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Comparison of Pure Laparoscopic Donor Right Posterior Sectionectomy versus Right hemihepatectomy: A Preliminary Study Based on Surgical Outcomes of Donors and Recipients

Chan Woo Cho[1], Gyu-Seong Choi[2], Do Hyeon Lee[1], Hyoung Joo Kim[1], Dong-Shik Lee[1], Jinsoo Rhu[2], Jong Man Kim[2], Jae-Won Joh[2], Kyeong Sik Kim[3]

[1]Department of Surgery, Yeungnam University Medical Center, Republic of Korea
[2]Department of Surgery, Samsung Medical Center, Republic of Korea
[3]Department of Surgery, Hanyang University Medical Center, Republic of Korea

Introduction: Right posterior section (RPS) graft for living donor liver transplantation (LDLT) is an alternative graft in a live liver donor with insufficient remnant left lobe (LL) volume and portal vein anomaly. Although there have been some reports regarding pure laparoscopic donor right posterior sectionectomy (PLDRPS), there is no comparative study of PLDRPS versus (vs.) Pure laparoscopic donor right hemihepatectomy (PLDRH). The aim of our study is to compare surgical outcomes of PLDRPS vs. PLDRH at centers achieving complete transition from open to laparoscopic approach in liver donor surgery.

Methods: From March 2019 to March 2022, a total of 351 LDLTs, sixteen and 335 donors underwent PLDRPS and PLDRH, respectively. We reviewed the selection process for RPS grafts and evaluated postoperative outcomes of donors and recipients.

Results: There was no open conversion or perioperative blood transfusion in donors. In the donor cohort, there was no significantly different major complication (Grade III) rate and comprehensive complication index (CCI) between PLDRPS versus PLDRH group (6.3% vs.4.8%; $p = 0.556$ and 2.1 ± 8.4 vs.1.7 ± 6.4; $p = 0.788$). Furthermore, in the recipient cohort, there was significantly different major complication(Grade III) rate (62.5% vs.35.2%; $p = 0.034$), but no significantly different CCI (18.3 ± 14.9 vs. 15.2 ± 24.9; $p = 0.623$) between PLDRPS vs. PLDRH group.

Conclusion: PLDRPS in liver donors with portal vein anomaly and insufficient LL was technically feasible and safe with experienced surgeons. PLDRPS group might be comparable with PLDRH group based on surgical outcomes of donors and recipients. However, in terms of recipient outcomes, more careful selection of donor of the RPS graft and further researches in a large number of cases are necessary to evaluate the usefulness of PLDRPS.