

MP57-11 SINGLE-PORT ROBOTIC PARTIAL AND RADICAL NEPHRECTOMIES FOR RENAL CORTICAL TUMORS: INITIAL CLINICAL EXPERIENCE

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Introduction

The recent FDA approval of the da Vinci® SP robotic platform has led to its use in minimally invasive approaches to urologic malignancies. However, there is little data on its feasibility and safety. We aim to describe our institution's initial experience with the SP robotic system with radical (RN) and partial nephrectomy (PN).

Methods

All patients who underwent PN or RN using the SP system at our institution were reviewed. All PNs were performed off-clamp. Patient demographics, preoperative imaging, operative approaches, and perioperative outcomes were collected and analyzed.

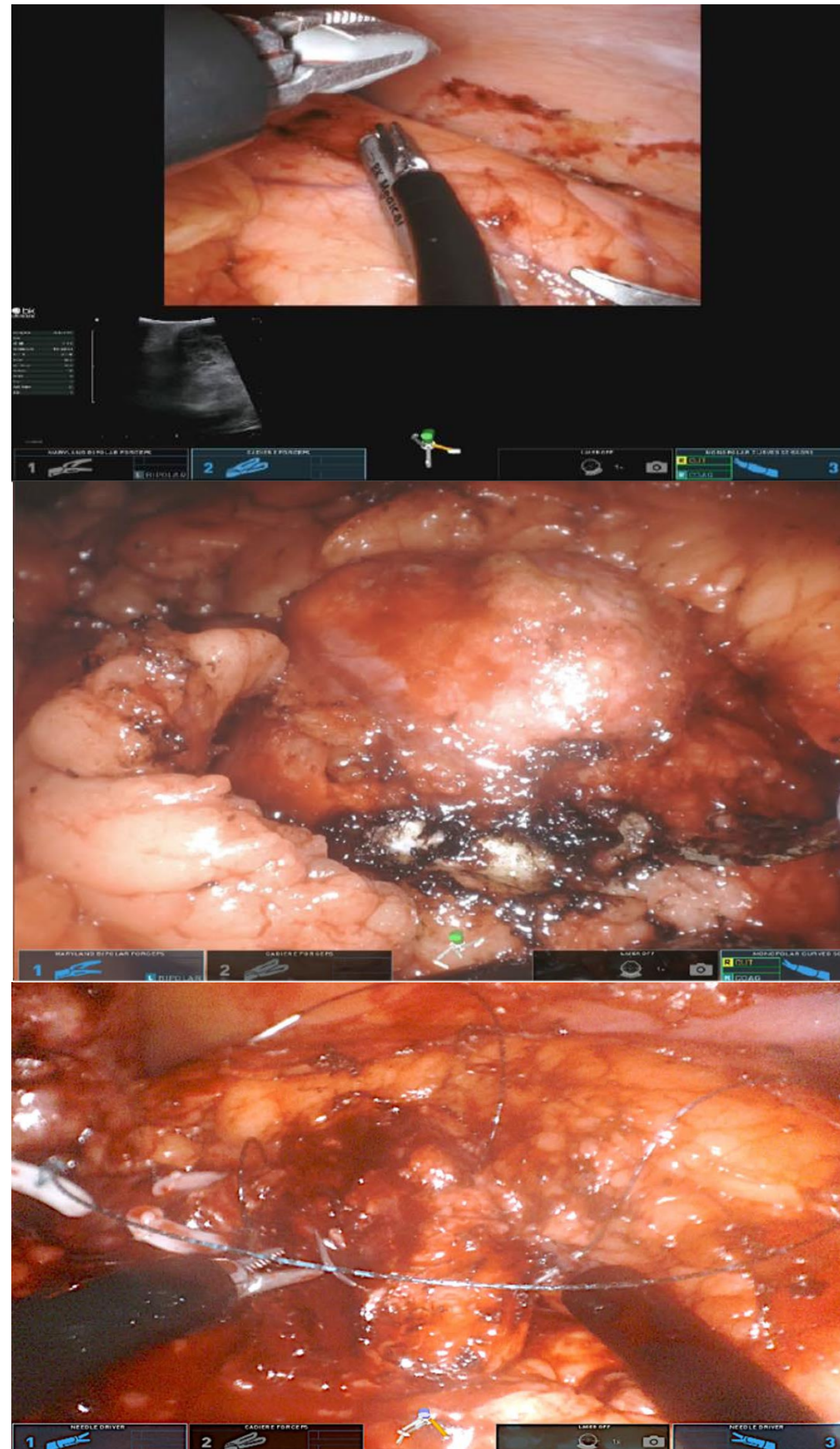
Results

Table 1: Demographic and Imaging Characteristics

Parameter	Partial Nephrectomies (N = 13)	Radical Nephrectomies (N = 3)
Age at Surgery (yr.), mean±SD (range)	58.6±13.9 (38-81)	61.0±1.7 (59-62)
Gender (Males)	12 (92%)	1 (33.3%)
Race		
White	8 (61.5%)	1 (33.3%)
Black/African American	3 (23.1%)	2 (66.7%)
Other/Undisclosed	2 (15.4%)	0
BMI (kg/m ²), mean±SD (range)	31.6±5.7 (24.6-43.8)	28.2±3.3 (26.1-32)
Smoking history	8 (61.5%)	1 (33.3%)
Diabetes	5 (38.5%)	2 (66.7%)
Prior Abdominal Surgeries	5 (38.5%)	2 (66.7%)
ASA Status		
2	4 (30.7%)	1 (33.3%)
3	9 (69.2%)	2 (66.7%)
Side		
Right	6 (46.1%)	2 (66.7%)
Left	7 (53.8%)	1 (33.3%)
Size on CT (cm), mean±SD (range)	3.4±0.9 (2.1-4.8)	3.6±1.8 (1.5-5.0)
Location		
Upper Pole	9 (69.2%)	1 (33.3%)
Interpolar	2 (15.3%)	1 (33.3%)
Lower Pole	2 (15.4%)	1 (33.3%)
