A Patient with Obstructive Jaundice Due to Bleeding in the Common Bile Duct after Ultrasound-guided Liver Biopsy

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A-63-year-old man was referred to our hospital for interferon therapy to treat chronic hepatitis C. The patient complained of right upper abdominal pain 1 hour after the ultrasound-guided liver biopsy. Bleeding in the gallbladder and the common bile duct were found on emergency CT. Obstructive jaundice due to the common bile duct hematoma was diagnosed, and endoscopic retrograde cholangiopancreatography(ERCP) was performed, and a filling defect thought to be a hematoma was seen in the bile duct on cholangiography. The hematoma in the bile duct was extracted after endoscopic sphincteroyomy.

Key words: hemobilia, liver biopsy, obstructive jaundice

INTRODUCTION

Ultrasound-guided liver biopsy is widely used in daily medical practice. However various adverse events may occur [2−4, 6−8]. For example, pain is reported to occur in 30%, mild bleeding (such as submembrane bleeding) occurs in 23%, and vasovagal reflex occurs in 3%. Hemobilia is considered to be a rare complication that occurs following liver biopsy with an incidence of only 0.05% [1]. The present patient had no evidence of a bleeding tendency, but it is thought that a communication between a blood vessel and a bile duct after liver biopsy, occurred leading to bleeding into the biliary tract. We can find no precedent for such a case as far as we know. This case was reported with a discussion using referred literatue.

CASE REPORT

A 63-year-old man presented with chief complaints as upper abdominal pain and nausea. Onset and Course: The patient was referred to our hospital in November 2005, for interferon therapy to treat chronic hepatitis C. Ultrasound-guided liver biopsy was performed on December 6 in that year. The patient complained of right upper abdominal pain 1 hour after the biopsy, and findings of bleeding in the gallbladder and the common bile duct were seen on emergency CT. However, the pain resolved spontaneously, and only mild tenderness was left on abdominal examination. No exacerbation of the pain was seen after he started taking meals the next day, and he was discharged. After leaving the hospital, dull abdominal pain, nausea, loss of appetite, and a sense of abdominal fullness gradually was intensified, and he was in admission on December 12. Obstructive jaundice due to the common bile duct hematoma was diagnosed, and he was hospitalized on emergency.

Past History: Gastric resection on the pyloric side for duodenal tumor was done at age 19 years (hepatitis occurred at that time following resection).

Family History: Nothing of note.

Personal history: No alcohol, tobacco, or drug use.

Physical examination: height, 169 cm; weight, 70 kg; blood pressure, 119/78; pulse, 69/min regular; body temperature, 36.8°C.

No anemia or inflammation was found at the time of admission. Hepatobiliary enzymes were total bilirubin (T. Bil) 0.6 mg/dl, asparate aminotransferase (AST) 73 IU/I, alanine aminotransferase (ALT) 95 IU/I, alkaline phosphatase (ALP) 212IU/I, and lactate dehydrogenase (LDH) 394IU/I. Hepatitis C virus antibody (HCV Ab) (+), Hepatitis C virus ribonucleic acid (HCV RNA) determination was 420 KIU/ml (Table 1).

One hour after liver biopsy, right upper abdominal pain developed, accompanied by a cold sweat. At that time, the patient's consciousness was lucid, and no fever or abnormalities in his vital signs were seen. His abdomen was flat and soft, but there was tenderness in the right hypochondrium, with no evidence of peritoneal irritation. In a blood sample taken at that time, mild liver dysfunction was seen (T Bil 1.5 mg/dl, AST 143 IU/I, ALT 143 IU/I, Alp 236 IU/I).

An abdominal CT was done at the same time, and a high density subject was seen that was thought to be due to bleeding in the gallbladder and the common bile duct (Fig. 1).

