

# Single Port vs. Multiport Robotic Surgery for the Upper Urinary Tract:

## Short Term Peri-operative Outcome Analysis



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### Introduction

- We aimed to analyze short term peri-operative outcome differences between upper urinary tract surgeries performed with the single port (SP) robot versus the multiport (MP) robot.

### Objectives

- To focus was to evaluate peri-operative outcomes of SP versus MP robotic upper urinary tract surgeries – to determine the feasibility, safety, and reproducibility of single port robotic surgery.

### Results

- In patients undergoing radical nephrectomy, nephroureterectomy, and upper urinary tract reconstructive procedures, there is no significant differences in perioperative outcomes (Table 1).
- In patients undergoing partial nephrectomy, we found the following statically significant differences: SP with longer OR time (117 vs 91;  $p < 0.022$ ) and warm ischemia time (WIT) (21 vs 8;  $p < 0.002$ ). EBL was higher for the MP group (130 vs 69;  $p < 0.031$ ).

### Conclusions

- In our early experience, there appears to be no significant difference in perioperative outcomes when patients undergo SP versus MP robotic procedures for radical nephrectomy, nephroureterectomy, or upper tract reconstruction.
- In patients undergoing partial nephrectomy, single port procedures had longer operative times, higher warm ischemia times, but decreased estimated blood loss. These findings may be partially attributed to the fact that two patients' surgeries in the MP group were performed off clamp.
- In our early experience, SP surgery is safe, reproducible, and offers minimal to no increase in intra- and peri-operative risks compared to MP robotic surgery for upper urinary tract procedures.

### Methods

- Using a prospective IRB database, we compared patients undergoing SP robotic nephrectomy, partial nephrectomy, pyeloplasty, and buccal mucosa ureteroplasty to a 1:1 matched cohort of MP patients. Matching was performed by age, sex, BMI, procedure, and when appropriate, nephrometry score. Perioperative outcomes analyzed using paired t-test and Wilcoxon signed rank t-tests when appropriate.

	Surgical Approach	OR Time	WIT	EBL	Conversion	LOS	Readmission	Complications	Malignancy	Positive Margin 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 and 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	NS	NA