

COMPARISON OF OPEN VERSUS ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY

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Introduction: This is the first analysis to compare outcomes of Robotic partial nephrectomy (RPN) and open partial nephrectomy (OPN) at a single institution.

Materials and Methods: A retrospective review was performed comparing outcomes of 55 RPN to 228 OPN which were undergone between May 2003 and Sep 2010.

Results: There were no significant differences between the 2 cohorts (RPN vs OPN) with respect to patient age, BMI, preoperative eGFR and tumor size (Table). Mean operative and warm ischemic time (23.7 vs 19.0 min, $p = 0.001$) was longer in RPN group but there were no significant differences in postoperative eGFR and change in eGFR. Length of hospitalization and amounts of postoperative analgesics were favored in the RPN cohort. Perioperative complication rates were 18.2% and 18.9%, respectively.

Conclusions: RPN is a viable option for small renal mass considering perioperative complications and postoperative renal function outcomes.

Table 1. Perioperative outcomes : open PN vs. RPN

| Variables (mean \pm SD) | Open PN (n=228) | RPN (n=55) | P value |
|-----------------------------------|---------------------|-----------------------|---------|
| Age (yr) | 54.2 \pm 13.58 | 53.0 \pm 12.19 | 0.520 |
| BMI (kg/m ²) | 24.52 \pm 2.84 | 25.42 \pm 3.19 | 0.652 |
| Tumor size (cm) | 2.60 \pm 1.15 | 2.31 \pm 1.19 | 0.172 |
| EBL (cc) | 229.88 \pm 162.81 | 301.02 \pm 240.59 | 0.055 |
| Transfusion (%) | 21 (9.2%) | 2 (3.6%) | 0.744 |
| Warm ischemic time(min) | 19.02 \pm 7.37 | 23.75 \pm 8.57 | 0.001 |
| Operation time (min) | 143.02 \pm 52.68 | 206.91 \pm 88.91 | <0.001 |
| Resection margin positive(+) | 6 (2.6%) | 0 | 0.251 |
| Hospital stay (day) | 8.82 \pm 3.11 | 6.83 \pm 2.49 | <0.001 |
| Postoperative analgesics (amp) | 0.88 \pm 1.60 | 0.22 \pm 0.51 | <0.001 |
| Follow up period (mon) | 29.47 \pm 19.67 | 6.29 \pm 5.78 | <0.001 |
| Change of eGFR (ml/min) | 3.42 \pm 19.01 | 4.24 \pm 19.56 | 0.682 |
| Intraoperative complication | 10* (4.4%) | 3 [†] (5.5%) | 0.331 |
| Conversion to open | - | 1 [‡] (1.8%) | |
| Conversion to radical nephrectomy | 2 (0.9%) | 2 (3.6%) | |
| Postoperative complication | 33 (14.5%) | 6 (10.9%) | 0.316 |

PN ; partial nephrectomy, RPN ; robot-assisted laparoscopic partial nephrectomy, BMI ; body mass index,

eGFR; estimated glomerular filtration rate, EBL ; estimated blood loss

* : 1 ureteral injury, 9 pleural injury; [†] : 1 spleen injury, 1 colon injury, 1 renal vein injury; [‡] : narrow working space