

Surgery of the Soul: Reflections on a Curious Career

By Joseph E. Murray, M.D., Science History Publications/USA for Boston Medical Library, Sagamore Beach, 2001. Pages: 255. ISBN-10: 0-88135-256-X. ISBN-13: 978-0881352566. Price: \$150.00 (Hardcover). Price: \$61.89 (Paperback).

Joseph E. Murray, M.D. (1919 to 2012), was one of only nine surgeons to have been honored with a Nobel prize. In 1990, he shared the prize in Physiology or Medicine for his pioneering work in organ transplantation. Although Dr. Murray performed the first successful human kidney transplant in an identical twin at the then-named Peter Bent Brigham Hospital in Boston on December 23, 1954, the award was for decades of work advancing the immunology of transplantation rather than his technical execution of transplant surgery.

Almost 50 years after the epochal operation, Dr. Murray wrote *Surgery of the Soul: Reflections on a Curious Career*. I would argue, however, that this nuanced and engrossing memoir relates the saga of three careers: Joseph Murray the technically gifted transplant surgeon who placed a transplanted kidney in a human pelvis, with vascular anastomoses to iliac vessels; Joseph Murray the innovative scientist who enabled widespread organ transplantation by advancing knowledge related to organ rejection and immunosuppression; and Joseph Murray the skilled plastic surgeon who repaired disfiguring defects caused by congenital afflictions, cancer, war, and other types of violence. His remarkable contributions have proved to be enduring, resisting the usual erosions of time and obsolescence.

Years ahead of its time, “the Brigham” was enthusiastic about the possibility of treating renal failure with transplantation. George W. Thorn, M.D. (1906 to 2004), Peter Bent Brigham Hospital Physician-in-Chief, had a consuming interest in renovascular hypertension that resulted in his establishing a medical unit specializing in hypertension and renal disease. In 1947, he recruited John Putnam Merrill, M.D. (1917 to 1984), now recognized as the father of nephrology, to develop a program in renal dialysis and transplantation. Thus, during the 1950s, the venerable institution had all the components of a modern interdisciplinary transplant unit. The team fully understood that, without immunosuppression, transplantation success could be achieved only with genetic identity of the donor and recipient. The tissue matching of today between nonidentical twin donors and recipients is an attempt to approximate as closely as possible the ideal conditions of the landmark Brigham case.

Four years after the identical twin renal transplant involving Richard and Ronald Herrick, Dr. Murray and his associates transplanted a renal allograft from a fraternal twin to his dizygotic brother who had been pretreated with total

body irradiation. The transplanted kidney functioned for more than 20 yr without maintenance immunosuppression. This circumvention of the genetically determined immune barrier to organ transplantation set the stage for Joe Murray’s other transformative contribution—the clinical introduction of drug immunosuppression—when, in 1962, he transplanted a kidney from a recently deceased cadaver treated with azathioprine (Imuran). The graft functioned for 17 months by using drugs alone. Thus, pharmacologic immunosuppression replaced the cumbersome and unpredictable method of x-ray/bone marrow immunosuppression. Eventually, experts discovered that the rejection process was reversible with careful titration of immunosuppressives.

Perhaps as fascinating as the chronicle of the brilliant transplant surgeon are the stories of Joseph Murray the human being and Dr. Murray the compassionate reconstructive surgeon, many of whose patients were maimed emotionally as well as physically. Determined to be a surgeon from early childhood, Joe was the son of a father who was a district court judge and a mother who was a teacher. He graduated in 1940 with a degree in the humanities from the College of the Holy Cross and, on December 31, 1943, from Harvard Medical School. In 1945, he married Virginia “Bobby” Link, who was his devoted wife of 67 yr and the mother of their six children.

