



Retroperitoneal Laparoscopic Hepatectomy for a Subcapsular Hepatocellular Carcinoma in Segment VI (Video)

Wei Cai, MD, PhD¹, Jizhou Wang, MD, PhD¹, Dalong Yin, MD, PhD¹, Rui Peng Song, MD, PhD¹, Yao Liu, MD, PhD¹, Qiang Xuan, MD, PhD², Björn Nashan, MD, PhD, FACS, FRCS, FEBS³, and Lianxin Liu, MD, PhD, FACS, FRCS¹

¹Department of Hepatobiliary Surgery, Anhui Province Key Laboratory of Hepatopancreatobiliary Surgery, The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei, Anhui, China; ²Department of Urology Surgery, The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei, Anhui, China; ³Department of Hepatobiliary and Transplantation Surgery, The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei, Anhui, China

ABSTRACT

Introduction. Hepatocellular carcinoma located in hepatic segment VI/VII or close to the adrenal gland were generally considered challenging for minimally invasive resection. For these individualized patients, this may be overcome by the novel use of a retroperitoneal laparoscopic hepatectomy; however, minimally invasive retroperitoneal liver resection is difficult to perform.^{1–3} This video article demonstrates a pure retroperitoneal laparoscopic hepatectomy for a subcapsular hepatocellular carcinoma.

Video. A 47-year-old male patient with Child–Pugh A liver cirrhosis presented with a small tumor located very close to the adrenal gland next to segment VI of the liver. An enhanced abdominal computed tomographic scan demonstrated a solitary 2.3 × 1.6 cm lesion. Considering the special location of the lesion, a pure retroperitoneal laparoscopic hepatectomy was performed after obtaining the patient's consent. The patient was positioned in the flank position. The procedure was carried out using the balloon technique for a retroperitoneoscopic approach, with the patient in the lateral kidney position. The retroperitoneal space was first accessed through a 12-mm skin incision above the anterior superior iliac spine in the mid-axillary line and was expanded by inflating a glove balloon to

900 mL. A 5 mm port below the 12th rib in the posterior axillary line and a 12 mm port below the 12th rib in the anterior axillary line were placed. Following incision of Gerota's fascia, the dissection plane between the perirenal fat and the anterior renal fascia located at the superomedial side of the kidney was explored. The retroperitoneum behind the liver was fully exposed after the upper pole of the kidney was isolated. After localization of the tumor by intraoperative ultrasonography through the retroperitoneum, the retroperitoneum was dissected directly above the tumor. We used an ultrasonic scalpel to divide the hepatic parenchyma, and a Biclamp for hemostasis. The blood vessel was clamped using titan clips, and the specimen was extracted using a retrieval bag following resection. A drainage tube was placed after completing meticulous hemostasis. Closure of the retroperitoneum was performed using a conventional suture method.

Results. The total operation time was 249 min, with an estimated blood loss of 30 mL. The final histopathological diagnosis showed a 3.0 × 2.2 × 2.0 cm-sized hepatocellular carcinoma. The patient was discharged on postoperative day 6 without any complications.

Conclusion. Lesions located in segment VI/VII or close to the adrenal gland were generally considered difficult for minimally invasive resection. Under these circumstances, a retroperitoneal laparoscopic hepatectomy might be a more suitable option as it is a safe, effective and complementary approach to standard minimally invasive technology for the resection of small hepatic tumors in these special locations of the liver.

© Society of Surgical Oncology 2023

First Received: 22 July 2022

Accepted: 3 May 2023

Published online: 20 May 2023

L. Liu, MD, PhD, FACS, FRCS
e-mail: Liulx@ustc.edu.cn

Keywords Laparoscopic hepatectomy · Retroperitoneal · Intraoperative ultrasound · Hepatocellular carcinoma

SUPPLEMENTARY INFORMATION The online version contains supplementary material available at (<https://doi.org/10.1245/s10434-023-13645-7>).

FUNDING This project was supported by the National Key R&D Program of China (Grant No. 2019YFA0709300), the National Natural Science Foundation of China (Grant No. 81772588, No. U19A2008), and the Youth Program of the Natural Science Foundation of Anhui Province (2008085QH418).

DISCLOSURES Wei Cai, Jizhou Wang, Dalong Yin, Rui Peng Song, Yao Liu, Qiang Xuan, Björn Nashed, and Lianxin Liu have no conflicts of interest or financial ties to disclose.

REFERENCES

1. Li B, Liu T, Zhang Y, et al. Retroperitoneal laparoscopic hepatectomy of recurrent hepatocellular carcinoma: case report and literature review. *BMC Gastroenterol.* 2020;20(1):278.
2. Jian Z, Jin H, Yin Z, et al. Laparoscopic Retroperitoneal Hepatectomy for a Subcapsular Hepatocellular Carcinoma. *Ann Surg.* 2015;262(2):e77–8.
3. Hu M, Zhao G, Xu D, et al. Retroperitoneal laparoscopic hepatectomy: a novel approach. *Surg Laparosc Endosc Percutan Tech.* 2011;21(5):e245–8.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.