Robotic Partial Nephrectomy: Initial Experience

Introduction and Objective: To report experience with 11 robotic partial nephrectomy (RPN) operations performed at Kobe University Hospital. Nephron-sparing surgery is an established treatment for patients with small renal mass. The laparoscopic approach has emerged as an alternative to open nephron-sparing surgery, but it is recognized to be technically challenging. The robotic surgical system may enable faster and greater technical proficiency while reducing ischemia time.
Materials and Methods: A total of 11 RPN operations were performed for solid renal lesions between August 2011 and February 2012. Clinicopathological variables, operative parameters and renal functional outcomes were prospectively recorded and analyzed.
Results: Median tumor size was 2.5 cm (range, 1.6-2.8). Transperitoneal approach was performed in 6 patients and retroperitoneal approach was performed in 5 patients. Median warm ischemia time was 22 minutes (range, 16-31). Selective renal artery branch clamping was performed in 2 patients. Mean change in postoperative estimated glomerular filtration rate was 2.39 mL/min/1.73 m^2 (range, -12.8 to 12.8). Histology was renal cell carcinoma in 8 of 11 patients. There were no microscopically positive margins on final pathology. High grade complication, that was nonurological, occurred in 1 patient. There was no conversion to open surgery or radical nephrectomy.
Conclusions: RPN seems to be a safe and technically feasible minimally invasive approach to nephron-sparing surgery even at the institution with surgeons lacking a lot of experiences in performing robotic surgery, with acceptable pathologic and renal function outcomes.