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Comparison Of Robotic Single Site Cholecystectomy And Conventional Laparoscopic Cholecystectomy Using Propensity Score Matching.

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Background : Robotic single site cholecystectomy (RSSC) has become an established alternative to conventional laparoscopic cholecystectomy (CRC) or single site laparoscopic cholecystectomy by maximizing cosmesis results and overcoming the intrinsic limitations of single-incision laparoscopy. Although the robotic single site technology using DaVinci Xi is non-wristed and, unlike other conventional robotic instruments, only provides rotation, the ergonomics are nevertheless excellent. Therefore, the objective of this study is to present our initial experience in RSSC and compare the result of CRC using propensity score matching (PSM).

Methods : From January 2019 to December 2022, 588 consecutive patients underwent RSSC or CLC at Dong-A University Hospital, Busan, Korea. For correcting selection bias, the PSM analysis was adapted. After 1:1 PSM, 117 patients for each group were selected for the retrospective study.

Results : There were significant differences in Sex, Age, BMI, ASA, Pre-operative diagnosis, previous abdominal surgery, the difficulty of surgery (adhesion, thickening, fibrosis) before PSM matching ($P < 0.01$). Comparing the surgical outcomes with 1:1 matched data, only operative time (CRC : 29.15 ± 11.45 min, RSSC : 38.57 ± 12.59 min, $P < 0.001$) showed a significant difference between the two groups. However, open conversion ($p = 0.32$), hospital stay ($p = 0.72$), POD #1 pain score ($p = 0.24$) and post-operative complications ($p = 0.36$) showed no differences.

Conclusions : Statistically, there is a significant difference in operating time between two groups, but it is a sufficiently acceptable difference in clinical practice. Consequently, RSSC for benign gallbladder disease may serve as an excellent alternative to conventional laparoscopic with the good cosmesis result and similar surgical outcomes.

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