
LEGENDS IN UROLOGY

John J. Mulcahy, MD, PhD, FACS
Emeritus Professor of Urology, Indiana University
Clinical Professor of Urology, University of Alabama
Madison, Alabama, USA



I'd like to thank the editors of *The Canadian Journal of Urology* for the opportunity to present some of the highlights of my career, recognizing some of the individuals who have helped in supporting and encouraging me in achieving my goals. When I was asked to contribute I felt honored and in no way did I consider myself a "Legend". As I look over the last 50 years of my career I'm happy that I've made some contributions to Urology and specifically to the field of prosthetics and have made a positive influence on the lives of many urology residents and fellows.

During my years at Georgetown University Medical School Dr. Bill Maxted, an Instructor in Urology, had just finished his residency and was very interested in teaching the students. He showed up in anatomy lab and lectured one on one on pelvic anatomy, he went through IVP interpretation individually with the students, and he painted urology in a very positive light. Thanks to Bill's personal interest in students a high percentage of Georgetown medical graduates chose urology as a career over the years. One of the highlights of my career was being invited in 2011 as one of two guest presenters (with John Libertino) at the festschrift in honor of Bill's retirement after 50 years as a urology faculty member. My father, Tom Mulcahy, was also a urologist and started practice in New York City as a junior partner of Dr. Terry Townsend who was one of the founders of the AUA in 1902. My dad was always positive about his work and often took me with him to events of the New York Section of the AUA where I met and observed some of the giants of the era such as Latimer, Marshall, Nagamatsu, and Waterhouse. While in college I also worked in the steroid laboratory of Dr. Perry Hudson at Delafield Hospital in upper Manhattan. Perry was a very good perineal surgeon and a wise clinician. The summers in the laboratory gave me an appreciation of the scientific method and the meticulous attention to minute details needed for success in basic research.

I spent a year of internship at St. Vincent's Hospital in New York City. It was a very enjoyable place to work, and I saw a plethora of pathology. After that I moved to the Midwest and began urology residency at the Mayo Clinic in Rochester, Minnesota. There were many great instructors there, and Bill Furlow, Larry Greene, and Dave Utz were the ones I remember best and who were pleasant to work with as well as great teachers. I soon developed an interest in research and was inclined toward an academic career. During the 1960's there were virtually no clinical fellowships in urology and any basic research regarding the urinary tract was being done by nephrologists or basic scientists. The urologists put me in touch with the nephrologists and physiologists to format a plan for a research fellowship which at the time were being generously funded by the National Institutes of Health. Mayo had no one working in the area of renal research, and so I chose to work at the University of Michigan in the physiology department under the direction of Drs. Richard Malvin and Arthur Vander who were two of the luminaries in the field of renal physiology at the time. The department was also regarded very highly on a national level and had very generous research funding. I decided to put in some extra effort and enrolled as a PhD candidate in the department. It was psychologically difficult returning to the classroom for coursework, but Dick Malvin was very approachable and an excellent teacher. My lab was adjacent to that of Horace Davenport, the department chairman, and we had many long discussions about the history of medicine and research principles. He admired my work ethic as we were the only two people to arrive and begin the day's activities before 7:00 A.M. I also finished my research and thesis defense in less than 3 years, a record for the department. The years at Michigan taught me that my heart lay in the operating room, not in the laboratory, and I returned to Mayo to complete my remaining 2 years of urology training. As I was completing urology residency I was even more interested in an academic career. I enjoyed teaching which I had ample opportunity to do at Michigan, and I enjoyed clinical studies and publishing papers. Bill Furlow and I completed a

