A Focus on Patient Outcomes in Urologic Robotic Surgery

“When the U.S. Food and Drug Administration approved the use of robotics for general laparoscopic surgery about 15 years ago, it was primarily for the treatment of prostate cancer and heart conditions,” says Jim C. Hu, MD, MPH, the new Director of the LeFrak Center for Robotic Surgery in the Department of Urology at NewYork-Presbyterian/Weill Cornell Medical Center. “It’s interesting that in that time robotics have been applied across the field of urology and with other specialties following. So, importantly, we now have a longer runway to look at some of the outcomes today in our field.”

An internationally renowned authority in the use of robotic and minimally invasive surgery to treat prostate cancer, Dr. Hu joined NewYork-Presbyterian/Weill Cornell in February 2015 from the David Geffen School of Medicine at UCLA, where he served as Director of Minimally Invasive and Robotic Surgery and Professor of Urology. Prior to his tenure at UCLA, he was the Director of Robotic Urologic Surgery and the Director of Prostate Cancer at the Dana Farber Cancer Institute, while also serving as Associate Professor of Surgery at Harvard Medical School and Associate Surgeon at Brigham and Women’s Hospital.

With funding from the National Institutes of Health, the U.S. Department of Defense, and the Lance Armstrong Foundation, Dr. Hu has made important contributions to outcomes research and has been

NewYork-Presbyterian/Columbia Expands Expertise in Urology

The Department of Urology at NewYork-Presbyterian/Columbia University Medical Center has welcomed six new faculty members, further expanding its expertise in the full range of urological subspecialties.

Shumyle Alam, MD

Shumyle Alam, MD, a specialist in pediatric pelvic and urogenital reconstruction, offers expertise in the management and treatment of complex urologic conditions that restore form and function, improving the quality of life for children. He has earned national and international recognition for the treatment of anorectal malformations, disorders of sexual development, bladder disorders, such as neurogenic bladder and posterior urethral valves, complex and reoperative hypospadias, and end-stage renal disease.

Dr. Alam earned his medical degree from the Medical College of Virginia School of Medicine. He went on to complete a residency in urology at the University of Illinois at Chicago, followed by a pediatric urology fellowship at Cincinnati Children’s Medical Center. Following fellowship training, he was an Assistant Professor of the Division of Pediatric Urology and Director of the Urogenital Center at Cincinnati Children’s Medical Center before joining NewYork-Presbyterian/Columbia in 2013.

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At Weill Cornell, Dr. Hu – a former American Foundation for Urologic Disease Scholar and mentor for Urology Care Foundation Scholars – continues his pioneering research in both robotic surgery and urologic cancers, with a particular focus on patient outcomes.

Studying Patient Outcomes in Prostate Cancer Surgery

“Examining patient outcomes is critical, particularly in institutions with high volume experienced surgeons,” says Dr. Hu, who has tracked patient-reported outcomes since the start of his career. Having monitored and evaluated the outcomes of over 2,000 men who have undergone prostate cancer surgery in his practice, Dr. Hu has applied the data he has acquired to refining the operation.

“I think the papers and videos that I have published underscore that urologists worldwide have deemed the information novel and worthwhile,” says Dr. Hu. “This validates the technical modifications and collection of patient-reported outcomes that we have done over time. The fact is that when patients have this operation they want to hit the trifecta, which is to be cancer free, continent, and potent.”

In an investigation of pathologic outcomes and whether or not cancer control after robotic surgery is comparable or better than open surgery, Dr. Hu and his colleagues found that there were less positive surgical margins after robotic surgery. And, as a corollary, there was less need for additional cancer therapies, such as radiation or hormone therapy, within two years of radical prostatectomy. Study results were published last year in European Urology.