Spontaneous remission of his abdominal pain, no fever, and normal blood pressure were seen on the second hospital day. Of his physical findings, the tenderness had improved, and when no exacerbation

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Table 1 Laboratory Data before liver biopsy

Total Prot	7.6 g/dl	WBC	5270 /μl
ALB	4.3 g/dl	RBC	468 万/μl
T.Bil	0.6 mg/dl	Hb	14.5 g/dl
D.Bil	0.3 mg/dl	Ht	43.1 %
AST	73 IU/l	Plat	18.7 万
ALT	95 IU/l		
Al-p	212 IU/l	TT	70 %
LDH	394 IU/l	PT	12.1 秒
BUN	11.3 mg/dl	PT 活性	85 %
Creat	0.9 mg/dl	INR	1.2
FBS	104 mg/dl	APTT	30.6 秒
HbA1c	5.5 %		
		CRP	0.1 mg/dl
HCV genotype	group 1		
HCV determination	420 KIU/ m l		
AFP determination	11.4 ng/ml		
PIVKA-II	14 mAU/ml		

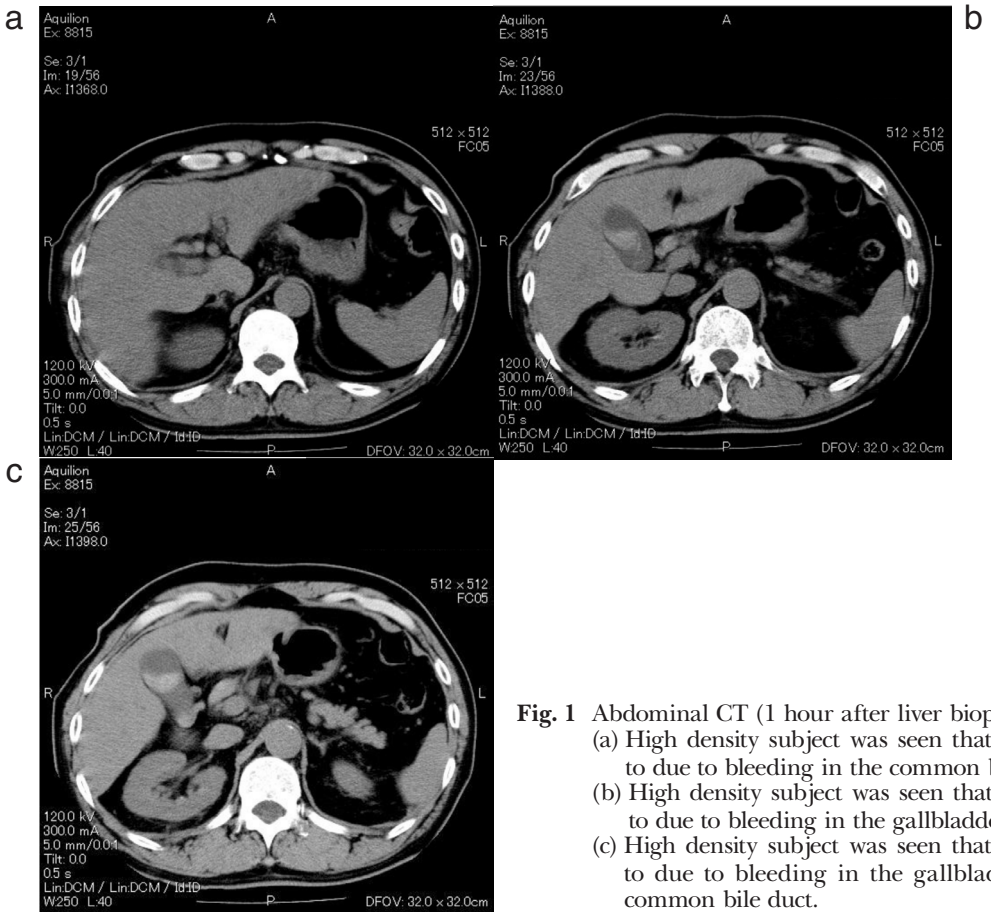

Fig. 1 Abdominal CT (1 hour after liver biopsy)
(a) High density subject was seen that was thought to due to bleeding in the common bile duct.
(b) High density subject was seen that was thought to due to bleeding in the gallbladder.
(c) High density subject was seen that was thought to due to bleeding in the gallbladder and the common bile duct.

of the abdominal pain was seen after he began taking meals on the following day, he was discharged from the hospital.

On the 4th day after leaving the hospital, he was re-examined for dull abdominal pain, nausea, loss of appetite, and a sense of abdominal fullness.

No fever or decrease in blood pressure was seen, but he appeared jaundiced, and there was not only tenderness, but also rebound tenderness in the right upper abdomen. Blood test results at that time were T Bil 5.4 mg/dl, direct bilirubin(D Bil) 4.2 mg/dl, AST 82 IU/l, ALT 94 IU/IALP 272 IU/l, and LDH 333 IU/I. T Bil was higher than the level before liver biopsy (Table 2).

