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Early Outcomes of Retroperitoneal Robotic Partial Nephrectomy for Renal Tumours in A Regional Hospital

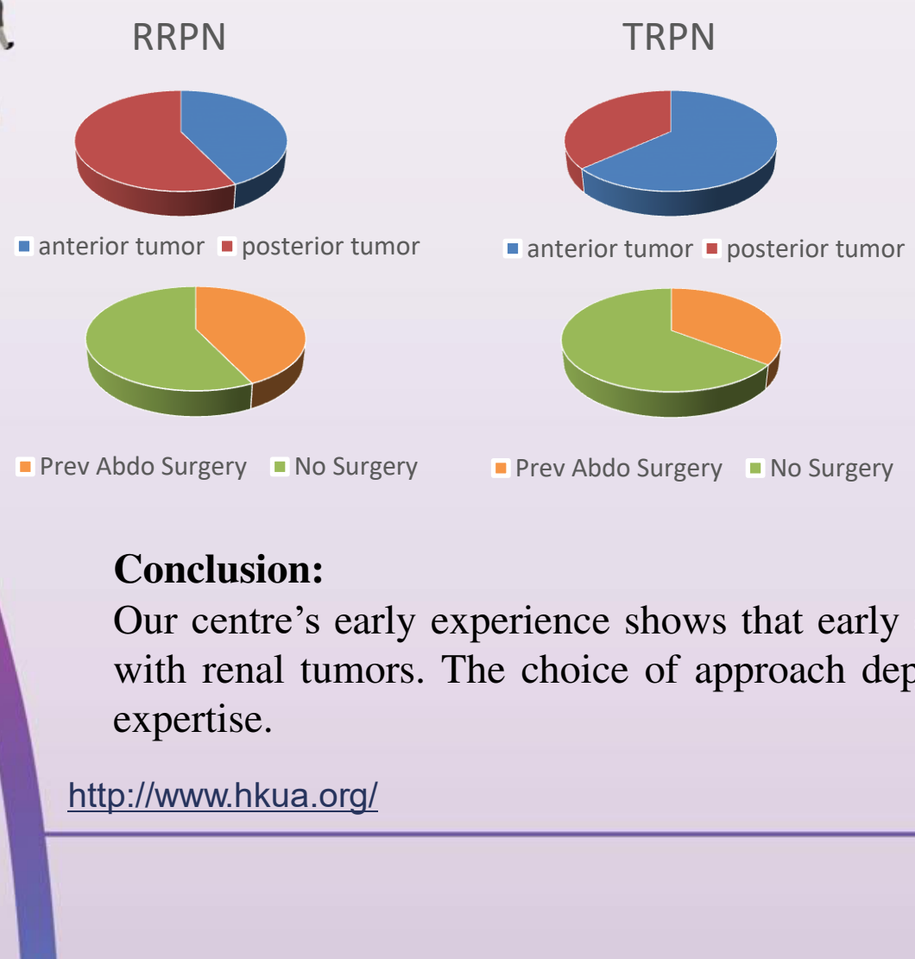
YH Fan, HG Wong, MH Yu, CC Ngo, SK Li, KW Wong, CM Li
Division of Urology, Department of Surgery, Pamela Youde Nethersole Eastern Hospital

Introduction:
Robotic surgery in partial nephrectomy is now considered a standard of care option for its combination of the advantages over conventional laparoscopic. However, debates about different minimally invasive ways to access a renal tumour is still ongoing. Many believe the retroperitoneal approach is advantageous for patients with prior abdominal surgery, could prevent complications caused by the contact of urine with the peritoneum, and also reduce blood loss due to its tamponade effect from the retroperitoneal space.
Our centre has implemented the use of retroperitoneal robotic partial nephrectomy for some renal tumors since 11/2021. This retrospective review aims to evaluate the early outcomes of robotic partial nephrectomies performed in retroperitoneal approach compared with transperitoneal approach.

Patients & Methods:
Outcomes of 38 patients undergoing robotic partial nephrectomy (transperitoneal or retroperitoneal) from 1/2021 to 8/2022 were reviewed. Tumor size, RENAL score, warm ischemic time, blood loss, complications, length of stay, change in renal function (eGFR) and positive margins of all patients were analysed and compared.

Results:
38 patients (7 RRPN, 31 TRPN) with comparable age and ASA grading were analysed. 43% of RRPN had prior history of abdominal surgeries, whilst 35% of TRPN had history of abdominal surgeries. More RRPN had posterior tumors (57%), and more TRPN had anterior tumors (63%).
Patients receiving RRPN had an average RENAL score of 8, those who received TRPN had an average RENAL score of 5.
Operative time, warm ischemic time, intra-op blood loss, length of stay and post-op change in renal function are comparable for both groups.
One TRPN showed positive margin, whilst no cases of RRPN had positive margin involved.
One TRPN suffered from intra-op vascular injury and had to be converted to open total nephrectomy.
One RRPN had to be converted to open total nephrectomy due to dense adhesion.
No RRPN cases had major intra-op complications.

	TRPN	RRPN
Gender	18M, 13F	5M, 2F
Mean Age	60	64
Average ASA grading	II	II
Average RENAL score	5	8



	TRPN	RRPN	
Operative Time	209 min	214 min	p=0.774
Warm Ischemic Time	24 min	27 min	p=0.384
Intra-op Blood Loss	63 ml	158 ml	p=0.497
Length of Stay	6 days	6 days	p=0.993
Change in Renal Function (eGFR)	-0.9	-2.8	p=0.612
Positive margin	1 case	0 case	
Convert to open	1	1	
Convert to total nephrectomy	1	1	
Major intra-op complication	1	0	

Conclusion:
Our centre's early experience shows that early outcomes of RRPN is comparable to TRPN when dealing with renal tumors. The choice of approach depends on the tumor location and surgeon's preference and expertise.