Endophytic	5 (38.5%)	2 (67.7%)
Clinical Stage		
cT1a	8 (61.5%)	1 (33.3%)
cT1b	5 (38.5%)	2 (66.7%)

Results

Figure 1: Transperitoneal off-clamp partial nephrectomy using the SP surgical system. a) Renal mass identification with ultrasound. b) renal mass enucleation. c) Tissue compression renorrhaphy



Results

Table 2: Perioperative and pathologic outcomes

Parameter	Partial Nephrectomies (N = 13)	Radical Nephrectomies (N = 3)
Approach		
Retroperitoneal	7 (53.8%)	1 (33.3%)
Transperitoneal	6 (46.1%)	2 (66.7%)
Conversion to Open	1 (7.7%)	0 (0%)
Estimated blood loss (ml), median (IQR)	200 (50-800)	50 (50-400)
Operative time (min), mean±SD (range)	176.1±64.0 (121-349)	176.3±73.8 (117-259)
Immediate postoperative complications (Clavien-Dindo Complication ≥ 2)	3 (23.1%)	2 (66.7%)
Duration of catheter (days)	1.3±1.1 (1-5)	1±0 (1-1)
Length of hospitalization (days)	1.9±1.3 (1-5)	3.3±1.2 (2-4)
Surgical pathology		
Clear cell RCC	8 (61.5%)	1 (33.3%)
Papillary RCC	3 (23.0%)	1 (33.3%)
Chromophobe RCC	1 (7.7%)	1 (33.3%)
Angiomyolipoma	1 (7.7%)	0 (0%)
Tumor size (cm), mean±SD (range)	3.3±0.9 (2.2-4.9)	3.6±1.9 (1.5-5.2)
Sarcomatoid features	0 (0%)	0 (0%)
ISUP Grade		
Grade 1	0 (0%)	0 (0%)
Grade 2	4 (36.4%)	1 (50%)
Grade 3	7 (63.6%)	1 (50%)
Grade 4	0 (0%)	0 (0%)
Lymphovascular invasion	0 (0%)	0 (0%)
Pathologic Stage		
pT1a	5 (41.7%)	1 (33.3%)
pT1b	1 (8.3%)	2 (66.7%)
pT2	1 (8.3%)	0 (0%)
pT3	5 (41.7%)	0 (0%)

Conclusion

The SP surgical system can feasibly perform off-clamp PNs and RN for renal masses in a select subset of patients. However, further study is needed to establish its safety, feasibility, and cost.