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Propensity-score matching analysis of postoperative outcome including quality of life after single incision versus multiport laparoscopic cholecystectomy: A nationwide prospective multicenter study in Korea

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Introduction : There is still controversy for usefulness of single incision laparoscopic cholecystectomy (SILC) compared to multiport laparoscopic cholecystectomy (MPLC) due to no clear indication and technical difficulties. SILC could reduce the number of ports, but cause more postoperative pain and worsen quality of life (QoL) because of large umbilical incision. The purpose of this study was to compare postoperative outcomes of SILS with those of MPLC.

Methods : In a prospective Korea Cholecystectomy Quality Improvement Program cohort including 18 institutions from October 2016 to March 2017, 2510 patients who underwent laparoscopic cholecystectomy for benign gallbladder disease were enrolled. Various postoperative outcomes were compared between two groups including operative details, postoperative complications, pain assessed by NRS score, and QoL assessed by GIQLI questionnaire after propensity score matching (PSM) with 1: 2 balances using multiple covariates, such as, age, sex, ASA classification, comorbidities, biliary drainage, and pathology of acute cholecystitis.

Results : Among study cohort, SILS were performed 331 patients, whereas MPLC were 2179 patients. After uni- and multivariate analysis, there were no significant differences in terms of operative finding including operative time (46 ± 20 min. vs 45 ± 24 min., $p = \text{NS}$) and difficulty, postoperative complications including biliary injury. Also, there were no significant differences in terms of postoperative pain (2.1 ± 1.9 vs 2.3 ± 2.3 , $p = \text{NS}$) and QoL (1.8 ± 2.1 vs 1.7 ± 1.6 , $p = \text{NS}$).

Conclusions : SILC showed comparable postoperative outcomes including operative findings, postoperative complications, and patients- reported outcomes after PSM analysis with a nationwide prospective data. In conclusion, SILC is as safe as MPLC for benign gallbladder disease compared with MPLC.

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