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Case Report

Multiple Intrahepatic Hematomas with Hemobilia after Percutaneous Transhepatic Portal Embolization : Report of a Case

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ABSTRACT

A 77-year-old man, who underwent sigmoidectomy for sigmoid colon cancer and received neoadjuvant chemotherapy for synchronous liver metastasis, was admitted to our hospital for hepatic resection. The patient underwent preoperative percutaneous transhepatic portal embolization (PTPE) to increase the remnant liver volume and was discharged 4 days later without complications. Six days after PTPE, the patient was readmitted on an emergency basis, and computed tomography showed multiple intrahepatic hematomas in the right lobe. Thirty-one days after PTPE, right lobectomy was performed for liver metastasis. The patient made a satisfactory recovery and was discharged 12 days after hepatic resection. (Jikeikai Med J 2013 ; 60 : 69-72)

Key words : percutaneous transhepatic portal embolization, complication, intrahepatic hematoma, hepatic resection

INTRODUCTION

Percutaneous transhepatic portal embolization (PTPE) is a preoperative procedure useful for preventing liver failure after extended hepatic resection[1]. We describe a recent case of multiple intrahepatic hematomas after PTPE. Adverse events are reported in 2% to 15% of patients, multiple intrahepatic hematomas are an extremely rare complication of PTPE, and to the best of our knowledge, our case is first report in the English literature.

CASE REPORT

A 77-year-old man, who underwent sigmoidectomy for sigmoid colon cancer (pSE, pN1, pStage IV) and had received 6 cycles of the modified FOLFOX 6 regimen (leucovorin, flurorouracil, and oxaliplatin) and bevacizumab as neoadjuvant chemotherapy for synchronous 90-mm-diameter metastastic tumor in segment 7 of the liver, was admitted to our hospital for hepatic resection. Right lobectomy was necessary for curative resection owing to invasion of the right hepatic vein. Because the remnant liver volume after right lobectomy was estimated to be 30% of total liver volume, PTPE was performed to increase the remnant liver volume. The interval between chemotherapy and PTPE was 8 weeks. The patient was discharged 4 days after PTPE without complications.

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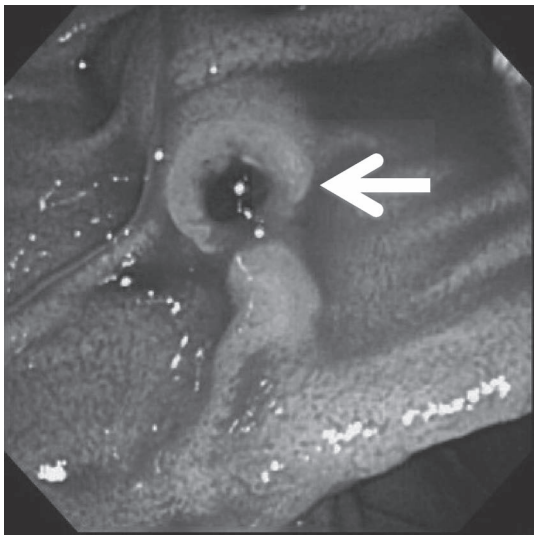

Fig. 1. Endoscopic retrograde cholangiopancreatography revealed bleeding from the ampulla of Vater (arrow) due to biliary hemorrhage.

However, 6 days after PTPE, the patient was urgently admitted owing to acute epigastric pain with increased levels of biliary enzymes. Endoscopic retrograde cholangiopancreatography revealed bleeding from the ampulla of Vater due to biliary hemorrhage (Fig. 1), for which endoscopic nasobiliary drainage was performed. Enhanced computed tomography and magnetic resonance imaging revealed a 50-mm-diameter metastatic tumor in segment 7 of the liver (Fig. 2A, Fig. 3A-B) and multiple intrahepatic hematomas in the right hepatic lobe (Fig. 2A-C, Fig. 3A-B). The estimated remnant liver volume had increased to 50% of total liver volume. After endoscopic nasobiliary drainage, epigastric pain decreased, and biliary enzyme levels decreased to within normal limits.

