

Single Port vs. Multiport Robotic Surgery for the Upper Urinary Tract: Short Term Peri-Operative Outcome Analysis

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Introduction

- **Aim:**
 - To evaluate the perioperative outcomes of the **single port (SP) robot** compared to those of the **multiport (MP) robot** for procedures of the **upper urinary tract** to determine feasibility, safety, and reproducibility of SP robotic surgery
- **Methods:**
 - A prospective IRB database was queried
 - **1:1 matched SP and MP cohort** of patients, non-randomized
 - Procedures: Robotic nephrectomy, partial nephrectomy, pyeloplasty, & buccal mucosal ureteroplasty
 - Matched based on age, sex, BMI, and when appropriate nephrometry score
 - Measured **peri-operative outcomes**
 - Operative time, warm ischemia time (WIT) for partial nephrectomy, estimated blood loss (EBL), Clavien grade >2 complications, positive margin rates, and readmission within 30 days



Results & Conclusions

	Surgical Approach	Positive Margin								
		OR Time	WIT	EBL	Conversion	LOS	Readmission	Complications	Malignancy	Rate
		Min (STDEV)	Min (STDEV)	cc (STDEV)	%	days (STDEV)	%	Clavien > 2 (%)	(%)	(%)
Partial Nephrectomy (n=9)	SP	117 (22)	21 (5)	69 (58)	0	1.3(0.5)	0	0	77%	0%
	MP	91 (27)	8 (6)	130 (69)	0	1.7(0.75)	0	0	89%	0%
	P Value	<0.022	<0.0019	<0.031	NS	NS	NS	NS	NS	NS
Radical & Nephroureterectomy (n=5)	SP	100 (19)	NA	69 (37)	0	2 (1.2)	0	0	80%	NA
	MP	75 (22)	NA	115 (65)	0	2.1 (0.7)	0	0	100%	NA
	P Value	NS	NA	NS	NS	NS	NS	NS	NS	NA
Urinary Reconstruction (n=7)	SP	158 (53)	NA	33 (30)	0	1.2 (0.4)	0	0	NA	NA
	MP	140 (66)	NA	48 (27)	0	1.78 (0.5)	14%	0	NA	NA
	P Value	NS	NA	NS	NS	NS	NS	NS	NA	NA

- This is an **early series of single port upper urinary tract surgeries** compared to our advanced experience with multiport robotic procedures.
 - When SP is compared to MP, **partial nephrectomy showed worse outcomes** – with an increase in warm ischemia time and OR time.
 - There are **no significant differences** in perioperative outcomes when comparing these two techniques for **nephrectomy and urinary reconstruction**.
- In our initial experience, **single port surgery is feasible and safe** when compared to multiport robotic surgery for upper urinary tract procedures, but further studies are underway.