PL-1

Laparoscopic living donor right hepatectomy regarding the anatomical variation of portal vein: A propensity score matched analysis

Jinsoo RHU, Gyu-Seong CHOI*, Jong Man KIM, Jae-Won JOH

Department of Surgery, Samsung Medical Center, Seoul, Korea

Introduction: This study is designed to analyze the feasibility of laparoscopic living donor right hemihepatectomy in living donors with portal vein variation.

Methods: Living donor liver transplantation cases with right liver graft during the period of January 2014 to September 2019 were included. Computed tomographic angiographies of the donor were three-dimensionally reconstructed, and the anatomical variation of the portal vein was classified. To reduce, selection bias, 1:1 ratio propensity score match analysis between the laparoscopy group and the open group was performed. Surgical and recovery-related outcome as well as portal vein complication-free survival, graft survival and overall survival were analyzed.

Results: After matching, 171 cases in each group from 444 original cases were compared. The laparoscopy group had shorter operation time ($p < 0.001$), smaller number of additional opioids required by the donor ($p < 0.001$), shorter hospital stay ($p < 0.001$). There were no difference in the portal vein complication-free survival ($p = 0.16$), graft survival ($p = 0.26$), and overall survival ($p = 0.53$). While portal vein complication-free survival was inferior in portal vein other than type I ($p = 0.01$), the laparoscopy showed similar portal vein complication-free survival whether the portal vein was type I ($p = 0.35$) or other types ($p = 0.30$).

Conclusions: Laparoscopic living donor right hemihepatectomy can be performed as safely as open surgery regardless of the anatomical variation of portal vein.

Corresponding Author: Gyu-Seong CHOI (med9370@gmail.com)

Presenter: Jinsoo RHU (jsrrules@gmail.com)

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