project determining the effect of formalin on dog bladders and I used that project as my Master of Science in Urology thesis in the Mayo Graduate School of Medicine. With a little extra classroom work I picked up an MS in Urology as I finished residency. By that time I was considered a professional student. With all the degree credentials I had a choice of a good number of academic jobs and chose the University of Kentucky in Lexington. Ward Griffin was chairman of the surgery department and Bill McRoberts was chief of the urology division. Both were very affable individuals and the personality of the group was what swayed my decision. I started out as a general urologist and saw tremendous uropathology coming out of the hills of Eastern Kentucky. Bill McRoberts advised me to purchase a good camera and keep it locked in my office. When an interesting lesion appeared in the emergency room, clinic, or in the operating room I would get my camera and record it for posterity. A plastic surgeon advised me as to what lenses to buy and the appropriate film and camera settings to use. When I left practice 32 years later I left behind over 10,000 2"x2" slides. The good photos I had scanned into Powerpoint. I was invited to be the urologist at The Cardinal Hill Hospital a rehabilitation facility where the patients were mostly those with spinal cord injury or spina bifida. I began work with the neurosurgeons performing transcutaneous sacral blocks and rhizotomies in the paraplegics to create atonic bladders from spastic bladders to facilitate intermittent catheterization. I instituted intermittent clean catheterization combined with oxybutynin in the spina bifida patients and was successful 80% of the time in achieving urinary continence. The previous urologist had performed ileal conduits on these children and many of the mothers asked if the conduit could be reversed so that the child could be a candidate for intermittent catheterization. I had met Hardy Hendron, a pediatric surgeon from Boston, who was doing such a thing and calling it "undiversion". Hardy invited me to spend a few days in his operating room learning the technique. At that time his fellow taking post residency pediatric urology training was Mike Mitchell, who was to be my future partner. With my interest in neurourology I visited Dr. Brantley Scott in Houston. He was conducting week long courses on placement of penile implants and artificial urinary sphincters, two devices which he had pioneered a few years earlier. These surgical workshops were combined with tutorials in urodynamics and demonstrations of the new machines which were being developed to perform cystometry, urethral pressure profilometry, etc. After these courses I returned to Kentucky and was one of the first urologists to place a penile implant there. Although the clinical experience at Kentucky was plentiful, there was discord in the department and in the medical school as a whole over finances. John Donohue, chairman of the urology department at Indiana University, was our visiting professor at University of Kentucky and we soon bonded. We had similar backgrounds, New York City, Holy Cross College, Irish ancestry, and he was impressed with my curriculum vitae as I was finishing residency but didn't have an opening on his faculty at the time. Such an opening now existed and he offered me a position at Indiana. Indianapolis was also the center of my wife's family with all her close relatives living in the area. Financially it was going from the ridiculous to the sublime. In July of 1978 Mike Mitchell, Randy Rowland, and I joined the urology faculty at Indiana University.

John Donohue asked me to be the chief of urology at the Wishard Memorial Hospital, the county hospital for Indianapolis and the surrounding area. There I directed the urology program with two residents and blended my private patient surgeries with those that the residents lined up from the urology clinic for 20 years. My interest in urologic prosthetics grew. John Donohue was in charge of the AUA Office of Education and asked me to present a course on penile implant complications at the national meeting. "If you do a good job, they'll ask you back next year", he said. I repeated the same course with updates every year for the next 25 years. My reputation in prosthetics grew as I published papers on the topic and was invited to give lectures at home and abroad. I was asked to participate in clinical trials of virtually every penile implant which came to market and also in trials of some that never made it. My surgical referrals also increased especially of complex cases. Whenever I encountered an interesting or unusual case I'd take a picture with my high quality camera which I kept secured close to the clinic and the operating room. These pictures enabled me to supplement my talks with the actual before and after images of the work I'd performed. With wide access to complex cases I was able to accumulate various series of a substantial number of patients and pioneered such techniques as the double cuff artificial urinary sphincter, the ventral penile approach to placing unitary penile implants, the windsock for treating proximal crural perforations, and the natural tissue repair of penile implant cylinders which had extruded from the corporal body distally.