According to Dr. Hu, the drawback frequently cited when comparing robotic to open surgery for prostate cancer has been the absence of tactile feedback during the robotic operation. “Many surgeons have noted that during open surgery tactile feedback allows them to feel the tumor, enabling them to make intraoperative decisions,” says Dr. Hu. “They may decide to cut wider if they felt something closer to the edge that would improve cancer control. However, that theory is contradicted by our recently published study showing that there are less positive margins during robotic surgery compared to open surgery. There’s also less need of additional cancer therapy after treatment with robotic surgery.”

Dr. Hu also points out that although robotic surgery does not allow for tactile examination, over time visual evaluation becomes second nature. “Visual feedback is developed with experience,” explains Dr. Hu. “For example, rather than the actual sensation of pulling or having tension or resistance, you are able to respond to the visual cues of these sensations. This is all part of the learning curve as surgeons convert from open to robotic surgery.”

Over the past few years, Dr. Hu has published a series of “Surgery in Motion” papers in European Urology that focus on technique and outcomes in robotic-assisted surgeries. The papers include detailed manuscripts and images with an accompanying video. One such paper addressed robotic-assisted laparoscopic radical prostatectomy and preservation of the bladder neck.

“The purpose of our study was to describe the technique and anatomic landmarks for consistent bladder neck preservation and to evaluate outcomes compared to a standard technique without bladder neck sparing,” says Dr. Hu. “We showed that the robotic approach leads to improved urinary function and continence without compromising cancer control. This was subsequently validated by a randomized study in open radical prostatectomy from Germany.”

Additional studies and journal articles by Dr. Hu involving robotic-assisted laparoscopic radical prostatectomy discuss:

• the impact of prostate size, median lobe, and prior benign prostatic hyperplasia intervention prior to robot-assisted surgery
• reducing neurapraxia to improve sexual function
• nerve-sparing technique and urinary control after robot-assisted laparoscopic prostatectomy
• the learning curve for improving sexual function outcomes based on technical refinements that reduce neurovascular bundle displacement during a nerve-sparing procedure

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Christopher B. Anderson, MD

Christopher B. Anderson, MD, joined the Department of Urology at Columbia in 2014 following completion of fellowship training in urology at Memorial Sloan Kettering Cancer Center. Dr. Anderson earned his medical degree at the Feinberg School of Medicine at Northwestern University, where he was elected to the Alpha Omega Alpha Honor Medical Society, and then went on to complete a residency in urology at Vanderbilt University Medical Center.

Dr. Anderson has particular interest in minimally invasive robotic prostatectomy. During fellowship training under the guidance of Elena Elkin, PhD, he explored the diffusion of robotic prostatectomy and its impact on surgical outcomes. His research also includes active surveillance strategies for men with prostate cancer, ways to measure quality of life after radical cystectomy, and he has also initiated a project to improve the quality of tranurethral resection of bladder tumors.

Dr. Anderson is currently a reviewer for the journal Cancer.

Gina M. Badalato, MD

Gina M. Badalato, MD, who specializes in urogynecology, joined NewYork-Presbyterian/Columbia in 2014. Dr. Badalato earned her medical degree at Columbia University College of Physicians and Surgeons in 2007. In medical school she was a member of the Gold Humanism Honor Society and received the John K. Lattimer Prize in Urology. Dr. Badalato went on to complete an internship in general surgery and a residency in Urology at NewYork-Presbyterian/Columbia, where she also pursued a fellowship in female urology and stone disease.

During residency training, Dr. Badalato helped conduct a Phase 2 clinical trial of intravesical abraxane for BCG-refractory bladder cancer under the supervision of James M. McKiernan, MD.

Dr. Badalato is a member of the American Urological Association, Society of Women in Urology, and American Medical Association.

