

Removal of complex renal tumors performed safely by robotic surgery in selected patients

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Robotic Nephrectomy for Inferior Vena Cava Tumor Thrombus Has Favorable Outcomes and Reproducibility When Performed by Surgeons with Adequate Robotic Experience, According to First Multi-Institutional Report, Published in *The Journal of Urology*.

Renal cell carcinoma can sometimes spread to the inferior vena cava (IVC), the body's largest vein, posing a threat to the heart and brain. Robotic nephrectomy for inferior vena cava tumor thrombus has [favorable outcomes](#) in selected patients compared with open surgery, which can have a high rate of complications, report surgeons in *The Journal of Urology*.

Renal vein surgery can often be managed with minimally invasive laparoscopic techniques, but this is not typically advisable for an IVC thrombus (a fibrous clot), which is surgically far more complex with potentially fatal complications that can occur in the course of removing the thrombus and reconstructing the IVC.

The first known procedure using robotic surgery of renal tumors with IVC tumor thrombi was performed in 2008. Experts from nine leading U.S. medical centers report here on their combined experience of 32 cases since 2008. Each surgeon performed between one and ten procedures for IVC tumor thrombi which ranged from one to 11 cm in length on preoperative imaging. Patient age ranged from 43 to 80 years.

The IVC required cross-clamping in 24 cases. One patient had two renal

veins with two caval thrombi and one patient required a synthetic patch. Surgeries lasted from three to seven hours. None of the operations was converted to open surgery and all but two patients were ambulatory on the day of or day after surgery. Twenty-one patients resumed regular diets the day after [surgery](#). Eight patients had node positive disease and seven patients had distant recurrence 15 months later including four of those with node positive disease.

"This is a complex condition and the complication rate with [open surgery](#) is 12% to 47%, depending on the thrombus level, with a mortality rate of 5% to 10%," explained lead investigator Ronney Abaza, MD, Robotic Surgery Director at OhioHealth Dublin Methodist Hospital. "Using robotic nephrectomy, our complication rate and lack of mortalities compare reasonably with open series with no grade III to V complications, according to the Clavien system, in any patient, including no deaths."

Dr Abaza added, "While complications were relatively minor in our series, it is evident that complications are not entirely avoidable. Even with a minimally invasive approach, the surgical management of severe cancers in mostly elderly [patients](#) will likely involve [complications](#). However, despite the complex and critical nature of these procedures, our series demonstrates favorable outcomes and reproducibility by surgeons with adequate robotic experience."

More information: Ronney Abaza et al. Multi-Institutional Experience with Robotic Nephrectomy with Inferior Vena Cava Tumor Thrombectomy, *The Journal of Urology* (2015). [DOI: 10.1016/j.juro.2015.09.094](#)

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