The most devastating complication of prosthetic surgery was an infection around the device which necessitated removal and difficult replacement at a later date. In the early 1990's I was repairing a penile implant on a prominent banker from Southern Indiana with a very attractive and supportive wife. During the procedure pus was encountered and the appropriate treatment would have been device removal. A few years prior to that Brantley Scott presented an abstract at the national AUA meeting in which he described removing the implant in

the face of infection, washing the wound copiously, and placing a new implant at the same procedure with modest success. I decided to try this novel approach on the banker and after removing all the prosthetic parts asked the circulating nurse what solutions she had which were antiseptic. We used betadine, hydrogen peroxide, and an antibiotic solution, vigorously washing all the implant cavities employing an Asepto syringe. The urology resident suggested using a water pick to pressure wash the wound and he had recently rotated on the orthopedic service and was familiar with its operation. We then repeated our antiseptic irrigations to make sure every portion of the wound in contact with the infected implant was thoroughly washed. The operating field was a mess, and we changed all the drapes and instruments before placing a new sterile penile implant. The patient did fine with no signs of infection in the new prosthesis. Over the next 3 years I encountered 14 more infections of implants and treated them with the same protocol with success in the range of 80%. I reported this series at two meetings and it was received with mixed sentiments. Some thought that it was bad surgical practice placing a foreign body in a potentially infected field, others were more open minded and gave it a try themselves. When word spread of this new approach to implant infection occurring in Indiana about three patients a month with infected penile implants appeared at my doorstep for this salvage procedure. Most were coming from the Midwest but some arrived from the East and West Coasts. The vast majority of the salvage procedures were performed as add on cases in the middle of the night as we already had a full schedule the next day. One of the scrub nurses who routinely helped on the cases affectionately named our cocktail of irrigating solutions the “midnight martini”. Most of the referring urologists were capable of performing the washout and replacement, but were concerned with the legal implications of placing a foreign body in the presence of an infection. In a decade I had accumulated a series of over 100 patients treated in this fashion with an 84% success rate. These results have stood the test of time and this approach to implant infections is now embraced by many urologists.

In the late 1990's it was becoming increasingly difficult running a practice with private patients, conducting clinical trials, and supervising the urology residents' clinical activities at the county hospital. Medicine was changing. Medicare and private insurance reimbursements to hospitals and physicians were dramatically declining and regulations regarding supervision, documentation, and patient privacy were appearing at every turn. The hospital was instituting cost-cutting measures and when I requested additional space for our clinical trial nurse coordinators and my growing practice, the administrators gave the space to the volunteer candy strippers instead. The handwriting was on the wall and as the senior urologist in the department I transferred my activities from the county hospital to the university hospital. There I continued my activities of conducting clinical trials, teaching residents, fellows, and students, and patient care. My prosthetic practice grew, especially complex cases referred from distant locations. The climate in the department grew tense as meetings always degenerated to discussions over money which was becoming ever less plentiful. I left Indiana University in 2006 and moved briefly to Arizona. The climate in the summer there was miserably hot and we soon moved to Alabama to be closer to family. I now am credentialed at a number of Veterans Administration Hospitals and travel 2 to 3 times a month to teach prosthetic surgery to urology residents and give lectures at grand rounds and society meetings on topics related to urinary incontinence and erectile dysfunction. I also continue to publish mostly editorials, field questions on the telephone or through email from other urologists regarding prosthetic placement techniques and management of complications, and review papers under consideration for publication in urology journals. I still enjoy teaching and perform about 75 prosthetic procedures a year in the VA system. I also enjoy getting 8 hours of sleep each night instead of the 5 hours I managed while at Indiana University. The remainder of my time is spent mostly reading things I never had the time to read when working full time, and visiting grandchildren. I look back on my career with great satisfaction having interacted with many wonderful people, having taught many residents and fellows who are now themselves very successful, and most importantly having made the lives of many patients and their families that much better.

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