

Considering Surgery for Kidney Cancer?

Learn about minimally invasive
da Vinci® Surgery



da Vinci.Surgery

Surgery Options

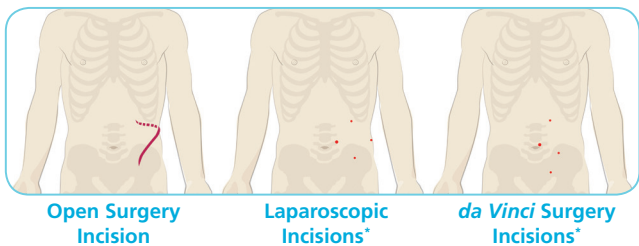
If your doctor believes you have a cancerous kidney tumor and suggests surgery, the following information may be helpful to you.

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 can be performed with open surgery or minimally invasive surgery (laparoscopy).

Open Surgery: Surgery is done through one large incision (cut) which allows doctors to touch your organs as they operate.

Minimally Invasive Surgery: During minimally invasive surgery (also called laparoscopy), the surgeon operates through a few small incisions using long instruments and a tiny camera to guide doctors during surgery.

Another minimally invasive surgery option for kidney cancer patients is **da Vinci Surgery**.



*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 Surgery Option

The *da Vinci* Surgical System enables your surgeon to operate through a few small incisions, like traditional laparoscopy. The *da Vinci* System features special surgical instruments that bend and rotate far greater than the human hand. It also has a magnified vision system that gives your surgeon a 3D HD view inside your body. *da Vinci* technology enables your surgeon to operate with enhanced vision, precision, and control.

da Vinci Partial Nephrectomy offers the following potential benefits compared to **open surgery**:

- › Shorter hospital stay^{1,2}
- › Less pain^{2,3,4}
- › Less blood loss^{2,5}
- › Fewer complications^{1,2}
- › Smaller incisions for less scarring

da Vinci Partial Nephrectomy offers the following potential benefits compared to **traditional laparoscopy**:

- › Shorter warm ischemic time (shorter is better to kidney function)^{6,7}
- › Less blood loss^{6,8,9}
- › Shorter hospital stay^{10,11,12}
- › Fewer complications^{6,7}
- › Similar positive margin rates** ^{2,12,13,14,15,16,17}
- › Better renal (kidney) function rate^{12,18}

The *da Vinci* System is a robotically-assisted surgical device which your surgeon is 100% in control of at all times. *da Vinci* technology translates his/her hand movements into smaller, precise movements of tiny instruments inside your body.

The *da Vinci* System has brought minimally invasive surgery to more than 3 million patients worldwide.

****Surgical margin:** Surrounding tissue that is removed with the tumor. If cancer cells are found in this tissue, it's called a "positive surgical margin". If cancer cells are not found, it's called a "negative" or "clear margin".

Risks & Considerations Related to Nephrectomy:

Poor kidney function often due to limited blood flow, leaking of urine, cut or tear in the spleen, pancreas or liver; bowel injury, trapped air between the chest wall and lung, injury to diaphragm (muscle separating the chest from the abdomen), urinary fistula (abnormal bond of an organ, intestine or vessel to another part of the body), abnormal pooling of urine, limited or cut off blood supply to kidney, abnormal pooling of lymph fluid.

Important Information for Patients:

Serious complications may occur in any surgery, including *da Vinci*[®] Surgery, up to and including death. Risks include, but are not limited to, injury to tissues and organs and conversion to other surgical techniques. If your doctor needs to convert the surgery to another surgical technique, this could result in a longer operative time, additional time under anesthesia, additional or larger incisions and/or increased complications. Individual surgical results may vary. Patients who are not candidates for non-robotic minimally invasive surgery are also not candidates for *da Vinci* Surgery. Patients should talk to their doctor to decide if *da Vinci* Surgery is right for them. Patients and doctors should review all available information on non-surgical and surgical options in order to make an informed decision. Please also refer to www.daVinciSurgery.com/Safety for important safety information.

