Comparisons of surgical outcomes between transperitoneal and retroperitoneal approaches in robot-assisted laparoscopic partial nephrectomy for lateral renal tumors: A propensity score-matched comparative analysis



Toshio Takagi<sup>1</sup>, Kazuhiko Yoshida<sup>1</sup> Tsunenori Kondo<sup>1</sup>, Hirohito Kobayashi<sup>1</sup>, Junpei lizuka<sup>1</sup>, Masayoshi Okumi<sup>1</sup>, Hideki Ishida<sup>1</sup>, and Kazunari Tanabe<sup>1</sup> <sup>1</sup>Department of Urology, Tokyo Women' s Medical University, Tokyo, Japan Objective: To compare the surgical outcomes between the transperitoneal (TP) and retroperitoneal (RP) approaches in robot-assisted laparoscopic partial nephrectomy (RAPN) for lateral tumors.

Methods:

Patient selection

- Patients who underwent RAPN for lateral renal tumors between 2013 and 2019. Definition of lateral tumors
- X of A factors in the RENAL nephrometry score
- Propensity score matching
- age, sex, BMI, ASA score, preoperative eGFR, tumor size, and RENAL NS score.



|                            |              |             | Post-matching |        |  |
|----------------------------|--------------|-------------|---------------|--------|--|
|                            |              | TP (48)     | RP (48)       | р      |  |
| Age (years), mean (SD)     |              | 55 $\pm$ 12 | 55 $\pm$ 14   | 0.3462 |  |
| Sex, male, n (%)           |              | 36 (75)     | 32 (67)       | 0.3691 |  |
| BMI (kg/m²), mean (SD)     |              | 25 ± 4.0    | 24 $\pm$ 3.7  | 0.5504 |  |
| Preop eGFR mean (SD)       |              | 68± 17      | 69 ± 18       | 0.846  |  |
| ASA, n (%)                 | 1            | 6 (13)      | 8 (17)        | 0.7097 |  |
|                            | 2            | 36 (75)     | 36 (75)       |        |  |
|                            | 3            | 6 (13)      | 4 (8)         |        |  |
| Tumor complexity, n (%)    | Low          | 19 (40)     | 20 (42)       | 0.34   |  |
|                            | Intermediate | 26 (54)     | 21 (44)       |        |  |
|                            | High         | 3 (6)       | 7 (15)        |        |  |
| Tumor size (mm), mean (SD) |              | $31 \pm 13$ | 30 ± 12       | 0.405  |  |

|  |       | Post-matching |            |          |
|--|-------|---------------|------------|----------|
|  |       | TP (48)       | RP (48)    | р        |
| Preop eGFR (mL/min/1.73 m²), mean (SD)         |       | 68± 17        | 69 ± 18    | 0.846    |
| 3-6 month postop eGFR, mean (SD)               |       | 66 ± 16       | 65 ± 16    | 0.5214   |
| Change in 3-6 month postop eGFR (%), mean (SD) |       | - 3.2 ± 10    | -4.5 ± 12  | 0.2765   |
| OT (min), mean (SD)                            |       | 151 ± 34      | 124 ± 29   | 0.0002   |
| Console time (min), mean (SD)                  |       | 110 ± 35      | 74 ± 24    | < 0.0001 |
| Ischemia time (min), mean (SD)                 |       | 17 ± 5.4      | 14 ± 5.2   | 0.0343   |
| EBL (ml), mean (SD)                            |       | 52 ± 45       | 33 ± 55    | 0.0002   |
| SM positive, n (%)                             |       | 0             | 2 (4)      | 0.153    |
| Perioperative complications, n (%)             |       |               |            |          |
| Ove  | erall | 6 (13)        | 2 (4)      | 0.1396   |
| PLOS (day), mean (SD)                          |       | 4.0 ± 1.2     | 3.3 ± 0.67 | < 0.0001 |

## **Conclusions:**

RP approach had better surgical outcomes, including shorter operation time, lower EBL, and shorter PLOS for lateral renal tumors, which may suggest that RP approach is the optimal approach for selected lateral renal tumors.