Facing Kidney Surgery?

Learn about minimally invasive
***da Vinci*® Surgery**

da Vinci® Surgery

The Condition:

Kidney Cancer

Your kidneys are two, fist-sized organs located behind the abdomen on each side of your spine. Kidneys produce urine, which is then stored in your bladder until it is emptied. By producing urine, kidneys remove toxic by-products and excess fluids from your body. This process helps to maintain a critical balance of salt, potassium and acid.

There are many conditions that can affect your kidneys, including kidney cancer. Each year, 208,500 people are diagnosed with kidney cancer worldwide.[1] It is most common in North American countries and least common in Asian and African regions.[1]

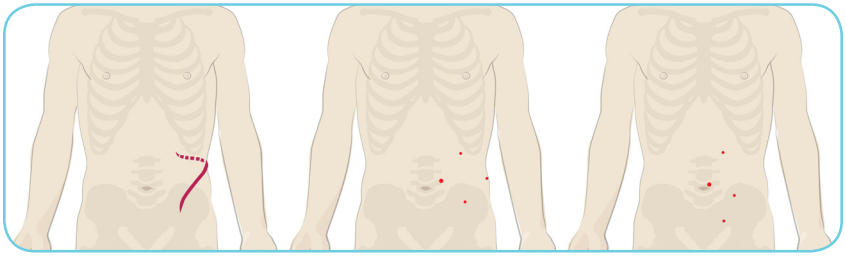
Kidney cancer is more common in men, smokers, people over age 40 and people who are obese.[1,2] Fortunately, with early diagnosis and treatment, kidney cancer can be cured. If found early, the survival rate can be as high as 80%.[3]

Treatments & Surgical Options

Kidney cancer is often resistant to non-invasive treatments like radiation and chemotherapy.[4] Ablation therapies such as cryoablation and radiofrequency ablation may be an option. Ablation uses extreme temperatures in an effort to destroy cancer cells.

Surgery to remove your kidney is known as a nephrectomy. When surgeons remove only the tumor and leave the healthy portion of your kidney, it's called a partial nephrectomy. Surgery is often performed using an open approach, which requires a large incision. Open surgery allows doctors to see and touch your organs as they operate. With minimally invasive surgery (laparoscopy), your surgeon operates through a few small incisions with long-handled surgical instruments and a camera to guide him/her during the procedure.

da Vinci Surgery is another minimally invasive surgical option for patients facing partial nephrectomy. Surgeons make a few small incisions - similar to traditional laparoscopy. The *da Vinci* System features a magnified 3D HD vision system and wristed instruments that bend and rotate far greater than the human wrist.



Open Surgery Incision | **Laparoscopic Incisions*** | ***da Vinci* Surgery Incisions***

*In certain cases, your doctor may need to remove the entire kidney. If so, he/she will enlarge one incision for removal.

da Vinci Surgery:
A Minimally Invasive Surgical Option

da Vinci enables your surgeon to operate with enhanced vision, precision, dexterity and control. *da Vinci* uses the latest in surgical and robotics technologies and is beneficial for performing complex surgery.

If you have been told you need kidney surgery, you may be a candidate for minimally invasive *da Vinci* Partial Nephrectomy. As a result of *da Vinci* technology, *da Vinci* Partial Nephrectomy offers the following potential benefits:

- **Precise removal of cancerous tissue & precise kidney reconstruction[5,6]**
- **Excellent chance of preserving the kidney, where indicated[6]**
- **Low rate of operative complications[6]**
- **Short hospital stay[5]**

As a result of *da Vinci* technology, *da Vinci* Partial Nephrectomy offers the following potential benefits compared to traditional laparoscopy:

- **Shorter operation[7,8]**
- **Shorter warm ischemic time (shorter is better for kidney function)[7,8]**
- **Less blood loss[7]**
- **Shorter hospital stay[8]**

Risks & Considerations Related to Partial Nephrectomy & *da Vinci* Surgery:

Potential risks of any partial nephrectomy procedure include:

- Urine leak
- Internal bleeding
- Injury to surrounding organs

In addition to the above risks, there are risks related to minimally invasive surgery, including *da Vinci* Partial Nephrectomy, such as hernia (bulging tissue/organ) at incision site.[9]

