

From retrograde pyelography to robotic prostatectomy: history of urology at the University of Western Ontario

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To trace the origin of the Urology Residency Program at the University of Western Ontario in London, one has to start first with the inception of the university in 1881. The university was purely sectarian at the time, under the guidance of the Church of England in Canada. Huron College, a School of Theology formed by the Church of England, was a major moving force in setting the groundwork for establishing the university (under Bishop Benjamin Cronyn's direction). In connection with the university, a medical faculty was established, formed by practicing physicians of London, Ontario, and the surrounding towns. Bishop

Cronyn's successor, Archdeacon Isaac Hellmuth, developed the Hellmuth Boy's College, which in 1882, was taken over by the Faculty of Medicine. Archdeacon Hellmuth was credited with obtaining the charter for a university. He converted Hellmuth's Boy's College into "Western University" and formally organized the Faculties of Divinity, Art, Law, and Medicine.

Humble beginnings

The first medical school was located in a small cottage in the downtown area at the turn of the last century. This school was actually privately owned by the professors and their heirs, in possession of shares. At that time, professors received \$1 to \$2 per lecture until 1909 when remuneration was actually raised to a princely sum of \$4.50-\$5 per lecture. Most of the clinics were held in the London General Hospital which had opened in 1875. It was subsequently renamed Victoria Hospital in 1898 with 104 beds, in honor of Queen Victoria. St. Joseph's Hospital opened with 10 beds in 1888 under the direction of the Catholic Sisters. The university had been renamed "The University of Western Ontario", now non-sectarian, "ward-of-the-Ontario-Government."

Early endoscopic surgeries

In the early 1900's, all "surgeries" in Southwestern Ontario were in the domain of the General Surgeons. The first formally trained genito-urinary surgeon to establish his practice in the London, Ontario region was Dr. Eldon Busby. He had graduated from the Harvard University Medical School and joined the "Harvard Surgical Unit" in 1917 as a Lieutenant in France. After his urologic training at Ann Arbor, Michigan, he came to London in 1923 as an assistant professor of genito-urinary surgery. In his early years, Dr. Busby had to endure resistance from the medical community and especially other surgeons to establish his urology



practice. Pathologic conditions including bladder calculi and bladder outlet obstruction and surgery of the external genitalia were in the domain of the 'general surgeons' until Dr. Busby established his reputation in transurethral resection of the prostate. Since the cystoscope and various transurethral procedures including retrograde pyelography were a mystery to non-urologic surgeons, urology as a surgical specialty became firmly established in southwestern Ontario by Dr. Busby in the 1930's. He performed the first T.U.R.P. in southwestern Ontario in 1932. He was a master of 'tunneling' resection and from the period 1945 to 1949 he did 1086 resections, estimated at close to 95% of the patients with prostatic obstructions whom he had seen!

In addition to having to deal with the personalities and referral patterns, there were unexpected challenges on the medical side for Dr. Busby while establishing Urology in the region. Dr. Busby owned his own cystoscopes and resectoscopes. He encountered problems initially with transurethral resections with what appeared to be a mechanical malfunction of the electrosurgical unit or the resectoscope itself. Dr. Busby took the instrument to Toronto and his colleague, Dr. A. Willensky, tested the instruments there and they worked fine. It was finally deduced that the difference was the irrigation fluid. The water from municipal sources in Toronto was lake water which was soft water, and in London the water was 'much harder' from wells, containing numerous electrolytes which interfered with the electrical current transduction. Dr. Busby then distilled and sterilized the London water and the resection worked fine. It was much later that specially packaged glycine came into use for transurethral resections.

The first professors

Dr. A. D. McLachlin, the first fulltime Professor of Surgery at UWO, and still referred to affectionately as 'the Chief' more than a half century later, formally established the Surgical Divisions of General, Neurosurgery, Orthopedic, and Urologic Surgery. Dr. Lloyd McAninch was appointed the first Chief of Urology at Western in 1954.

Dr. Lloyd McAninch graduated from UWO medical school and did his Urology Residency in Toronto. He started as Dr. Busby's assistant in 1946 and his monthly stipend was \$150 a month for the first 6 months which was increased to \$200 a month for the next 6 months. This was further increased to \$250 in the second year. Dr. McAninch was Dr. Busby's highest paid assistant ever when his annual salary was \$5000 in 1949. Dr. Busby also paid for his

assistants' gasoline for the car but not the oil change or the maintenance costs. Years later, as Head of Urology, Dr. McAninch received a yearly "academic stipend" of \$250. As an attending urologist at the Veterans' hospital, Westminster Hospital, he was paid \$35 per half-day, for two half-days a week. The rest of his income came from his private practice.

Dr. McAninch recalled Dr. Busby mentoring him on treatment of bladder tumors. Their "standard" treatment at the time for superficial papillary tumors was an office-based transurethral fulguration with a Bugbee electrode on a portable Bovie electrosurgical unit without anesthesia. Dr. McAninch was instructed "when the patients complained of a burning sensation, the fulguration was down to normal bladder wall. Partial cystectomy was used for "deeper lesions", supplemented by "deep x-ray therapy".

