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Risk Factors For Biliary Complication-free Survival After Living Donor Liver Transplantation In The Era Of Laparoscopic Donor Hepatectomy

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Background : Biliary complication (BC) remains the most common postoperative complications after liver transplantation (LT) despite the advancement of surgical techniques and management. Biliary reconstruction after living donor liver transplantation (LDLT) is technically more demanding than deceased donor LT due to multiple duct openings, small and short graft duct. Herein, we analyzed the risk factor of BC-free survival after LDLT including considerable cases of laparoscopic living donor hepatectomy.

Methods : From August 2011 to December 2019, 824 recipients underwent adult LDLT in Seoul National University Hospital. BC was defined as a bile leakage (BL) or a biliary stricture (BS) requiring interventions. Median follow-up period was 63.5 months.

Results : BC was developed in 272 cases (34.3%) at a median time of 4 months (range 1-81); 64 (8.1%) cases of BL and 253 (31.9%) cases of BS. Pure laparoscopic donor hepatectomy (PLDH) was done in 358 cases (43.5%), open hepatectomy (OH) in 435 cases (52.9%), and laparoscopic-assisted hepatectomy in 30 cases (3.6%). BC-free survival rates were significantly lower in PLDH group (59.8%) than in OH group (70.6%) (P<0.001). PLDH and donor warm ischemic time were one of the risk factors for BC after LDLT in univariate analysis (P=0.001 for both), however, none of these factors were associated risk factors on multivariate analysis. Preoperative radiofrequency ablation history, hepaticojejunostomy (HJ), multiple anastomosis of bile duct, postoperative transfusion during hospital stay, and use of inotropics during hospital stay were found to be significant risk factors for biliary complication in multivariate analysis.

Conclusions : PLDH for LT is considered a feasible option, however, there are increased possibility for BC in the recipient. Therefore, maximal effort should be exerted to avoid associated risk factors for BC, i.e. reducing donor warm ischemic time, postoperative transfusion, and use of inotropics postoperatively, and close surveillance for BC is required in this specific group.

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