1. Ghani K, et al. Practice Patterns and Outcomes of Open and Minimally Invasive Partial Nephrectomy Since the Introduction of Robotic Partial Nephrectomy: Results from the Nationwide Inpatient Sample. *The Journal of Urology*. 2014;191(4):907-913. doi:10.1016/j.juro.2013.10.099. **2.** Wu Z, et al. Robotic versus Open Partial Nephrectomy: A Systematic Review and Meta-Analysis. *PLoS ONE*. 2014;9(4):e94878. doi:10.1371/journal.pone.0094878. **3.** Lee S, et al. Open Versus Robot-Assisted Partial Nephrectomy: Effect on Clinical Outcome. *Journal of Endourology*. 2011;25(7):1181-1185. doi:10.1089/end.2010.0670. **4.** Han K, et al. Comparison of Hand-Assisted Laparoscopic Versus Robot-Assisted Laparoscopic Versus Open Partial Nephrectomy in Patients with T1 Renal Masses. *Journal of Endourology*. 2014;150127063131006. doi:10.1089/end.2014.0517. **5.** Vittori G. Open versus robotic-assisted partial nephrectomy: a multicenter comparison study of perioperative results and complications. *World J Urol*. 2013;32(1):287-293. doi:10.1007/s00345-013-1136-x. **6.** Zargar H, et al. Trifecta and optimal perioperative outcomes of robotic and laparoscopic partial nephrectomy in surgical treatment of small renal masses: a multi-institutional study. *BJU International*. 2015;116(3):407-414. doi:10.1111/bju.12933. **7.** Khalifeh A, et al. Comparative Outcomes and Assessment of Trifecta in 500 Robotic and Laparoscopic Partial Nephrectomy Cases: A Single Surgeon Experience. *The Journal of Urology*. 2013;189(4):1236-1242. doi:10.1016/j.juro.2012.10.021. **8.** 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. **9.** Kim J, et al. Perioperative and long-term renal functional outcomes of robotic versus laparoscopic partial nephrectomy: a multicenter matched-pair comparison. *World J Urol*. 2015;33(10):1579-1584. doi:10.1007/s00345-015-1488-5. **10.** 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. 2013;32(1):287-293. doi:10.1007/s00345-013-1136-x. **11.** Kates M, Ball M, Patel H, Gorin M, Pierorazio P, Allaf M. The Financial Impact of Robotic Technology for Partial and Radical Nephrectomy. *Journal of Endourology*. 2015;29(3):317-322. doi:10.1089/end.2014.0559. **12.** Choi J, et al. Comparison of Perioperative Outcomes Between Robotic and Laparoscopic Partial Nephrectomy: A Systematic Review and Meta-analysis. *European Urology*. 2015;67(5):891-901. doi:10.1016/j.eururo.2014.12.028. **13.** Aboumarzouk, O. M. S., R. J.; Eyraud, R.; et al. (2012). Robotic Versus Laparoscopic Partial Nephrectomy: A Systematic Review and Meta-Analysis. *European Urology*. **14.** Zhang, X., et al. (2013). Comparison of peri-operative outcomes of robot-assisted vs laparoscopic partial nephrectomy: a meta-analysis. *BJU International*. **15.** Zhang, X., et al. (2014). Robot-assisted versus laparoscopic partial nephrectomy for localized renal tumors: a meta-analysis. *International Journal of Clinical and Experimental Medicine*. 7: 4770-4779. **16.** Hadjipavlou, M., F. Khan, S. et al. (2016). "Partial vs radical nephrectomy for T1 renal tumours: an analysis from the British Association of Urological Surgeons Nephrectomy Audit." *BJU Int* 117(1): 62-71. **17.** Xia, L., X. Wang, T. Xu and T. J. Guzzo (2016). "Systematic Review and Meta-Analysis of Comparative Studies Reporting Perioperative Outcomes of Robot-Assisted Partial Nephrectomy versus Open Partial Nephrectomy." *J Endourol*. **18.** Hillyer S, Autorino R, Laydner H et al. Robotic Versus Laparoscopic Partial Nephrectomy for Bilateral Synchronous Kidney Tumors: Single-institution Comparative Analysis. *Urology*. 2011;78(4):808-812. doi:10.1016/j.urol.2011.06.012.

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 nearest you, visit:

www.daVinciSurgery.com