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Surgical treatment for the excluded bile leakage from Spiegel lobe after right hemihepatectomy: A case report



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ABSTRACT

INTRODUCTION: The treatments of excluded bile duct leakage after hepatectomy are not easy and various strategies have been reported, such as surgery, ethanol or fibrin glue injection, and portal vein embolization.

PRESENTATION OF CASE: A 72-year-old man with a surgical history of laparoscopic ileocecal resection for diverticular bleeding was diagnosed as having hepatocellular carcinoma. Right hemihepatectomy was performed, and computed tomography examination on postoperative day 9 showed abdominal fluid collection in the right subphrenic space. Percutaneous intra-abdominal fluid drainage was performed and it was diagnosed as bile leakage. After that it was diagnosed as excluded bile leakage from the Spiegel lobe by drip infusion cholangiographic-computed tomography and endoscopic retrograde cholangiography. To improve this clinical condition, we performed the Spiegel lobe excision on postoperative day 48. The postoperative course was uneventful and the patient was discharged.

DISCUSSION: According to the postoperative examination, it appeared that the bile duct from the Spiegel lobe joined to the right main bile duct or the bile duct of the right posterior section. This bile duct anomaly was not detected preoperatively on imaging examination. It is most likely that the bile duct from the Spiegel lobe was cut when the hepatoduodenal ligament in the hepatic hilum was peeled. To prevent excluded bile leakage, the hepatoduodenal ligament should be carefully peeled and ligated instead of using energy devices.

CONCLUSION: We consider that surgical treatment for postoperative excluded bile leakage is both a quick and reliable procedure in patients with acceptable liver function and anatomical subject.

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1. Introduction

Studies on postoperative morbidity following liver surgery have reported the incidences of bile leakages to be in the range of 2.6%–15.6% [1–4]. Bile leakages have serious consequences such as sepsis, liver failure, and prolonged hospitalization; furthermore, they may lead to postoperative death [5]. Nagano et al. [2] classified biliary fistulae into the following four types: type A, minor

leakage with only a small amount of bile leakage or an amount that decreases daily; type B, major leakage due to insufficient closure of the bile duct stump; type C, major leakage due to bile duct injury; and type D, major leakage due to bile duct division. Most bile leakages (types A–C) improve on irrigation, drainage, or endoscopic naso–biliary tube drainage; however, excluded segmental bile duct leakage (type D) is rare and difficult to treat [2]. Here we report a case of excluded segmental bile leakage from the Spiegel lobe after right hemihepatectomy, which cured on the excision of the Spiegel lobe. The work has been reported in line with the SCARE criteria [6].

Abbreviations: CT, computed tomography; HCC, hepatocellular carcinoma; POD, on postoperative day; DIC, drip infusion cholangiographic.

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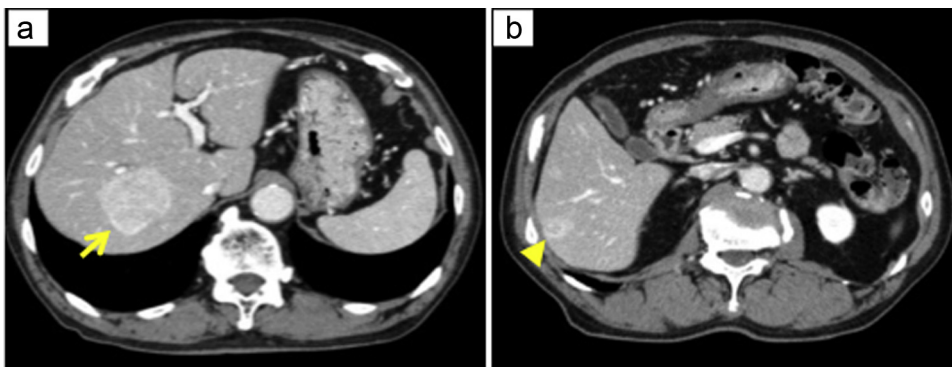


Fig. 1. Finding of preoperative CT. CT showed a 5-cm HCC in segment 7–8 of the liver (arrow) (a) and a 2-cm HCC in segment 6 of the liver (arrowhead) (b).