Doreen E. Chung, MD

Doreen E. Chung, MD, focuses her clinical work in male and female urinary incontinence, pelvic organ prolapse, female urology, and benign prostatic hyperplasia. Dr. Chung also provides expertise in vaginal and minimally invasive surgery for urinary incontinence and pelvic organ prolapse, artificial urinary sphincters for post-prostatectomy male incontinence, and laser procedures for the treatment of benign prostatic hyperplasia, including vaporization and enucleation techniques. She is board certified in urology, as well as in female pelvic medicine and reconstructive surgery, and is a fellow of the Royal College of Physicians and Surgeons of Canada.

Dr. Chung earned her medical degree and completed her residency in urology at the University of Toronto. Following residency, she pursued fellowships in voiding dysfunction, incontinence, and female urology at NewYork-Presbyterian/Weill Cornell Medical Center and Memorial Sloan Kettering Cancer Center. Before joining NewYork-Presbyterian/Columbia, she served as a Clinical Associate in the Section of Urology, Department of Surgery at the University of Chicago Medical Center.

Dr. Chung is actively involved in clinical research and her current investigations focus on clinical outcomes, biological graft use in the treatment of pelvic prolapse, and the effect of diabetes on voiding and incontinence.

Nicholas A. Romas, MD

In a distinguished medical career spanning 44 years, Nicholas A. Romas, MD, brings broad experience and expertise in adult general urologic care, stone disease, and urological oncology to his role as a full-time faculty member in the Department of Urology. Dr. Romas, who joined Columbia in 2014, most recently served as Chairman of the Department of Urology at St. Luke’s-Roosevelt Hospital Center.

Dr. Romas received his medical degree from Columbia University College of Physicians and Surgeons, followed by residency training in general surgery at NewYork-Presbyterian/Weill Cornell Medical Center, and residency and fellowship training in urology at NewYork-Presbyterian/Columbia.

Dr. Romas serves as a reviewer to many scientific journals, and has authored a number of articles, editorials, and book chapters. He serves on the Admissions Committee of the American College of Surgeons. He is also the recipient of numerous honors and awards, including the Dr. John Kingsley Lattimer Award in Urology by the National Kidney Foundation of New York and New Jersey.

David M. Weiner, MD

David M. Weiner, MD, who joined the Department of Urology in 2014, specializes in general urology, with primary areas of interest that include kidney stones, benign prostatic enlargement, and urinary symptoms. Most recently, Dr. Weiner served as Clinical Instructor in the Department of Urology at St. Luke’s-Roosevelt Hospital Center.

Dr. Weiner received his medical degree from the University of Medicine and Dentistry New Jersey Medical School in 1994, where he was elected to the Alpha Omega Alpha Honor Medical Society. He completed his residency in surgery at the College of Physicians and Surgeons at St. Luke’s-Roosevelt Hospital in 1996, followed by a residency in urology at Columbia University Medical Center in 2000.

Dr. Weiner has authored numerous articles and abstracts, and has received a number of awards, including a Gold DOC award from the Arnold P. Gold Foundation.
Advances in Urology

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“Part of the reason why we’ve published these papers is to demonstrate the technical modifications that improve outcomes in my own patients so that others could adopt these modifications and overcome their own individual learning curves,” notes Dr. Hu. “In fact, our paper on preservation of sexual function showed that the learning curve to do that was almost a thousand patients at the time I was working these techniques out.”

Dr. Hu also studied another robotic system, the Magnetic Resonance Image (MRI) targeted ultrasound fusion biopsy, demonstrating that it is associated with more accurate detection of clinically significant prostate cancer for men originally deemed candidates for active surveillance. He now directs the targeted biopsy program. “This is another example of a disruptive technology that helps us find clinically significant cancers and also better stratify men with clinically indolent versus significant prostate cancers,” he says.

As he undertakes this new chapter in his distinguished career, Dr. Hu says, “NewYork-Presbyterian Hospital and Weill Cornell Medical College’s track record of developing innovative, patient-friendly treatments is exemplary. With a team of brilliant physicians and state-of-the-art resources, I’m confident we will make great strides in urologic cancer treatment and robotic surgery.”

Reference Articles


For More Information
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