Dr. McAninch was active in the implementation of the 'Columbus Plan' in 1954, when the practice of Dichotomy was put to rest with passage of a bylaw whereby physicians, before they were granted hospital privileges, were required to sign an agreement to "not split fees".

The son of Eldon Busby, Dr. Stuart Busby, completed his Urology training in Ann Arbor under Dr. Reed Nesbit. Dr. Busby Jr. preferred the "single-hand" Nesbitt resectoscope whereas Dr. McAninch was trained on the two-handed Stern-McCarthy model. The surgeons owned their instruments and Dr. McAninch bought Dr. Busby Sr.'s Stern-McCarthy for \$50.00.

By the mid-1950's, St. Joseph's Hospital had become part of the teaching program as the attending surgeons had privileges at both the Victoria Hospital and St. Joseph's. Westminster Hospital, being the Veteran's hospital, had become an important training site for Urology trainees due to the prevalence of bladder, prostate, and urethral pathology. Skills in transurethral resections and urethroplasties for stricture disease were perfected in this institution.

Significant early contributions

Dr. McAninch made a significant contribution to the management of chronic renal failure, an endemic problem in southwestern Ontario, collaborating with the nephrologists in starting a renal dialysis program. Dr. W. J. Kolffe built one of the earlier "artificial kidneys" at Victoria hospital in late 1940's, a monstrosity consisting of a large drum wound from one end to the other with flat plastic tubing, and rotated in a water and electrolyte bath. The procedure was reserved mainly for acute renal failure, usually as a single dialysis. On the surgical side, Dr. McAninch along with

the vascular surgeon, Dr. Nick Gergely, performed the first kidney transplant in southwestern Ontario in 1965. Three renal transplants were done in 1966 at Victoria Hospital. Twenty years later, 94 were performed in 1 year as part of the 'multi-organ transplant service'.

On the oncology front, Dr. McAninch and colleagues contributed to improvements on the management of bladder cancer patients. He reported at the Canadian Academy of Urological Surgeons in 1966 the peri-operative mortality rate for radical cystectomy and ileal conduit diversion had dropped from 29.1% for the period 1956-1963 to under 4.2% in 1965-66. Dr. McAninch continued on as Chair of the Division of Urology until his retirement in 1974. His contributions to Canadian Urology were recognized by his peers and he was elected to serve as President of the Canadian Urological Association and the Northeastern Section of the American Urological Association.

Note-worthy discoveries

During this time several significant events took place at the University of Western Ontario which have had an impact on the practice of Urology, and in particular, uro-oncology. Dr. R. L. Noble described his experimental rat model "the Noble Rat", a model which has been used worldwide in prostate cancer research, pertaining to hormonal management of prostate cancer. One of the vinca alkaloids, vincristine, was also discovered in the 1950's at the University of Western Ontario by Dr. Noble and colleagues, providing an effective chemotherapeutic agent against testicular cancer as well as other malignancies.

In the news

At the London Regional Cancer Center, there was also major excitement in 1950. The first two teletherapy units being constructed in Canada using a new 'designer' radioactive isotope Cobalt-60 as the radiation source were made available to the Saskatoon and the London Regional Cancer Centres, respectively. The first Cobalt-60 teletherapy treatment in the world was delivered in London on October 6th, 1951, followed by the Saskatoon Clinic on November 8th. There are still lingering stories of the legendary wife of a high profile South American political leader coming to London for her external beam radiation therapy in the early 1950's.

Early faculty additions

Between the mid-1950's and early 1960's, several other Urologists joined the staff at Western, all of whom have

made a contribution to Canadian Urology. Dr. Lionel Reese, born in Guatemala, medical graduate of Queen's University, received his urology training at McGill. He joined the staff at St. Joseph's Hospital. In addition to the 'usual urology practice', Dr. Reese established the dialysis unit at St. Joseph's and also became interested in nuclear medicine. He became one of the first individuals to receive Fellowship from both the medical and surgical sides of the Royal College. He established a very active nuclear medicine department and brought the first MRI unit in the country to St. Joseph's Hospital.

Dr. Jack Wyatt and Dr. Jack Sales first joined the faculty in the early 1960's. One of Dr. Wyatt's contributions was his work with Dr. McAninch on multi-modal treatment for advanced testicular cancer in the pre-cisplatin area, by using high doses of methotrexate. Dr. Wyatt took over from Dr. McAninch as Chair of the Division and Residency Program Director in 1974. Under his guidance, residents' seminars and didactic sessions were more formalized. Dr. Wyatt, however, will be more remembered for his common-sense approach and his common touch in his dealings with patients, residents and colleagues. He served as President of the CUA in 1984.

