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Transperitoneal vs Retroperitoneal Robotic Partial Nephrectomy for RCC: Perioperative outcomes from a 7-year single centre experience

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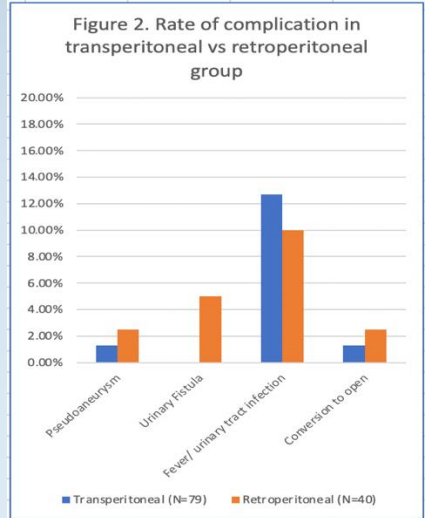
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Objectives

- Retroperitoneal robotic partial nephrectomy allows direct vascular access and reduces complications from pneumoperitoneum and intraperitoneal dissection, but could be challenging due to a smaller workspace and less well-defined anatomy compared to the transperitoneal approach
- We aim to evaluate if perioperative outcomes differ between two approaches.

Patients and methods

- Retrospective cohort analysis
- Renal cell Carcinoma (RCC) patients who underwent robotic partial nephrectomy at Queen Mary Hospital from January 2019 to July 2025.
- Patient data including age, tumor size, RENAL nephrometry score, and preoperative eGFR, were retrieved.
- Operative outcomes, such as operative time, ischemic time, blood loss, length of stay, complications, and mortality, were compared between 2 groups.



Results

- 119 patients in total, 79 underwent transperitoneal robotic partial nephrectomy, 40 underwent retroperitoneal approach.
- No statistically significant difference between median operative time, warm ischaemic time, blood loss, length of stay and complication rate. (Figure 1 & 2)
- No mortality in both groups.

Figure 1. Perioperative outcome of transperitoneal and retroperitoneal groups

	Transperitoneal (N=79)	Retroperitoneal (N=40)	p-value
Mean operative time, mins	184.2 ± 52.2	183.1 ± 58.9	.459
Mean ischaemic time, mins	19.3 ± 8.8	20.5 ± 9.7	.247
Mean blood loss, ml	247.6 ± 280.2	161.1 ± 185.2	.064
Mean length of stay, days	4.4 ± 2.3	4.2 ± 2.3	.350
Complications, N (%)			
- Conversion to open	1 (1.3%)	1 (2.5%)	.312
- Entry to calyceal system	16 (20.3%)	10 (25%)	.279
- Pseudoaneurysm	1 (1.3%)	1 (2.5%)	.312
- Urinary Fistula	0 (0%)	2 (5%)	.080
- Fever/urinary tract infection	10 (12.7%)	4 (10%)	.337

Conclusion

- Both transperitoneal and retroperitoneal approach are effective options in treating RCC, subjecting to patient selection and surgeon's preference.