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Institutional experience and clinical outcomes of robotic major hepatectomy for liver tumors

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Introduction: The majority of published literature has only reported outcomes of robotic minor non-anatomical hepatectomy. We aim to examine our clinical outcomes, safety, and feasibility with robotic major hepatectomy.

Methods: We prospectively followed 235 patients who underwent robotic hepatectomy since 2016. Major hepatectomy is defined as a resection of ≥ 3 segments. Data are presented as median (mean $\pm$ SD).

Results: Of the 235 patients, 142 of the patients underwent a major hepatectomy. Median age was 63 (61 $\pm$ 14.0) years, 51% were women, BMI was 28 (29 $\pm$ 6.1) kg/m² and ASA Class was 3 (3 $\pm$ 0.5). 25% of operations were for metastatic colorectal cancer, 23% for hepatocellular carcinoma, 11% cholangiocarcinoma, and 6% for gallbladder adenocarcinoma. Regarding the type of resection, 15 patients (11%) had central hepatectomy, 30 (21%) had formal right, 41 (29%) had formal left, 31 (22%) had non-anatomical right, 11 (8%) had non-anatomical left, 7 (5%) had extended right, and 7 (5%) had extended left. Prep time (in the room until incision) 64 (74 $\pm$ 67.3) minutes, Extraction time (incision until specimen extraction) 138 (159 $\pm$ 99.3) minutes, Console time 198 (213 $\pm$ 119.8) minutes, Closure time (extraction until dressing placement) 106 (214 $\pm$ 271.3) minutes, Operative duration was 288 (305 $\pm$ 119.0) minutes and time under anesthesia 359 (369 $\pm$ 115.6) minutes. Estimated blood loss was 200 (258 $\pm$ 252.1) mL and length of stay was 4 (5 $\pm$ 2.7) days. 9 patients experienced postoperative complications (4 ileus, 1 pneumonia, 1 bile leak, 1 gram-negative bacteremia, 1 jaundice, 1 pneumothorax). 22 patients were readmitted within 30 days with one death after readmission, due to aspiration.

Conclusions: Application of the robotic platform to major hepatectomy is safe and feasible with excellent perioperative outcomes.

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