Immediately after his medical school graduation, Joe began his internship in general surgery at Peter Bent Brigham Hospital. However, after only 9 months of training there, Joe was required to transfer to Valley Forge General Hospital, one of only eight regional plastic and reconstructive surgical hospitals in the continental United States. Although Joe was initially disappointed about having to interrupt his training at the Brigham, the move proved to be a blessing in disguise. It was at Valley Forge that he was introduced to the field of plastic surgery, and there he first began to think about the possibility of transplanting tissues from one person to another. The eager neophyte quickly learned to execute bone grafts to jaws and skulls and to restore eyelids, ears, and noses in patients who sustained wartime injuries. Interestingly, Dr. Murray comments that, during the 1940s, plastic surgery at Harvard Medical School was dismissed as inconsequential and beneath the level of the real “blood and guts” surgeons. He underscores that roadblocks can actually become steppingstones because his intervening service in the military ended up determining his entire professional career. When he finally returned to Peter Bent Brigham

Hospital in 1947 to complete his surgical residency, Joe was determined to dispel the pejorative connotation that the Harvard community attached to plastic surgery.

By 1970, Dr. Murray was Professor and Chair of Plastic and Reconstructive Surgery at Peter Bent Brigham Hospital and Boston Children's Hospital. He began to realize, however, that his heart was in reconstructive, rather than transplantation, surgery. In 1971, he resigned as Chief of Transplant Surgery to focus on reconstructive surgery.

During the early 1970s, as a resident in anesthesiology at Peter Bent Brigham Hospital, I had the privilege of working with Dr. Murray. After years of collaboration with France's Dr. Paul Tessier (1917 to 2008), Dr. Murray developed a Craniofacial Clinic, one of only three or four such centers in the United States, that attracted patients from all over the globe. The results of Dr. Murray's surgery on patients with Crouzon syndrome and Treacher Collins syndrome were spectacular. It was heart-warming to see the empathy that he had for his patients, many of whom had experienced the anguish of rejection and loneliness that often accompanies those with facial disfigurement or bodily distortion that forces the beholder to turn away. Dr. Murray writes, "Although some observers have labeled plastic surgeons 'psychiatrists with scalpels,' I prefer to think of our work as *operating on the soul*." Although surgical expertise is required, it is insufficient. Professional judgment is critical, and caring is essential. He treated his patients with compassion and kindness, giving them a sense of worth and helping to heal their spirit. He formed a special bond with Raymond McMillan, who had a severe form of Moebius syndrome. Over the course of several operations from 1962 through 1977, Dr. Murray gave Ray a new lease on life, restoring his body and soul, for which Ray was eternally grateful.

Although Joe's relationships with his patients were exemplary, his interactions with the anesthesia team were not always cordial. Indeed, in chapter 7 of his memoir, he has a segment titled, "Make Way for the Anesthetist," where he bemoans his perception that anesthesiologists "wish to have complete control when it comes to positioning the patient." He expands further, "Over the years, as anesthesiologists and I argued for our preferred setup, negotiations could become heated. On more than one occasion, I was known to suggest that perhaps the anesthesiologist would be happier working out in the corridor."

Although I am unquestionably biased, I think this historic memoir would have been richer if the author acknowledged the pivotal role that surgeon-turned-anesthesiologist

Leroy D. Vandam (1914 to 2004) played in the success of the first kidney transplant.¹ The 23-yr-old recipient, Richard Herrick, was critically ill at the time of the transplant, suffering from malignant hypertension, severe chronic anemia, marked cardiomegaly, and heart failure with peripheral as well as pulmonary edema. With characteristic clinical acumen, Dr. Vandam decided to administer continuous spinal anesthesia to his frail patient. This prudent choice enabled him to gently titrate the anesthetic during a procedure of unknown duration, minimize respiratory and hemodynamic perturbations, and provide excellent operating conditions. His approach also avoided administration of succinylcholine, introduced into clinical practice in 1951, before its risks of hyperkalemia and malignant hyperthermia were appreciated. Absent Leroy Vandam's superb judgment, this historic operation might have ended in tragedy.

In summary, Dr. Joseph E. Murray and his gifted colleagues were determined to break the immunogenetic barrier and make transplantation feasible for anyone. They succeeded; more than 15,000 renal transplants are currently performed annually in the United States. Turning his attention from organ rejection to the emotional rejection endured by disfigured patients, Dr. Murray improved the lives of thousands with his innovative advances in reconstructive craniofacial and other types of plastic surgery. Not only did his work improve individual lives, but it also changed the course of medical history. *Surgery of the Soul: Reflections on a Curious Career* belongs in the library of every academic surgical, medical, and anesthesiology training program.

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