MedicalXpress

NYU Langone offers new imaging technique to advance robotic surgery for patients

March 29 2011

NYU Langone Medical Center completed its first surgery this month using a new near-infrared fluorescence imaging guided system available on the da Vinci Si Surgical System, the most advanced robotic surgical system in the world. The result is a greatly enhanced visual field, allowing finer assessment and more precise operations. NYU Langone is the first in the world to utilize the enhanced imaging guidance system for selective arterial clamping during kidney sparing surgery for patients with kidney cancer and is among small select group of hospitals in the country and the only one in the northeast to have this technology.

The specially designed camera and endoscopes allow surgeons at NYU Langone's Robotic Surgery Center to capture images of tissue and surrounding blood vessels by injecting a unique fluorescence dye that is activated by near-infrared light.

"Florescence imaging combined with the new 3-D HD camera scopes gives us clear anatomical landmarks to better map the patient's vascular anatomy – it's changing the way we perform surgery," said Michael Stifelman, MD, associate professor, Department of Urology and director, Robotic Surgery Center at NYU Langone Medical Center. "We can now perform complex kidney surgery in a more sparing manner using a minimally invasive approach. The imagery is so precise we can temporarily stop blood flow to only the part of the kidney needing dissection, allowing the rest of the kidney to remain perfused which prevents potential damage to the healthy tissue."

The new technique incorporates a redesigned 3-D HD camera that is mounted on one of the four arms of the da Vinci Si surgical robot. In addition to standard real-time images of the surgical field, the camera can switch to view the images of tissue and surrounding blood vessels illuminated by the special dye when exposed to the near-infrared light.

This technique further advances the benefits of robotic surgery for better patient outcomes. Surgeons utilize computerized, highly functional mechanics and miniaturized surgical instruments to replicate every movement of their hands. The flexibility and precise movements of the instruments at the ends of three robotic arms allow both simple and more complex procedures to be done through only a few small, one-quarter-inch long incisions. Because of this, the procedure is less traumatic to the body and results in minimal scarring and faster recovery times for patients.

Provided by New York University School of Medicine