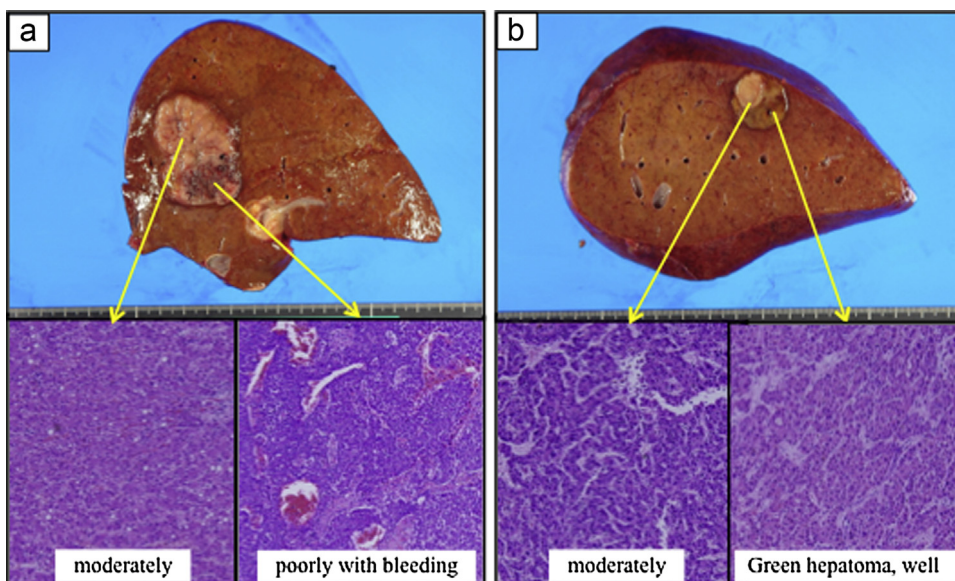


Fig. 2. The macroscopic and pathological findings of two tumors. Both tumors showed nodule-in-nodule appearance. The tumor in segment 7–8 was moderately to poorly differentiated HCC which size was 45 × 45 × 30 mm with invasion to minor branch of hepatic vein (a). The tumor in segment 6 was well to moderately differentiated HCC which size was 20 × 17 × 15 mm (b).

2. Presentation of case

A 72-year-old man visited a neighboring hospital with a chief complaint of melena. It was diagnosed as diverticular bleeding of the ascending colon by colonoscopy. After that clipping by endoscope and blood transfusion were performed, but laparoscopic ileocecal resection was carried out 2 days later because bleeding didn't stop. Although the postoperative course was uneventful, liver tumors were detected by screening of computed tomography (CT) and he was introduced to our hospital.

The patient consumed alcohol daily, leading to an average daily consumption of 360–540 ml of Japanese alcohol drink (an amount equivalent to 66–100 g of pure ethanol) for 35 years. Physical examination was normal and laboratory and clinical data were as follows: hepatitis C virus antibody, hepatitis B surface antigen and antibody were all negative. The liver function was enough preserved. The indocyanine green retention rate at 15 min was 11.2%; On Tc-99m-DTPA–galactosyl–human serum albumin scintigraphy, HH15, a parameter representing the retention of the tracer in the blood, was 0.536; and LHL15, a parameter representing the retention of the tracer in the liver, was 0.924. Liver function was classified as type A using the Child–Pugh scoring system. CT showed early enhancement of two tumors in the segments 7–8 (5 cm) and 6

(2 cm) of the liver, and hepatocellular carcinomas (HCCs) were suspected (Fig. 1a, b).

Right hemihepatectomy was conducted 3 months later from a last operation. After mobilization of right lobe, skeltonization of hepatoduodenal ligament was performed. The right hepatic artery and portal vein were divided after ligation with braided silk, respectively. After that the right hepatic vein was divided with automatic stapling system (ATW35; Ethicon Endo-Surgery, Cincinnati, OH, USA). The right hepatic duct was divided during parenchymal transection. Hepatic resection was performed under intraoperative ultrasound guidance with Pringle's maneuver (hepatic inflow occlusion time 15 min and reperfusion time 5 min). Parenchymal transection was performed using an ultrasonic dissector (CUSA Excel™; Integra Lifesciences Corporation, Plainsboro, NJ) with bipolar electric cautery or saline-linked radiofrequency coagulator (Dissecting Sealer 3.0; TissueLink Medical, Dover, NH). All hepatic veins and Glissons sheaths more than 2 mm in diameter were ligated whenever possible using 2-0 or 3-0 braided silk or a vessel clip. The exposed structures less than 2 mm were dissected using a tissue sealer (Enseal; Ethicon Endo-Surgery, Cincinnati, OH, USA). A bile-leak test, using a biliary tube inserted through the cystic duct, was performed, and we identified small bile leakage sites on the cut liver surface, which were repaired by suturing using 4-0 monofilament synthetic non-absorbable sutures (PROLENE; John-

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