

PO-007

Minimally invasive single-incision cholecystectomy: comparison of postoperative outcomes of da Vinci robotic SP, Xi system, and laparoscopic cholecystectomy

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Background: With the introduction of the new da Vinci robot SP system (SP), which can overcome the limitation of the existing single-incision laparoscopic cholecystectomy (SILC) and single-incision robotic cholecystectomy (SIRC) using da Vinci Xi system (Xi). This study aimed to compare perioperative outcomes for minimally invasive single-incision cholecystectomy (MI-SIC), including SILC, Xi, and SP.

Methods: We retrospectively analyzed the medical records of 206 patients who underwent MI-SIC in two centers by one surgeon between August 2020 and April 2022. Of the total 206 patients, 126 underwent SILC, 30 underwent Xi, and 50 underwent SP. Potential confounding factors for operative outcomes were adjusted by propensity score matching (PSM) analysis. 24 patients from SILC and Xi group and 35 patients from SILC and SP group were evaluated for perioperative outcomes and compared for a retrospective cohort study.

Results : Most patients were caused by gallbladder stone, polyp, and adenomyomatosis. The operation time of the SILC group was shorter than those of the two SIRC groups $(44.9 \pm 14.5 \text{ vs. } 55.3 \pm 12.2 \text{ vs. } 55.2 \pm 16.2 \text{ min}$, respectively, p=0.000). The baseline characteristics were not significantly different between SILC and Xi group, and SILC and SP group after PSM. The docking time of the Xi group was shorter than the SP group $(6.2 \pm 2.8 \text{ vs. } 10.3 \pm 2.3 \text{ min}, p=0.000)$. The console time of the SP group was shorter than the Xi group $(11.2 \pm 2.4 \text{ vs. } 18.6 \pm 8.0 \text{ min}, p=0.000)$. There was no significant difference among the three groups in the numerical rating scale (NRS) on immediate postoperative and postoperative 1st day: $3.4 \pm 0.9 \text{ vs. } 3.4 \pm 0.9 \text{ vs. } 3.3 \pm 1.3$, respectively, p=0.885). Postoperative complications occurred in two patients (1.6%) in the SILC group (p=0.507). There was also no significant difference in the NRS after PSM.

Conclusions : This study demonstrated comparable outcomes between SILC and SIRC. In the da Vinci SP system, the stress on surgeons was subjectively minor, objective analysis is additionally required to expand its application in MI-SIC.

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