
LEGENDS IN UROLOGY

Mani Menon, MD
Director, Vattikuti Urology Institute
Chairman, Department of Urology
Henry Ford Hospital
Detroit, Michigan, USA



For this issue of the Legends in Urology, Dr. Mani Menon agreed to be interviewed by a Guest Editor of *The Canadian Journal of Urology* (CJU), Dr. Gabriel P. Haas. Dr. Menon made major contributions to the field of urology and particularly robotic surgery.

CJU: Mani, how did this journey start? How did you end up going to medical school?

MM: I grew up in a small town in India, and when we finished 1 year of college, we took a statewide entrance examination that allowed us to apply to engineering school or medical school. I was accepted at both but my Mother told me, "You're going to medical school." And so, I went to medical school. I matriculated at the newly opened Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Pondicherry, one of two National medical schools.

CJU: Why did you decide to go into urology?

MM: My initial interest was neurosurgery, primarily due to the medical novels written by A.J. Cronin and Frank G. Slaughter, who romanticized the work of neurosurgeons. Towards that pursuit, I started my mandatory training in general surgery at JIPMER. Then I fell in love with a classmate, Shameem. Much as now, she took charge and told me that neurosurgical training was not offered at JIPMER, and that my chances of getting a good residency were much greater in the United States.

I came to the Philadelphia in the winter of 1972, with dreams of becoming a neurosurgeon in my heart....and eight dollars in my pocket. I joined the Episcopal Hospital in downtown Philadelphia as a surgical intern. I was a teetotaler, vegetarian, did not smoke, play golf and "fresh off the boat".... in other words, a total nerd. This created a vast cultural chasm separating me from the other residents. I was dropped from the residency at Episcopal Hospital for "incompetence" but was able to transfer to Bryn Mawr Hospital in Pennsylvania. At Bryn Mawr, I became fascinated with urology, and it supplanted neurosurgery as my choice for residency. I also met Dr. Louis Plzak, a renowned cardiac surgeon. Dr. Plzak wanted me to train in cardiac surgery, but I felt that urology was a more diverse field than cardiac surgery, as the average case load of a cardiac surgeon in 1973 was 16 patients a year. Plzak recommended me to his former intern, Patrick Walsh, who had just been appointed Director of the Brady Urological Institute, at the Johns Hopkins University. Dr. Plzak even offered to pay my salary for the Hopkins fellowship! In a sense, then, I bribed myself into a urology spot. Happily, I was offered a full residency at the end of the year and had the benefit of 6 years of personal mentoring from Pat Walsh. Training with Walsh was a rare privilege, laid the foundation of my academic career, helped me develop clear thinking, encouraged me to question everything in literature, and taught me the importance of discipline in life. In Walsh's laboratory, I helped to develop a technique to identify androgen receptors in the prostate, a technique that is still being used. Thus, my first publication was in the *Journal of Clinical Investigation*. Those years were heady, working with Walsh, Don Coffey, Bob Jeffs, Fray Marshall, Mike Droller, Bill Catalona and Jim Harty to name a few.

CJU: What happened after the Brady years?

MM: After finishing residency at the Johns Hopkins, I joined Washington University in St. Louis as Chief of Urology at the Veterans Affairs Hospital and Director of the Stone Clinic at Barnes Hospital. In a matter of months, I was able to get funding from both the National Institute of Health and the VA for studying oxalate transport in the kidney, as it related to kidney stone formation. I was continuously funded for 20 years and appointed by President George H.W. Bush to the Advisory Council of the National Institute of Diabetes and Kidney Diseases.

In 1983, I moved to the University of Massachusetts as a Professor of Surgery and Founding Chairman of the Division of Urological and Transplantation Surgery. I was fortunate enough to be offered that position, at age 34, making me the youngest Chairman of Urology in the country at that time. (I was also the only member of the division, essentially being on call every day for 2 years). In a clear example of the Peter Principle, I continue to hold a similar position 35 years later.

CJU: What were some of the highlights of the St. Louis and Massachusetts years?

MM: The St. Louis years coincided with the development of the field of endourology. Arthur Smith and Ralph Clayman became very good friends of mine and help me perform some of the first percutaneous nephrolithotomies in the country. In fact, the highlight was having Clayman succeed me as Director of the Stone Clinic at Barnes.

UMass needed someone to start a kidney transplant program, and that became my assignment. I had never done kidney transplants at Hopkins or Wash U, but I was able to recruit Raja Khauli from Andy Novick's program at the Cleveland Clinic to start what became a very well respected transplant program. I then recruited David Diamond to start the Division of Pediatric Urology. The three of us had wonderful times together building a residency program, research laboratories and a clinical practice, in collaboration with the close-knit community of Urologists in Worcester. Khauli went on to become the Chair of Urology at the American University of Beirut and Diamond is now the Chair of Pediatric Urology at Boston Children's Hospital.

