Anterior approach for right hepatectomy for hilar cholangiocarcinoma

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Abstract

Background/Purpose. Right hepatectomy is indicated for hilar cholangiocarcinoma, but mobilization of the right lobe could be difficult when perihepatic adhesion develops in response to repeated cholangitis and forceful mobilization may disseminate bacteria if the obstructed biliary tract contains pus. We encountered a patient who died from postoperative sepsis and multiorgan failure.

Methods. To circumvent such a difficulty, we employed the anterior approach right hepatectomy in a second patient with hilar cholangiocarcinoma. In this patient, liver transection and division of the hepatic vein were performed before mobilization of the right lobe.

Results. The second patient recovered uneventfully.

Conclusion. The anterior approach (utilizing the “no-touch” technique) may be a preferred procedure for right hepatectomy for hilar cholangiocarcinoma.

Key words Right lobe mobilization · Acute cholangitis · Anterior approach

Introduction

Right hepatectomy or lobectomy is indicated for hilar cholangiocarcinoma when the tumor invades into the branches of the right hepatic duct or the right portal vein.1 The classical approach of right hepatectomy for hilar cholangiocarcinoma necessitates initial hilar dissection, transection of the common bile duct and left duct, mobilization and rotation of the right lobe and detachment of the entire caudate lobe from the inferior vena cava, and transection of the liver parenchyma. However, mobilization of the right lobe is difficult when the perihepatic adhesion is severe due to recurrent acute cholangitis. If the segmental branches of the right hepatic duct and caudate lobe branches are not drained and contain pus, forceful mobilization may result in dissemination of bacteria into the systemic circulation. To circumvent such a difficulty, we utilize the anterior approach2 for right hepatectomy for hilar cholangiocarcinoma. The following two cases illustrate the value of such an approach.

Case 1

A 68-year-old man presented with acute cholangitis and progressive obstructive jaundice. His computed tomography scan showed a dilated intrahepatic duct and occluded right portal vein (Fig. 1). His cholangiogram showed complete occlusion of confluence of hepatic ducts (Fig. 2). Despite right and left percutaneous transhepatic biliary drainage, he suffered from many episodes of acute cholangitis, and a cholangitic liver abscess was present in the right lobe of the liver (Fig. 1). At laparotomy, dense perihepatic adhesion made mobilization of the right lobe difficult. Multiple episodes of hypotension occurred on mobilization and rotation of the right lobe. Initially, twisting of the inferior vena cava was thought to be responsible for hypotension, but hypotension persisted even in the interval between right lobe mobilization and did not respond to inotropes. On detaching the caudate lobe from the inferior vena cava, pus was found inside the dilated caudate hepatic ducts. Eventually, right lobectomy and caudate lobectomy were performed. The blood loss volume was 5.2 l. Postoperatively, he continued to show signs of sepsis, and died of multiorgan failure. Pathologic examination confirmed the presence of hilar cholangiocarcinoma and multiple intrahepatic abscesses.
Case 2

A 69-year-old woman presented with obstructive jaundice. Her cholangiogram showed hilar cholangiocarcinoma invading into the right hepatic duct branches and left hepatic duct occluding the segment IV branch (Fig. 3). After decompression of the biliary tract by right and left percutaneous transhepatic biliary drainage, right portal vein embolization via cannulation of a branch of the superior mesenteric vein was performed. Laparotomy was performed 4 weeks later when the left lobe increased to a volume of about 52% of the entire liver.

After dissecting the posterior pancreaticoduodenal lymph nodes and common hepatic duct lymph nodes, the common bile duct and right hepatic artery were transected. The lymph nodes were removed en bloc with the liver specimen. Without prior mobilization of the right lobe and caudate lobe, transection of the liver was performed starting on the anterior surface of the left side of the falciform ligament, using an ultrasonic dissector down to the umbilical fissure (Figs. 4 and 5). The segment IV vascular pedicles were transected. The left and main portal veins were transected followed by

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Fig. 1. Cholangiogram of the patient (case 1) via left percutaneous transhepatic biliary drain showing complete occlusion of the confluence of the hepatic ducts

Fig. 2. Computed tomography scan of the patient (case 1) showing dilated intrahepatic ducts and suspected abscesses in the right lobe of liver (arrows)

Fig. 3. Cholangiogram of the patient (case 2) showing complete occlusion of the confluence of hepatic ducts and absent opacification of the segment IV hepatic duct. The cholangiogram was obtained during hepatectomy. A metal clip (arrow) was placed for marking the proposed site of division of the left hepatic duct

Fig. 4. Computed tomography scan showing the line of transection of the liver (case 2). The transection started on the surface down to the Arantius canal