J, Caldwell H, et al.: Guidelines on the use of liver biopsy in clinical practice from the British Society of Gastroenterology, the Royal College of Radiologists and the Royal College of Pathology. Gut. 2020, 69:1382-403. 10.1136/gutjnl-2020-321299
3. Piccinino F, Sagnelli E, Pasquale G, Giusti G: Complications following percutaneous liver biopsy: a multicentre retrospective study on 68,276 biopsies. J Hepatol. 1986, 2:165-73. 10.1016/S0168-8278(86)80075-7
4. Midia M, Odedra D, Shuster A, Midia R, Muir J: Predictors of bleeding complications following percutaneous image-guided liver biopsy: a scoping review. Diagn Interv Radiol. 2019, 25:71-80. 10.5152/dir.2018.17525
5. Emara MH, Ibrahim IM, Radwan MI, Elbast MR: Hemobilia and melena after liver biopsy: a case report and review of literature. Gastroenterology Res. 2013, 6:200-3. 10.4021/gr569w
6. Yilmaz N: Hemobilia causing acute cholecystitis and pancreatitis after percutaneous liver biopsy: a case report and review of the literature. Visc Med. 2020, 36:246-9. 10.1159/000503365
7. Berry R, Han JY, Kardashian AA, LaRusso NF, Tabibian JH: Hemobilia: etiology, diagnosis, and treatment. Liver Res. 2018, 2:200-8. 10.1016/j.livres.2018.09.007
8. Parvinian A, Fletcher JG, Storm AC, Venkatesh SK, Fidler JL, Khandelwal AR: Challenges in diagnosis and management of hemobilia. Radiographics. 2021, 41:802-13. 10.1148/rg.2021200192
9. Lichtenstein DR, Kim D, Chopra S: Delayed massive hemobilia following percutaneous liver biopsy: treatment by embolotherapy. Am J Gastroenterol. 1992, 87:1833-8.
10. Menozzi G, Ricci A, Farina FM, et al.: An asymptomatic, iatrogenic hemobilia detected by contrast enhanced ultrasound of the gallbladder. J Diagn Med Sonogr. 2024, 40:118-21.
11. Lin CL, Chang JJ, Lee TS, Lui KW, Yen CL: Gallbladder polyp as a manifestation of hemobilia caused by

arterial-portal fistula after percutaneous liver biopsy: a case report. World J Gastroenterol. 2005, 11:305-7. 10.3748/wjg.v11.i2.305

12. Laing FC, Frates MC, Feldstein VA, Goldstein RB, Mondro S: Hemobilia: sonographic appearances in the gallbladder and biliary tree with emphasis on intracholecystic blood. J Ultrasound Med. 1997, 16:537-43. 10.7863/jum.1997.16.8.537
13. Feng W, Yue D, ZaiMing L, ZhaoYu L, XiangXuan Z, Wei L, QiYong G: Iatrogenic hemobilia: imaging features and management with transcatheter arterial embolization in 30 patients. Diagn Interv Radiol. 2016, 22:371-7. 10.5152/dir.2016.15295
14. Srivastava DN, Sharma S, Pal S, et al.: Transcatheter arterial embolization in the management of hemobilia . Abdom Imaging. 2006, 31:439-48. 10.1007/s00261-005-0392-7
15. Handke NA, Koch DC, Muschler E, et al.: Bleeding management in computed tomography-guided liver biopsies by biopsy tract plugging with gelatin sponge slurry. Sci Rep. 2021, 11:24506. 10.1038/s41598-021-04155-1
16. Koh S, Kwon H, Hwangbo L, Kim CW, Kim S, Hong SB: Decreased bleeding-related adverse events using track embolization with gelatin sponge slurry after percutaneous liver biopsy: a propensity score-matched study. J Vasc Interv Radiol. 2023, 34:2128-36. 10.1016/j.jvir.2023.08.034