CJU: Now we are coming to Detroit. So let us talk about coming to Detroit to lead the Henry Ford Hospital Department of Urology.

MM: Henry Ford was looking for someone to lead the Department of Urology, preferably a Urologic Oncologist. However, Marty Resnick, their Urological Consultant, suggested that they look at me, although my expertise was in metabolic stone disease. To this day, I don't quite understand why the Search Committee recommended me, or why Henry Ford leadership picked me.

At Henry Ford, I was struck by the fact that the average blood loss for a radical prostatectomy, was around 1000 mL-1200 mL per patient even in the hands of expert surgeons. This translates to around 20% of a man's blood volume. If a soldier lost twenty per cent of his blood volume from a war injury, he would be demobilized, and sent back home. But we urologists thought that it was just fine to lose over a liter of blood during a routine prostatectomy.

There had to be a better way of doing the operation. I theorized that blood loss would be less with a minimally invasive surgical approach. We applied to the Vattikuti Foundation, for funding to investigate this hypothesis.

CJU: Let us talk a bit about the Vattikuti Foundation. I would like to ask you about meeting Mr. Raj Vattikuti. How was it that you two cemented a relationship that eventually changed the way surgery was done throughout the world?

MM: Raj Vattikuti had decided that he wanted to make a major contribution (to the field of prostate cancer). I made a presentation to him with four ideas: minimally invasive surgery, pharmacogenomics (now called precision medicine), applying principles of breast cancer treatment to prostate cancer, and creating a pathway for end of life care. These concepts were all "radical" before the turn of the century, but they are all standard of care in 2018. I would like to think that it was the freshness of these ideas that persuaded Padma and Raj Vattikuti to support us, but having Don Coffey speak on my behalf did not hurt my cause.

CJU: How did you come up with the concept of robotic surgery?

MM: Laparoscopic surgery for prostate cancer was a formidable endeavor, but Richard Gaston, Bertrand Guillonau, and Guy Vallencien in France were able to pull it off. We persuaded Guillonau and Vallencien to help us start our program in Detroit. However, I was never comfortable with laparoscopic surgery. My wife saw this long before I did, and she encouraged me to try a different approach than laparoscopy before I drove everyone

around me crazy. I saw Guy try out the da Vinci robot on a trial basis in Paris, and I felt that this was a tool that I could master. But the robot cost over a million dollars. Fortunately, I had the support of Vinod Sahney, Henry Ford Executive Vice President of strategic planning, and the resources from the Vattikuti Foundation, so I was able to purchase a robot for the program. We placed our order within 3 days of FDA approval.

We were not the first people in the world to do robotic prostatectomy, in fact ours was the nineteenth robot commissioned. We were, however, the first non-cardiac robotic program in the world, and the first place to use the robot in a routine fashion. Thus, we were not the first surgeons to use robotics, we were the first to make robotics work! To date, our team performed more than 10,000 robotic procedures.

CJU: You brought so many innovations to the technique of robotic surgery; it would be hard to describe all. Can you describe some of your major contributions in surgical techniques for robotic prostatectomy?

MM: We were the first to create a dedicated robotic surgical program. If memory serves me correctly, in 2001, I performed 97 of 110 robotic operations worldwide. Our first tinkering was approaching the prostate through the space of Retzius, much as we would approach it for an open retropubic prostatectomy. In 2002, we postulated that we would preserve more nerves by incising the prostatic fascia more anteriorly than conventional wisdom dictated. We also showed that erectile function rates varied dramatically depending on the definition used. As an example, in the same series of patients, rates could be as low as 50% or as high as 97%. We soon realized that the biggest postoperative complaint was from the Foley catheter, and we eliminated its use, a modification that bordered upon heresy at the time. We were the first to use the barbed suture for intra-corporeal suturing, and we conducted randomized trials evaluating the Rocco stitch and the Bocciardi technique. We were the first to routinely use the Gelpoint for intraoperative examination and real-time biopsy of the prostate, a step that has led to the development of the da Vinci single port robot.

CJU: You not only perfected the techniques of robotic prostatectomy, but trained so many of today's robotic surgeons, not to mention the countless visitors that came to see and learn your technique. Can you describe some of your students and visitors who became leading robotic surgeons in their own right thanks to your teachings and mentorship?