Dr. Jack Sales contemporaneously joined the faculty in the early 1960's and his main practice was at St. Joseph's Hospital. He was a prolific surgeon. One of Dr. Sales' major contributions to the U.W.O. urology program was persuading the Ontario Government to place the province's second lithotripsy unit in London. This unit, under the direction of Dr. John Denstedt (vide infra) quickly became one of the most active ESWL units in the world, servicing a large part of Ontario for its lithotripsy needs. Dr. Sales worked tirelessly for the CUA. It was mainly under Dr. Sales (and Dr. Normand Sullivan of Sorel, Quebec) that the CUA Scholarship Foundation came into prominence. Dr. Sales served as President of the CUA in 1999.

University Hospital

With ongoing expansion of the University and the medical school, the need for a 'university hospital' to accommodate more complex tertiary care patients and to provide more facilities for didactic training became apparent and in 1972 University Hospital was opened with all attending staff being full-time geographic (GFT) members of the University. One of Dr. McAninch's proposals was to have a 'Nephro-Urology Unit' where urologists and nephrologists work side-by-side. This proved to be a successful model at the University Hospital where renal transplantation became a major focus. Dr. Cal Stiller, a nephrologist,

spearheaded the initial international clinical trials on a new immunosuppressive agent, Cyclosporin A, in the early 1980's. The urologists continued to play a key role in renal transplantation with contributions from the new recruits in the early 1970's, Drs. Eric Shepherd, Jack Sharpe, and Phil Hayman. This group was joined later by Dr. Joe Chin as members of the multi-organ transplant team.

Sub-specialization

Urology has become more subspecialized over the years and faculty recruitment reflected that philosophy. By the early 1970's, the trend towards subspecialization brought in expertise from neurogenic bladder management (Jack Sharpe), stone management and infections (Phil Hayman), and Pediatric Urology (Eric Shepherd). A later recruit was Dr. John Vallely (Uro-dynamics and prosthetics) in the late 1970's. By this time, two residents were trained every year.

Faculty recruits

The next phase of the Urology program came in the mid 1980's, with the addition of Dr. Joe Chin followed by Dr. John Denstedt. Dr. Chin completed fellowship training in both uro-oncology (Roswell Park Cancer Institute) and transplant immunology (UWO). He established the first Urology Research Laboratory at Western and became Chair of the Division in 1992. He spearheaded one of two cryosurgery programs for prostate cancer in the country. He, along with his Interventional Radiology and Urology colleagues, are continuing on their efforts to improve image-guided and minimally invasive therapies for urologic malignancies.

Dr. John Denstedt did his Endourology training at Washington University in St. Louis and quickly established one of the most prominent Endourology units in the world at Western. Dr. Denstedt was the A.U.A.'s Gold Cystoscope Award Winner in recognition of his significant contribution in the field of urology within 10 years of completion of residency training, the first and only Canadian given this honor. The Endourology program continues to flourish with trainees from throughout the country and around the world. Dr. Denstedt has taken on the Chairmanship of the Department of Surgery.

Along with expansion of the clinical program, the basic research program was being developed with the addition of Dr. Gregor Reid and Dr. Salam Khadim to the faculty. Their respective laboratories provided the

initial foci of urologic research at UWO. Dr. Reid is a prolific researcher and world renowned expert in the area of urinary tract infections and probiotics. Dr. Khadim, and his successor, Dr. Jim Xuan, both immunologists by training, focused on tumor markers and experimental immunotherapy for prostate and bladder cancer. The laboratories now host and train several post-graduate students, post-doctoral trainees and research fellows yearly from around the world.

Dr. Hassan Razvi did an Endourology Fellowship with Dr. Denstedt before completing further training at Cornell University, specializing in prostatic diseases. He served as Residency Program Director for several years before taking over as Chair of the Division of Urology in 2005. Several other recruits have complemented the faculty. Dr. Gerry Brock had already had an established reputation in Andrology at McGill University before joining the staff at Western. He established a major andrology unit at St. Joseph's Hospital. Dr. Patrick Luke joined the staff specializing in transplantation, continuing on with a research in immuno-suppressive therapy. Dr. Jon Izawa from MD Anderson Cancer Institute and Dr. Steve Pautler (National Cancer Institute/ National Institute of Health, US) strengthened the oncology contingent. Minimally invasive surgery has become a thrust for both benign and malignant conditions.

Robotic surgery

"CSTAR" (Canadian Surgical Technologies and Advanced Robotics) was established in early 2000 at UWO and has had major urologic participation. The world-class facilities have provided opportunities for research in minimally-invasive technologies and tele-surgery as well as surgical skills training. Taking advantage of the first daVinci robot in the country, the team of Drs. Joe Chin, Steve Pautler, and Patrick Luke performed the first robotic-assisted laparoscopic radical prostatectomy in Canada in April 2004.

Conclusion

From humble beginnings to the current state of the Urology Residency Training Program, with the current complement of staff members, from retrograde pyelography to robotic prostatectomy, the development of urology in Southwestern Ontario has been eventful and challenging. The Residency Program is flourishing and hopefully contributions to the field of Urology in patient care, surgical education and research will continue in future years from the University of Western Ontario.