



MP57

Ambulatory Robotic-Assisted Partial Nephrectomy: Safety and Feasibility Study

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INTRODUCTION

- Ambulatory surgery is more common in today's medical landscape
- Urologic surgeries that were once considered necessary inpatient are now being performed on outpatient basis
- Nephron Sparing Surgery is standard of care management for small renal masses when technically feasible
- Robotic Assisted Partial Nephrectomy (RAPN) has been shown to decrease postoperative complications and length of stay

OBJECTIVES

- To evaluate the safety and feasibility of RAPN as outpatient surgery in patients with small renal masses

MATERIALS AND METHODS

- We retrospectively analyzed 84 RAPN performed by a single surgeon at an academic medical center from July 2018 to June 2019 and identified patients who were discharged on the same day
- These ambulatory cases were compared to a concurrent inpatients RAPN group in respect to patient characteristics, tumor complexity, and operative variables

RESULTS

- 23 (27.4%) of RAPN were performed as ambulatory
- No patients were readmitted within 90 days postoperatively
- On univariate analysis, ambulatory patients were more likely to have smaller tumor diameters, shorter operative time, and less estimated blood loss
- On multivariate analysis, tumor size and operative time remained statistically significant

Table 2. Univariate Comparison Same Day Discharge vs Overnight Stay

| | Same Day Discharge (23) | Overnight Discharge (61) | P value |
|-----------------------------------|-------------------------|--------------------------|---------|
| Age (average, years) | 57.4 | 58.4 | 0.747 |
| Male (%) | 69.6 | 55.7 | 0.250 |
| CCI (average) | 3.52 | 4.08 | 0.240 |
| Body Mass Index | 29.38 | 29.31 | 0.956 |
| Tumor Size (average, cm) | 2.24 | 3.66 | 0.001 |
| Right Sided Surgery (%) | 69.6 | 57.4 | 0.380 |
| Stage (%) | | | |
| pT1a | 22 (95.6) | 40 (65.6) | |
| pT1b | 1 (4.34) | 18 (29.5) | |
| pT2a | 0 (0) | 3 (4.9) | |
| Transperitoneal Approach (%) | 60.9 | 80.3 | 0.066 |
| EBL (average, cc) | 51.09 | 108.03 | 0.028 |
| Operative Time (average, minutes) | 99.5 | 131.22 | 0.000 |
| RENAL Score (average) | 6.22 | 7.16 | 0.058 |

Table 3. Multivariate Comparison Same Day Discharge vs Overnight Stay

| | Same Day Discharge (23) | Overnight Discharge (61) | P value |
|-----------------------------------|-------------------------|--------------------------|---------|
| Transperitoneal Approach (%) | 60.9 | 80.3 | 0.437 |
| Tumor Size (average, cm) | 2.24 | 3.66 | 0.014 |
| RENAL Score (average) | 6.22 | 7.16 | 0.194 |
| Operative Time (average, minutes) | 99.5 | 131.22 | 0.038 |
| EBL (average, cc) | 51.09 | 108.03 | 0.344 |

RESULTS

Table 1. Demographics

| | Total (n=84) |
|-----------------------------------|----------------|
| Age (average, years) | 58.15 ± 12.17 |
| Sex (%Male) | 50 (59.52%) |
| CCI (average) | 4.09 ± 1.26 |
| Body Mass Index (average) | 29.33 ± 4.64 |
| Tumor Size (average, cm) | 3.25 ± 1.5 |
| Right Sided Surgery (n, %) | 51 (60.71%) |
| Transperitoneal Approach (n, %) | 63 (75%) |
| RENAL Score (average) | 6.91 ± 1.99 |
| Tumor Location | |
| Upper Pole | 32 (38.55%) |
| Mid Pole | 21 (25.30%) |
| Lower Pole | 28 (33.73%) |
| EBL (average, cc) | 92.44 ± 106.75 |
| Operative Time (average, minutes) | 122.1 ± 32.47 |

CONCLUSION

- RAPN can be performed safely as ambulatory in select patients with comparable outcome and without complication or hospital readmission