Thirty-one days after PTPE, right lobectomy was performed. The operation lasted 239 minutes, blood loss was 420 g, and the resected liver volume was 650 g. Histological examination of the resected specimen revealed a 55×50-mm liver tumor metastatic from the colon cancer (Fig. 3A) and multiple intrahepatic hematomas with a great-

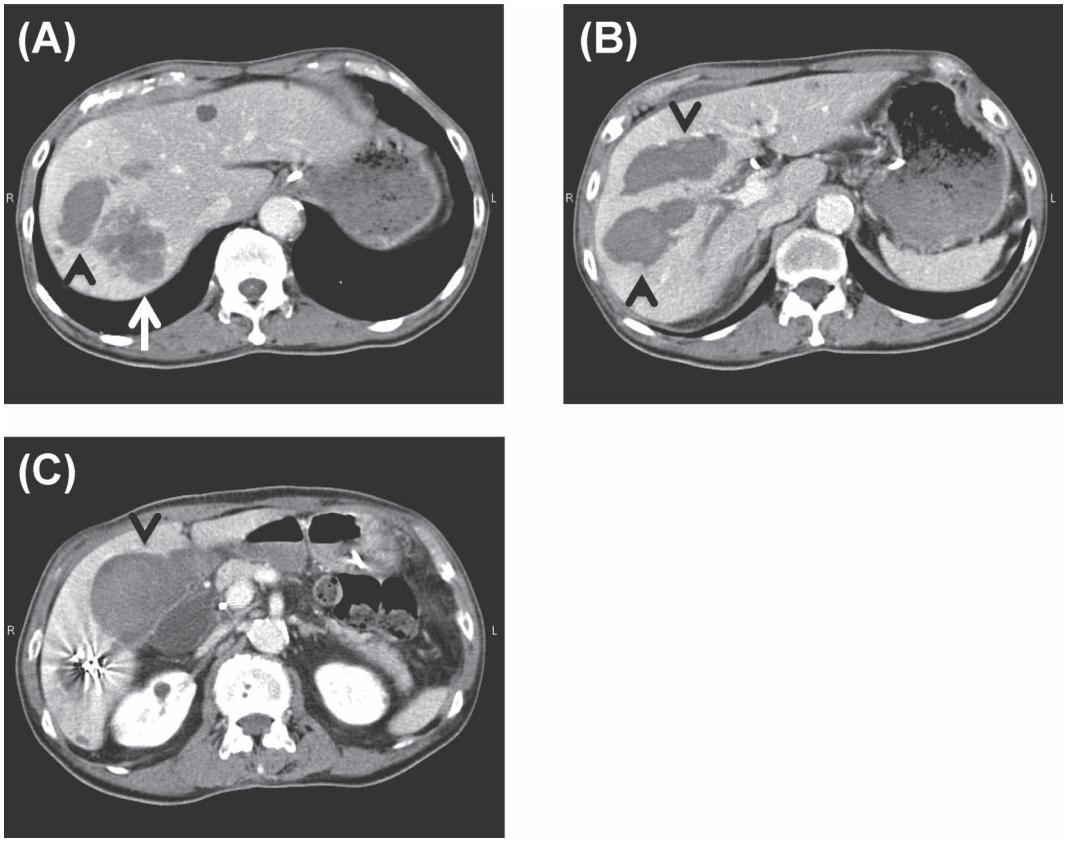

Fig. 2. Enhanced computed tomography revealed a 50-mm-diameter metastatic liver tumor in segment 7 (A ; arrow) and multiple intrahepatic hematomas in the right hepatic lobe (A-C ; arrow heads).

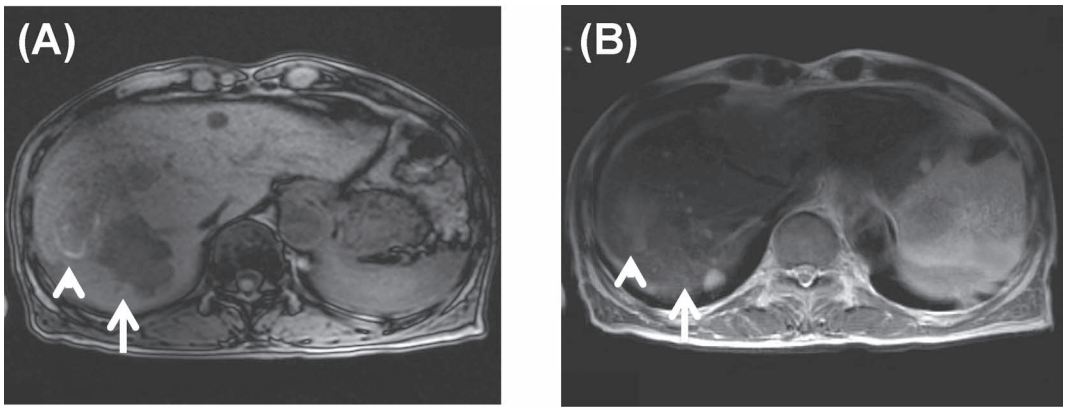

Fig. 3. Magnetic resonance imaging revealed a 50-mm-diameter metastatic liver tumor in segment 7 on T1-weighted (A, arrow) and T2-weighted images (B, arrow) and multiple intrahepatic hematomas in the right hepatic lobe on T1-weighted (A, arrowhead), T2-weighted images (B, arrowhead).