MM: This question cuts both ways. Many urological oncologists visited us and went away unimpressed. However, some of the early trainees were, Tewari, Hemal, Srivastava, Guru, Sarle, Shah, Badani, Fumo, Eun, Boris, Bhandari, Koul, Pokala, Jeong, Siddiqui, Trinh, Ghani and Abdollah. Most of these individuals are leaders in their own right: I have the privilege of working with Jeong and Abdollah still. Others who may have been peripherally influenced are, Abaza, Brown, Patil, Montorsi, Mottrie, Gaston, and Ahlawat. We helped Vipul Patel and Pepe Wagner start their programs in the USA, David Neal, Roger Kirby and Prokar DasGupta in the United Kingdom, Villavicencio in Barcelona, Ahlawat and at least 15 other centers in India, and units in Hong Kong and South America. I am sure that I am forgetting many others. We started the first live 3-D surgical transmissions in the world, introducing thousands of surgeons to the romance of robotics

CJU: How has your work influenced the world of urology and surgery?

MM: I am told, that as of 2018, over five million patients have undergone robotic surgery, and that a million patients a year undergo robotic surgery worldwide! If we had not laid the foundations of robotic prostatectomy 20 years ago, it is unlikely that any of this would have happened.

CJU: Is there anything else that you are proud of?

MM: In other words, have I done anything else worthwhile with my life? I was probably the first urologist to use flexible instruments to examine the bladder (I used an old nephroscope that was languishing on the OR shelves at the St. Louis VA). With Birdwell Finlayson in Gainesville and Don Griffith at Houston, I helped write an FDA protocol that was used to get ESWL approved in the US.

In 2003, we took a robot to Egypt and showed its feasibility for radical cystectomy, with Mohammed Ghoneim and Hassan Abol-enein in Egypt.

In 2005/2006, we worked with Dato Prof. Shahabuddin in Malaysia exploring the role of, to use, robotics in renal surgery. I am particularly proud of my work with Mahendra Bhandari, Ronney Abaza and Rajesh Ahlawat in developing robotic kidney transplantation.

But perhaps my greatest pride are in the individuals whom I helped to train, and who in turn have taught me so much. And to my team in Detroit, especially Jim Peabody who was there at the very beginning, tempering my enthusiasm with his restraint. Many of them are respected urologists in the community, some are academic giants...perhaps, a couple may even be featured in a future “Legends in Urology. And the tens of thousands of patients whose lives have been touched by our dedication to minimally invasive surgery

CJU: What is next on the horizon for you?

MM: We have realized that the erectogenic nerves are an intimate part of the prostatic capsule. In carefully selected men, it is possible to preserve a sliver of capsule that is cancer-free. Such men have a far lower incidence of post prostatectomy erectile dysfunction. We are carefully refining patient selection and follow up. Precision prostatectomy!

CJU: You have lectured all over the world. Can you point out some of your most memorable Visiting Professorships?

MM: Perhaps a highlight was being the Visiting Professor at Hopkins for Pat Walsh’s 25th anniversary as Chairman. I also spoke at the Mayo Clinic, Washington University, the New England Section (Leadbetter lecturer), Northeastern Section (Slotkin lecturer), the NorthCentral, New York and Western Sections, at the American College of Surgeons, Japanese and European Urology Associations.

CJU: Which of the numerous honors bestowed upon you are you most proud of?

MM: The AUA Gold Cystoscope and Hugh Hampton Young Medals, and the Keyes Medal from the American Association of Genitourinary Surgeons come to mind. The North American Robotic Urological Surgeons named their medal after me and asked me to give the inaugural address. It was a privilege to serve on a Presidential Advisory Board to Bush/Clinton. I was humbled by receiving the BC Roy National Award from the President of India. It was an honor to get the Platinum award from European Urology, and to become an honorary member of the European Urology Association. I was thrilled to be inducted to the Society of Scholars at Johns Hopkins University, and to be featured in the inaugural permanent exhibit at the Smithsonian National Institute of American History recognizing the contribution of over 400 years of immigrants to our nation.

CJU: Behind most successful men, there is a supportive woman. Can you tell us about your family?

MM: My wife Shameem has been the wind beneath my wings.... for 44 years and 5 months. We met at Medical school when we were 16 y old, and married 7 years later. I would not have come to the United States or started robotic surgery but for her. We have two adult children. I wished they would read this article: our son would be proud of us: our daughter would actually believe this. We have six grandchildren, and my greatest joy is volunteering at their school, running a recess activity, PaG Club, for over 300 elementary school children.

CJU: Any words of wisdom to future generations of urologists?

MM:

Primum non nocere-

And, “Success is most often achieved by those who don’t know that failure is inevitable” Coco Chanel

Or

If I had asked people what they wanted, they would have said, “faster horses”... Henry Ford, on innovation

**Mani Menon, MD
Henry Ford Hospital
Detroit, Michigan, USA**