Important Information for Patients:

All surgery presents risk, including *da Vinci* Surgery. Results, including cosmetic results, may vary. Serious complications may occur in any surgery, up to and including death. Examples of serious and life-threatening complications, which may require hospitalization, include injury to tissues or organs; bleeding; infection, and internal scarring that can cause long-lasting dysfunction or pain. Temporary pain or nerve injury has been linked to the inverted position often used during abdominal and pelvic surgery. Patients should understand that risks of surgery include potential for human error and potential for equipment failure. Risks specific to minimally invasive surgery may include: a longer operative time; the need to convert the procedure to other surgical techniques; the need for additional or larger incision sites; a longer operation or longer time under anesthesia than your surgeon originally predicts. Converting the procedure to open could mean a longer operative time, long time under anesthesia, and could lead to increased complications. Research suggests that there may be an increased risk of incision-site hernia with single-incision surgery. Patients who bleed easily, have abnormal blood clotting, are pregnant or morbidly obese are

typically not candidates for minimally invasive surgery, including *da Vinci* Surgery. Other surgical approaches are available. Patients should review the risks associated with all surgical approaches. They should talk to their doctors about their surgical experience and to decide if *da Vinci* is right for them. For more complete information on surgical risks, safety and indications for use, please refer to http://www.davincisurgery.com/safety.

[1] Cancer Research UK. Kidney Cancer Incidence Statistics. Available from: http://info.cancerresearchuk.org/cancerstats/types/kidney/incidence/?view=PrinterFriendly&a=5441#ageandsex. [2] Cancer.org. Kidney Cancer. Available from: http://www.cancer.org/downloads/CRI/CRC_-_KIDNEY_(Adult)_CANCER.pdf. [3] Cancer.org "Survival rates for kidney cancer by TNM stage". Available from: (http://www.cancer.org/Cancer/KidneyCancer/DetailedGuide/kidney-cancer-adult-survival-rates. [4] Cancer.net; Kidney Cancer Treatment. Available from: http://www.cancer.net/patient/Cancer+Types/Kidney+Cancer?sectionTitle=Treatment. [5] Rogers CG, et al. Robotic partial nephrectomy: a multi-institutional analysis; J Robotic Surgery (2008)2:141-143 DOI 10.1007/s11701-008-0098-2. [6] Bhayani SB, Das N. Robotic-assisted laparoscopic partial nephrectomy for suspected renal cell carcinoma. BMC Surgery 2008;8:16. [7] Pierorazio PM, et al. Robotic-assisted versus traditional laparoscopic partial nephrectomy: comparison of outcomes and evaluation of learning curve. Urology. 2011 Oct;78(4):813-9. Epub 2011 Jul 29. [8] Wang AJ, Bhayani SB.Robotic partial nephrectomy versus laparoscopic partial nephrectomy for renal cell carcinoma: single-surgeon analysis of >100 consecutive procedures. Urology. 2009 Feb;73(2):306-10. Epub 2008 Nov 26. [9] Khalifeh, A, et al. Comparative Outcomes and Assessment of "Trifecta" in 500 Robotic and Laparoscopic Partial Nephrectomies: A Single Surgeon experience, The Journal of Urology® (2012), doi: 10.1016/j.juro.2012.10.021.

Your doctor is one of a growing number of surgeons worldwide offering *da Vinci*® Surgery.

For more information and to find a *da Vinci* surgeon near you, visit:

www.daVinciSurgery.com

da Vinci® Surgery

Patient Education Video
Kidney Cancer

INTUITIVE SURGICAL®

The Enabling Technology:

da Vinci Surgical System

The *da Vinci* Surgical System is designed to provide surgeons with enhanced capabilities, including high-definition 3D vision and a magnified view. Your doctor controls the *da Vinci* System, which translates his or her hand movements into smaller, more precise movements of tiny instruments inside your body.

Though it is often called a "robot," *da Vinci* cannot act on its own. Surgery is performed entirely by your doctor. Together, *da Vinci* technology allows your doctor to perform routine and complex procedures through just a few small openings, similar to traditional laparoscopy.

The *da Vinci* System has been used successfully worldwide in approximately 1.5 million various surgical procedures to date. *da Vinci* - changing the experience of surgery for people around the world.