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VIDEO

Pure 3D laparoscopic living donor right hemihepatectomy in a donor with separate right posterior and right anterior hepatic ducts and portal veins

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Abstract

Background Despite increases in the performance of pure laparoscopic living donor hepatectomy, variations in the bile duct or portal vein have been regarded as relative contraindications to this technique [1–3]. This report describes a donor with separate right posterior and right anterior hepatic ducts and portal veins who underwent pure laparoscopic living donor right hemihepatectomy, integrated with 3D laparoscopy and indocyanine green (ICG) near-infrared fluorescence cholangiography [1, 4, 5].

Methods A 50-year-old man offered to donate part of his liver to his older brother, who required a transplant for hepatitis B-associated liver cirrhosis and hepatocellular carcinoma. Donor height was 178.0 cm, body weight was 82.7 kg, and body mass index was 26.1 kg/m^2. Preoperative computed tomography and magnetic resonance cholangiopancreatography showed that the donor had separate right posterior and right anterior hepatic ducts and portal veins. The entire procedure was performed under 3D laparoscopic view. Following intravenous injections of 0.05 mg/kg ICG, ICG near-infrared fluorescence camera was used to demarcate the exact transection line and determine the optimal bile duct division point.

Results The total operation time was 443 min; the donor required no transfusions and experienced no intraoperative complications. The graft weighed 1146 g with a graft-to-recipient weight ratio of 1.88%. The optimal bile duct division point was identified using ICG fluorescence cholangiography, and the bile duct was divided with good patency without any stricture. The right anterior and posterior portal veins were transected with endostaplers without any torsion. The patient was discharged on postoperative day 8, with no complications.

Conclusion Using a 3D view and ICG fluorescence cholangiography, pure 3D laparoscopic living donor right hemihepatectomy is feasible in a donor with separate right posterior and right anterior hepatic ducts and portal veins.

Keywords Living donor liver transplantation · Laparoscopy · Right hemihepatectomy · Indocyanine green

Compliance with ethical standards

Disclosures Suk Kyun Hong, Kyung-Suk Suh, Hyo-Sin Kim, Kyung Chul Yoon, Sung-Woo Ahn, Dongkyu Oh, Hyeyoung Kim, Nam-Joon Yi, and Kwang-Woong Lee have no conflicts of interest or financial ties to disclose.

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