

Da Vinci Robotic Partial Nephrectomy for Renal Tumors

Kidney cancer is an uncommon cancer but with a rising rate of occurrence. The American Cancer Society predicts that there will be about 54,000 new cases of kidney cancer in the United States per year. About 13,000 people will die from the disease this year in the United States. Overall, the lifetime risk of getting kidney cancer is about 1 in 75. Kidney cancer is more common in men than women and peaks in incidence between ages 50 and 70. Smokers and people with a family history of kidney cancer are more likely to get kidney cancer. The incidence of kidney cancer is rising likely due to increasing exposure to environmental carcinogens as well as increased life expectancy and a dramatic increase in incidental detection. The increased detection is largely due to the wide spread use of CT scan and MRI (magnetic resonance imaging) imaging studies. These studies are frequently used to evaluate patients for nonspecific abdominal pain or other symptoms and renal tumors are picked up incidentally.

Key Points:

1. Kidney cancer detection is on the rise due to wide spread use of CT scan and MRI imaging studies.
2. Optimal treatment requires early detection. Since early Kidney Cancer has no symptoms and there is no formal screening program, diagnosis is largely based on incidental detection on CT scan and MRI imaging for other problems.
3. Smaller renal cancers can be effectively cured with nephron sparing partial nephrectomy.
4. In the past a large and painful flank incision and significant bleeding were routine in partial nephrectomy. Recovery time from such a major operation was lengthy and difficult.
5. The Da Vinci Robotic Partial Nephrectomy is revolutionizing kidney cancer treatment by minimizing bleeding, speeding recovery, and maximizing preservation of renal function.

The evaluation of renal tumors is primarily based on the character of the tumor on CT scan and/or MRI. Once these tumors are found on the x-ray, the patient historically would be submitted to a very major operation with removal of the entire kidney through a large open incision in the flank (the side of your chest and abdomen). This particular surgery, radical nephrectomy through a flank incision, can be painful and require a long recovery. Laparoscopy allows the kidney to be removed through some small keyhole incisions and a small hand incision for radical nephrectomy which allows for better recovery but still results in the loss of the entire kidney.

With earlier detection many of these renal tumors can be removed without removing the whole kidney (partial nephrectomy). Partial nephrectomy allows for effective cancer

treatment without losing significant renal function. Partial nephrectomy has historically been performed through the open flank incision rather than with laparoscopy because the surgeon needs to be able to have control of the major blood vessels to the kidney to prevent bleeding. The kidneys receive 12.5% of your entire blood flow every minute and cutting into the kidney to remove the tumor can result in significant blood loss.

Robotic partial nephrectomy is a pure laparoscopic (only 5-6 keyhole incisions) surgery using a robotic surgical platform (the da Vinci robot from Intuitive Surgical) to perform partial nephrectomy. The highly magnified, binocular vision system and the highly dexterous instrumentation allow the surgeon to achieve complete vascular control and excellent reconstructive results without the need for an incision. Using this surgical system the major blood vessels can be temporarily clamped, the tumor excised and the kidney sewn back together with minimal blood loss. The end result is an excellent cancer cure with a much easier recovery for the patient and virtually no loss of renal function.



Surgeon at the daVinci Robotic console.