On abdominal CT, high density subject was thought to be blood components were occupied in the gallbladder and common bile duct, and distention of the common bile duct was also seen (Fig. 2).

ERCP was performed the next day, and a filling defect thought to be a hematoma was seen in the bile duct on cholangiography. The hematoma in the bile duct was extracted after endoscopic sphincterotomy (Fig. 3, 4).

After hematoma extraction, the biochemical data

Table 2 Laboratory Data for dull abdominal pain, nausea, loss of appetite, and sense of abdominal fullness

T.Bil	5.4 mg/dl	WBC	6620 /μl
D.Bil	4.2 mg/dl	Neut	69.3 %
AST	82 IU/l	Lymph	18.4 %
ALT	94 IU/l	CRP	1.14 mg/dl
Al-p	272 IU/l		
LDH	333 IU/l		
amylase	105		

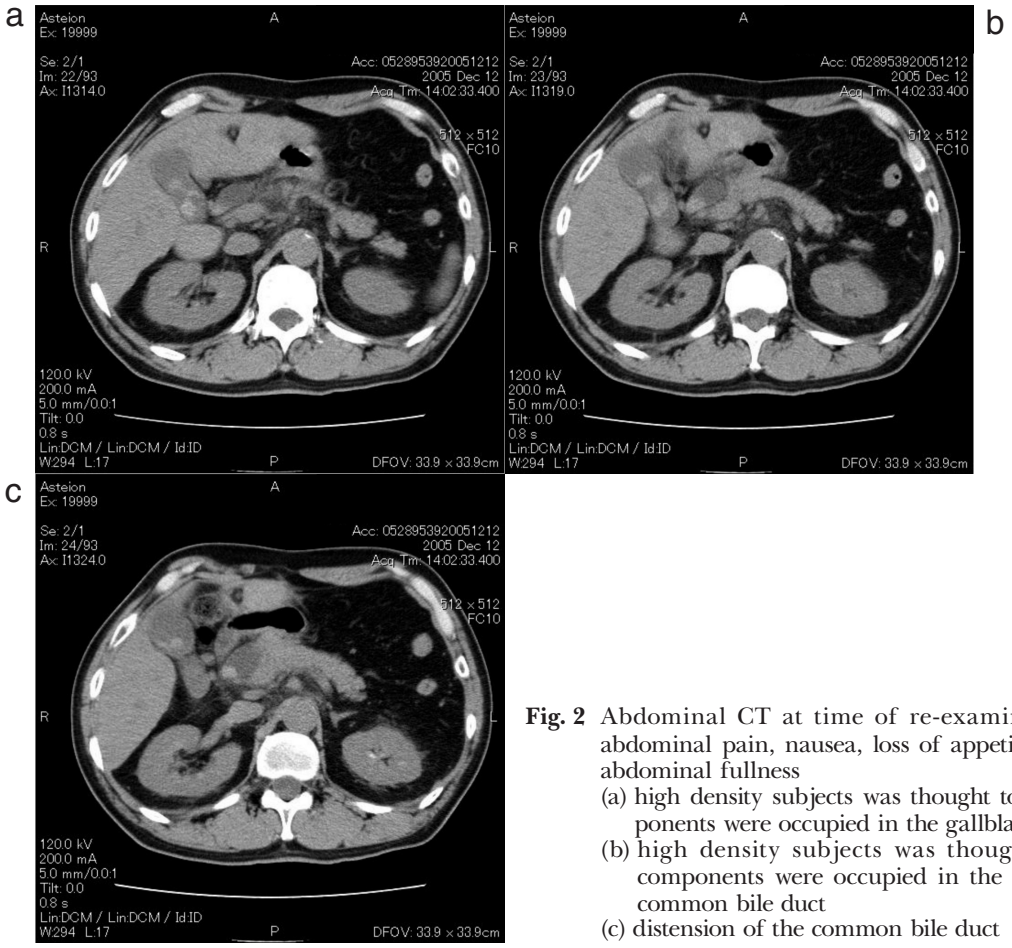

Fig. 2 Abdominal CT at time of re-examination for dull abdominal pain, nausea, loss of appetite, and sense of abdominal fullness
(a) high density subjects was thought to be blood components were occupied in the gallbladder
(b) high density subjects was thought to be blood components were occupied in the gallbladder and common bile duct
(c) distension of the common bile duct

