



Patient Positioning and Trocar Placement

The patient can be placed in a supine position with the surgeon standing on one side (or a left semi-decubitus position if the liver lesion is in the right side), or the patient can be placed in a lithotomy position with the surgeon standing between the legs of the patient.

After pneumoperitoneum is achieved through an umbilical incision, the laparoscope is inserted. For operative manipulation in partial hepatectomy, three or four trocars are placed in a concentric circle radiating from the tumor. Care must be taken to avoid injuring vessels during port insertion, particularly in cirrhotic patients who tend to have thrombocytopenia, recannulated umbilical veins, or large collateral veins that develop in the anterior abdominal wall.

In left lateral sectionectomy, three trocars are placed at the right hypochondrium and bilateral abdomen. For anatomical hepatectomies other than left lateral sectionectomy, four trocars are usually necessary at the epigastrium, right hypochondrium, and bilateral abdomen. Intercostal trocars

are useful for instrument manipulation during resection of the superior and posterior region of the liver. A 5-mm trocar is placed for Pringle maneuver when it is needed.

Suggested Readings

- Chai S, Zhao J, Zhang Y, et al. Arantius ligament suspension: a novel technique for retraction of the left lateral lobe liver during laparoscopic isolated caudate lobectomy. *J Laparoendosc Adv Surg Tech A*. 2018;28:740–4.
- Harada N, Maeda T, Yoshizumi T, et al. Laparoscopic liver resection is a feasible treatment for patients with hepatocellular carcinoma and portal hypertension. *Anticancer Res*. 2016;36:3489–97.
- Hsu KF, Liu TP, Yu JC, et al. Application of marionette technique for 3-port laparoscopic liver resection. *Surg Laparosc Endosc Percutan Tech*. 2012;22:e186–9.
- Inoue Y, Suzuki Y, Fujii K. Laparoscopic liver resection using the lateral approach from intercostal ports in segments VI, VII, and VIII. *J Gastrointest Surg*. 2017;21:2135–43.