Surg. Gastroenterol. Oncol. 2018;23(1):31-50 DOI: 10.21614/sgo-23-1-31

Intraoperative Ultrasound Guided Liver Resections: A Single Center Experience

Florin Botea[1], Diana Nicolaescu[1], Alexandru Barcu1, Nausica Picu1, Alexandru Onofrei[1], Gabriela Droc[2], Dana Tomescu[2], Vlad Herlea[3], Irinel Popescu[1]
[1]Center of General Surgery and Liver Transplantation, Fundeni Clinical Institute, Bucharest, Romania
[2]Department of Anesthesia and Intensive Care, Fundeni Clinical Institute, Bucharest, Romania
[3]Department of Pathology, Fundeni Clinical Institute, Bucharest, Romania

Abstract

Background: Liver resection (LR) is the standard treatment for most focal liver lesions. Intraoperative ultrasound (IOUS) improves their diagnosis and guides the liver resection. The present paper analyses our experience in IOUS guided LR, reviewing the indications, surgical techniques, and the short-term results.

Material and Method: 198 LRs guided by IOUS in 186 patients operated in our center between January 2013 and December 2017 were included in a combined prospective and retrospective study. The median age of the patients was 60 years (mean 57, range 16-79), with a male/female ratio of 109/77, and adult/pediatric patient ratio of 185/1.

Results: Malignant lesions were the main indication for IOUS guided LR (164 LRs; 82.8%); among these, colorectal liver metastases were the main indication (66 LRs; 33.3%), followed by hepatocellular carcinoma (44 cases, 22.2%). The mean number of tumors was 3 (range 1-16), and the median diameter of the largest tumor was 40 mm (mean 51; range 3-240). IOUS found new lesions in 22.3% of cases operated for liver metastases (46 LRs), and changed the surgical strategy in 41.9% of cases (83 LRs). Major resection rate was 18.2% (36 LRs); anatomical LRs were performed in 18 cases (9.1%). The median operative time was 330 minutes (mean 334; range 90-920). The median blood loss was 700 ml (mean 900; range 250-9500), with a transfusion rate of 54.8% (108 LRs). Overall and major complication rates were 46.5% (92 LRs) and 7.6% (15 LRs), respectively, while the mortality rate was 2% (4 pts).

Conclusion: IOUS should be fully integrated in the modern liver surgery, providing improved diagnosis and optimal resection guidance, increasing resectability and surgical safety, with low perioperative morbidity and mortality.

Key words: liver resection, intraoperative ultrasound, focal liver lesions, single-center experience