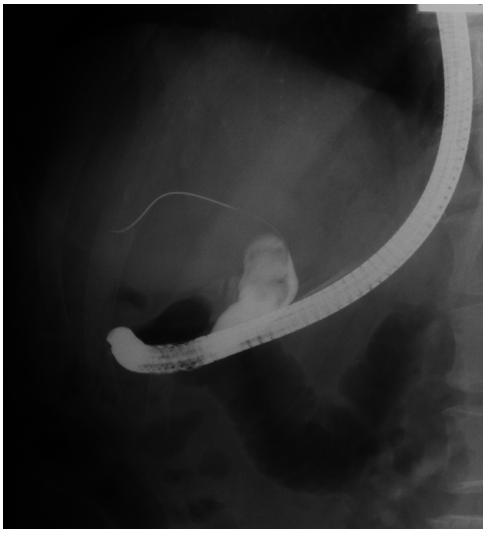

Fig. 3 A filling defect thought to be a hematoma is seen in the bile duct on cholangiography

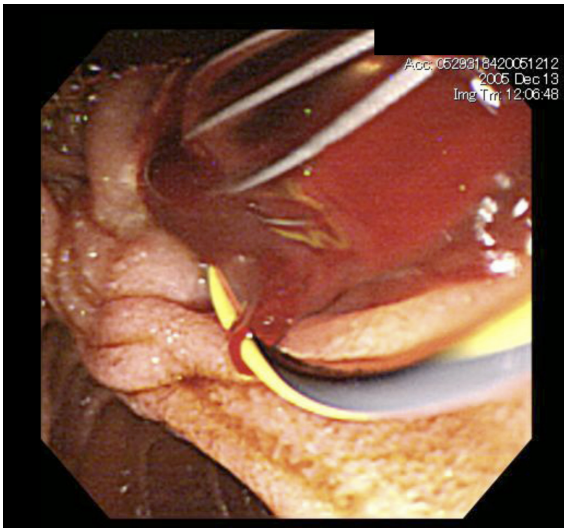

Fig. 4 The hematoma in the bile duct was extracted after endoscopic sphincterotomy

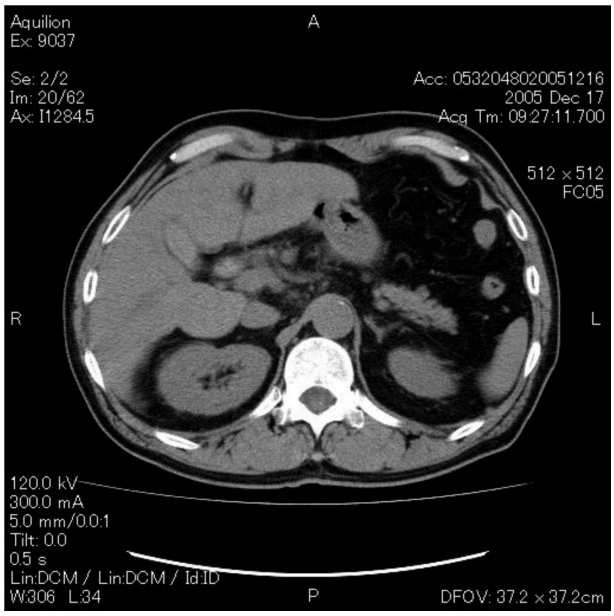

Fig. 5 Abdominal CT after hematoma extraction. The high density, that was thought to be a hematoma, was no longer seen on a post-extraction CT

Fig. 6 MRCP after hematoma extraction, there were no abnormality

improved. The high density, that was thought to be a hematoma, was no longer seen on a post-extraction CT (Fig. 5), and there were no abnormality on MRCP (Fig. 6). No exacerbation was seen after the patient started taking meals, and he was discharged from the hospital.

DISCUSSION

Various adverse events may occur [2–4, 6–8]. For example, pain is reported to occur in 30%, mild bleeding such as submembrane bleeding occurs in 23%, and vasovagal reflex occurs in 3%. Hemobilia is considered to be a rare complication that occurs following liver biopsy with an incidence of only 0.05% [1].

If a communication occurs between blood vessels and a bile duct, biliary tract bleeding to the duodenum may appear as hemobilia or gastrointestinal bleeding [5, 12].

