Introducing robot-assisted laparoscopic donor nephrectomy after experience in retroperitoneal endoscopic living donor nephrectomy approach

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Background: This study aims to assess safety and efficacy of introducing robot-assisted laparoscopic donor nephrectomy (RALDN) to the standard retroperitoneal endoscopic living donor nephrectomy (RELDN) at a single institution transplant program.

Methods: Data were collected prospectively from 68 consecutive living kidney donors (14 for RALDN subgroup and 54 RELDN subgroup) at a transplant center from February 2018 to September 2019. Patient baseline demographics, radiological findings, perioperative donor outcomes, recipient outcomes, and complications were recorded, and these parameters were compared between the two surgical groups.

Results: For the entire group, mean age±standard deviation was 51.4±8.9 years (range, 29–68 years); 44.1% were males; mean body mass index (BMI) was 22.6±2.3 kg/m² (range, 15.6–27.3 kg/m²); and there were 57 (84%) left kidneys. Preoperatively, there was no significant differences ($P>0.05$) between the two donor groups including gender, BMI, kidney side, hilar anatomy, and American Society of Anesthesiologists status. For perioperative outcomes, there was no significant differences ($P>0.05$) comparing RALDN and RELDN respectively for warm ischemic time (4.7±1.4 minutes vs. 4.8±1.4 minutes), operative time (232±43 minutes vs. 217±41 minutes), hemoglobin drop (7.5±5.8 g/L vs. 8.5±7.2 g/L), postoperative complications (7.1% vs. 7.4%), the donor blood creatinine at 1 month (1.13±0.22 mg/dL vs. 1.22±0.26 mg/dL), and the recipient blood creatinine at 1 month (1.25±0.28 mg/dL vs. 1.41±0.38 mg/dL).

Conclusions: This study showed that RALDN can be safely introduced into living donor program experienced in laparoscopic donor nephrectomy.

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