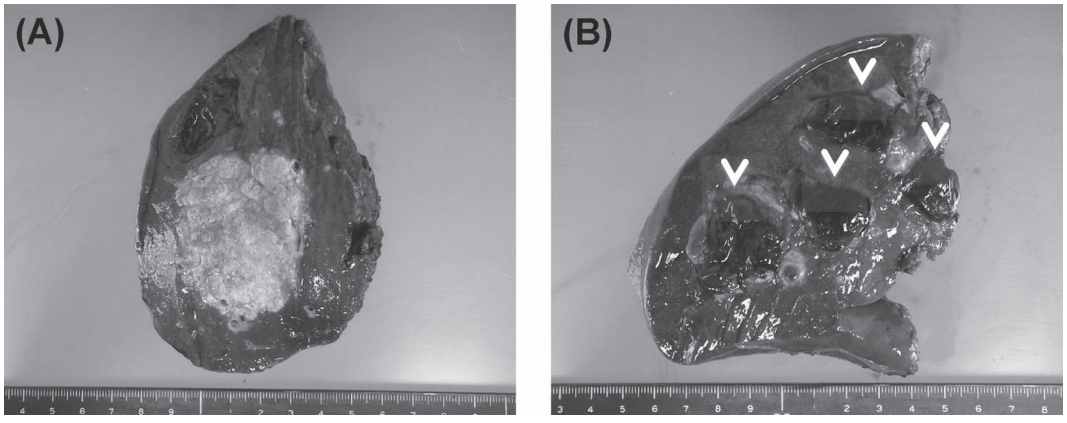

Fig. 4. Histological examination of the resected specimen showed a metastatic adenocarcinoma (A) and multiple intrahepatic hematomas (B ; arrowheads).

est diameter of 65×50 mm (Fig. 3B). Pathological examination revealed sinusoidal dilatation with pooling of red blood cells surrounding the liver tissue of the hematomas. However, the cause of the multiple intrahepatic hematomas, such as rupture or thrombosis of hepatic arteries and the portal vein and necrosis of hepatocytes, was not found. The patient made a satisfactory recovery, was discharged 12 days after hepatic resection, and remains well.

Discussion

The aim of PTPE is to induce atrophy of the embolized lobe and compensatory hypertrophy of the nonembolized lobe as the future remnant liver. Recently, PTPE has been increasingly used as a preoperative treatment for patients who are predicted to have insufficient remnant liver volume after a planned extended hepatic resection[1,2]. Adverse events, including subcapsular hematoma, hemobilia, pneumothorax, arterial puncture, pseudoaneurysm, hemoperitoneum, rupture of the tumor, and portal vein thrombosis, are reported in 2% to 15% of patients[1-5]. However, to the best of our knowledge, multiple intrahepatic hematomas as a complication of PTPE have not been reported in the English literature. Histological examination revealed sinusoidal dilatation due to sinusoidal obstruction as an adverse effect of oxaliplatin[6-8] ; however, the cause of intrahepatic hemorrhage was unclear. A possible reason for the multiple intrahepatic hematomas is that hepatic artery blood flow varies inversely with portal vein blood flow, which is known as the hepatic artery buffer response[9]. An increase in hepatic arterial blood flow, which is associated with decreased portal blood flow after PTPE, may lead to the rupture of small hepatic arteries. In addition, our patient received 6

cycles of the modified FOLFOX 6 regimen and bevacizumab. Oxaliplatin leads to hepatic sinusoidal dilatation with erythrocyte congestion due to hepatic sinusoidal obstruction as an adverse effect[7,8]. Hemorrhage due to a healing complication is a known adverse effect of bevacizumab[10]; therefore, the recommended interval between bevacizumab administration and any intervention is 6 to 8 weeks[11]. The interaction of the hepatic artery buffer response and the adverse effects of chemotherapeutic agents may lead to multiple intrahepatic hematomas after PTPE.

In conclusion, multiple intrahepatic hematomas should be recognized as a rare complication of PTPE.

Authors have no conflict of interest.

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