Gastrointestinal bleeding, right pleural colic, and jaundice are reported to be the three major symptom of hemobilia [5, 12]. The present patient did not have a bleeding tendency, which is a contraindication for biopsy, and bleeding within the biliary tract was thought to have occurred from a communication between a blood vessel and the common bile duct. Since bilokinase, a plasminogen activator, is present in the bile, it is thought that there was a fibrinolytic effect, so that any blood clots that formed would have been dissolved. In the present case, hematoma formation in the bile duct, induced obstructive jaundice, interfering the bile flow. Fortunately, an improvement was seen in the present case after the obstructive jaundice resolved using extraction of the hematoma. If the bleeding had continued, we would have had to consider other hemostatic treatments, including IVR [2–4, 6–12]. If abdominal pain occurs following liver biopsy like this case, it is necessary to conduct careful abdominal examinations including ultrasound and CT considering with the possibility hemobilia in mind [5, 9–13].

CONCLUSION

We encountered a patient with obstructive jaundice due to bleeding in the common bile duct after ultrasound-guided liver biopsy. The hematoma in the bile duct was extracted after endoscopic sphincteroyomy. Hemobilia is considered to be a rare complication that occurs following liver biopsy with an incidence of only 0.05%. We can find no precedent for such a case as far as we know our knowledge.If abdominal pain occurs following liver biopsy like this case, it is necessary to conduct careful abdominal examinations including ultrasound and CT considering with the possibility hemobilia in mind.

REFERENCES

1) Grant A, Neuberger J: Guidelines on the use of liver biopsy in clinical practice. Gut 1999; 45 (Suppl IV): IV1–IV11.
2) J Kaneko, N Kokudo: Liver biopsy. SURGERY 2008; Vol.70 No12: P1382–1385.
3) Lang M, Neumann UP, Muller AR, Bechstein WO, Neuhaus R, Neuhaus P: Complications of percutaneousr liver biopsy in patients after liver transplantation. Z Gastroenterol 1999; 37: 205–208.
4) Al Knawy B, Shiffman M: Percutaneous liver biopsy in clinical practice. Liver Int 2007; 27: 1166–1173.
5) S Murata, H Tajima, T Fukunaga, T Kumazaki: Emergency Interventional Radiology: How to Control Visceral Arterial Hemorrhage or UGI (Upper Gastrointestinal) Hemorrhage with Hemobilia. Journal of Abdominal Emergency Medicine 2004; Vol.24. (5): P869–873.
6) M Taniguchi, K Yamashita, T Suzuki, T Shimamura, H Furukawa, S Todo *et al.*: Liver biopsy. Gastroenterological Surgery 2006; Vol 29 No6: P939–943.
7) Minuk, G. Y., Sutherland, L. R., Wisemann, D. A., Mac-Donald, F. R. and Ding, D. L: Prospective study of the incidence of ultrasound-detected intrahepatic and subcapsular hematomas in patients randomized to 6 or 24 hours of bed rest after percutaneous liver biopsy. Gastroenterology 1987; 92: 290–293.
8) Stoland, B. R., and Lichtenstein, G. R.: Liver biopsy complications and routine ultrasound. Am. J. Gastroenterol. 1996; 91: 1295–1296.
9) Mathijs P. Hendrisk, Geert J. Wanten, Joost P. H. Drenth,:

Management of Hemobilia and Pancreatitis After Liver Biopsy: A Key Role for Endoscopic Retrograde Cholangiopancreaticography. LIVER TRANSPLANTATION. 2009; 15: 1653-1654.
10) Li F, Mekeel KL, Eleid M, Harrison ME, Reddy KS, Moss AA, Mulligan DC. Hemobilia and pancreatitis after liver biopsy. LIVER TRANSPLANTATION. 2009; 15: 350-351.
11) Wojcicki M, Milkiewicz P, M. Biliary tract complications after liver transplantation: a review. Dig Surg. 2008; Vol 25: 245-257.
12) S Yamamoto, H Maruyama, A Seza, Y Masuya, T Tuyuguchi, S Matsutani *et al.*: A Case of Hemobilia Secondary to Percutaneous Liver Biopsy: The Clinical Course of Spontaneous Recovery and Changes of Color Mosaic Appearance on Color Doppler Sonogram. Jpn J Med Ultrasonics. 2006; Vol 33 No6: P673-679.
13) M Hashimoto, Y Akabane, J Heianna, E Tate, K Ishikawa, T Nishii *et al.*: Hepatic infarction following selective hepatic artery embolization with microcoils for iatrogenic biliary hemorrphage. Hepatology Research. 2004; Vol 30 No1: P42-50.