

Robotic Partial Nephrectomy for Renal Cell Carcinoma

Urologists at Penn Presbyterian Medical Center (PPMC) are now performing robotic partial nephrectomy surgery for patients with renal cell carcinoma. A recent addition to the expanding robotic surgery program at Penn, robotic partial nephrectomy surgery greatly reduces blood loss, post-operative pain and patient recovery time when compared to standard open surgery.

Partial nephrectomy requires a period of renal ischemia, during which the surgeon must excise the tumor with a margin of healthy tissue and reconstruct the remaining healthy tissue. The technical difficulties involved in the procedure have limited the widespread application of minimally invasive surgery to partial nephrectomy.

Robotic surgery has several substantial advantages over previous approaches to partial nephrectomy surgery, including the the capability to perform rapid, more precise identification of renal tumor boundaries and faster surgical procedures. The addition of the latest DaVinci S robotic system at Penn adds three-dimensional high magnification imagery, multiple simultaneous-use robotic arms and integrated real-time intraoperative imaging to further complement these capabilities.

Case Study

Mr. L, a 62-year-old man, came to the division of Urology at PPMC for a second opinion after a local urologist recommended open radical nephrectomy to remove a 4.0 cm solid tumor found via CT scan on the upper pole of his right kidney (Figure 1). Subsequently confirmed by MRI, the tumor was consistent with renal cell carcinoma. At presentation, Mr. L reported no significant past medical history. A nuclear medicine renal scan demonstrated equal flow and function in both kidneys. Mr. L's baseline creatinine was slightly elevated at 1.4 mg/dL. Following his consultation, he was scheduled for a robotic partial nephrectomy. Through four small laparoscopic incisions, the tumor and a small rim of underlying normal kidney tissue were excised (Figure 2), and the defect in the kidney reconstructed. Renal ischemic time was 26 minutes. Mr. L recovered well and was discharged on postoperative day three. Final pathology revealed a 3.9 cm clear cell renal cell carcinoma, Fuhrman nuclear grade 3, without evidence of invasion. The surgical margins were negative. Following surgery, there was no discernable change in renal function. Mr. L's recovery was uneventful. Three weeks after surgery he returned to work.

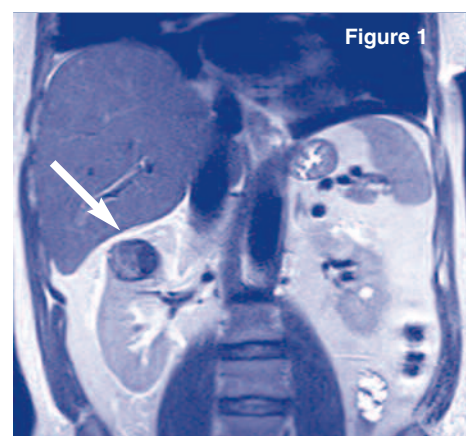


Figure 1
An enhancing 4.0 cm solid tumor in the upper pole of the right kidney (arrow) highly suspicious for renal cell carcinoma.

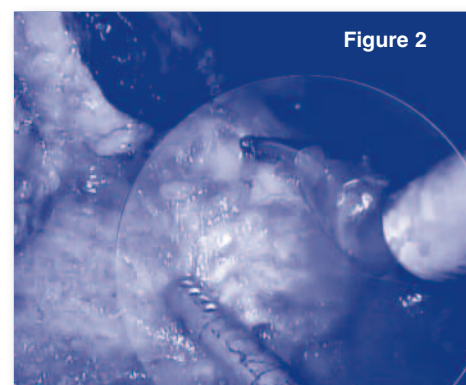


Figure 2
Upper portion of the right kidney, following the removal of overlying perinephric fat, and the tumor on the upper pole of the kidney (circled). The instruments seen include a robotic monopolar scissor (right) and a suction device (lower left).

Our Team of Faculty

In addition to urologic care, the division of Urology at PPMC specializes in minimally invasive laparoscopic and robotic surgery. State-of-the-art equipment and the clinical expertise of our faculty and staff optimize the chance of full urologic health restoration. Our goal is to meet the unique physical and emotional needs of each patient in a caring, professional environment.

C. William Schwab II, MD

Assistant Professor of Surgery
Division of Urology

Currently among the few surgeons with fellowship training in robotic urologic surgery, Dr. Schwab specializes in minimally invasive surgery for kidney and prostate cancer, including robotic prostatectomy and partial nephrectomy surgery, as well as cryotherapy. Dr. Schwab has published numerous clinical articles and chapters on urology and prostatectomy, and presented the findings of his recent research at the 2007 American Urological Association national meeting.

David I. Lee, MD

Chief, Division of Urology
Penn Presbyterian Medical Center

Dr. Lee leads the robotic prostatectomy team at Penn. Having performed more than 1,500 procedures in a career that spans the history of the technology, Dr. Lee is now among the foremost practitioners of robotic prostatectomy in the world. In addition to surgery, Dr. Lee lectures widely, and has published over 100 articles, abstracts and book chapters in the field of minimally invasive urology.

Now on pennhealth.com/robotics



To see online streaming video of C. William Schwab II, MD, performing robotic partial nephrectomy surgery, visit pennhealth.com/robotics.

Access

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