Triple Intercostal Transthoracic Ports in Laparoscopic Hepatectomy for a Tumor in a Cranially Protruded Liver (with Video)

Koichiro Haruki, MD, PhD , Shinji Onda, MD, PhD, Tomohiko Tani, MD, Mitsuru Yanagaki, MD, Kenei Furukawa, MD, PhD, and Toru Ikegami, MD, PhD

Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The Jikei University School of Medicine, Tokyo, Japan

ABSTRACT

Background. It is difficult to laparoscopically approach tumors of the anatomically anomalous right lobe of the liver, such as cranially protruded liver. The intercostal port has been useful for laparoscopic hepatectomy, especially for tumors located in the dome of the liver. *PLoS One*. 15:e0234919; *Surg Endosc*. 31:1280–1286; *J Gastrointest Surg*. 21:2135–2143; *J Hepatobiliary Pancreat Sci*. 21:E65–68; *Surg Oncol*. 38:101576; Thus, we introduce our technique using triple intercostal transthoracic ports for laparoscopic hepatectomy for hepatocellular carcinoma located in segment 8. The right lobe of the liver was cranially protruded and located at the same level of the heart. **Patient and Methods.** The patient was placed in left lateral decubitus position. After the pneumoperitoneum and adhesiolysis, the hepatoduodenal ligament was controlled. Three additional intercostal ports with balloons were introduced transdiaphragmatically for liver parenchymal resection after confirmation of the lung edge by mandatory ventilation. A 12-mm and a 5-mm port were inserted into the sixth and seventh intercostal space for the operator's hands, while a 5-mm port was inserted into the fourth intercostal space for the assistant's right hand. The liver parenchymal resection was performed using a cavitron ultrasonic surgical aspirator (CUSA) through the 12-mm intercostal port, followed by its completion without exposing the tumor. The 12-mm port hole on the

diaphragm was sutured and a 12-Fr chest tube was introduced in the right thoracic cavity.

Results. The operation time was 131 min, and the blood loss was 20 g. The patient was discharged on postoperative day 7 without any complication.

Conclusion. Triple intercostal ports could be a feasible procedure for a tumor with limited laparoscopic access from the abdominal port due to the anatomically anomalous liver.

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