



Joseph E. Murray

1919-2012

Father of Transplantation and pioneer plastic surgeon



Dr. Joseph E. Murray, 1990 Nobel laureate in Physiology or Medicine, pioneer of organ transplantation, and a giant in plastic surgery, passed away at the end of 2012 following a brief illness. Dr. Murray's autobiography 'Surgery of the Soul, Reflections on a Curious Career' published in 2001 provides wonderful insights into an outstanding career of the 93-year old master surgeon (1). It also tells a wonderful story of how surgery treats the souls of the patient and the surgeon, as well as the disease.

Dr. Murray was born on April 1st, 1919 in Milford, MA to lawyer and local judge, William Murray and Mary (DePasquale) Murray, a schoolteacher. Dr. Murray always felt thrilled to be born on April, 1st, 'April fool's day'. He had a pleasant childhood and attended public schools, as his parents and siblings did, with the school not more than 'a pleasant half-mile walk through the town park' away. His parents were dedicated to give their children 'the best education in the world'. In his autobiography,

Dr. Murray said that he felt the presence of his parents when he stood at the podium in Stockholm to accept the Nobel Prize.

An avid reader of classics, biographies, and medicine, Joe decided early in life to become a doctor and felt that Harvard would be the ideal medical school for him. In 1940, he graduated with honors from College of the Holy Cross in Worcester, MA. When asked, during his interview at Harvard Medical School, why he had chosen Holy Cross rather than Dartmouth or Harvard, Dr. Murray explained his desire for a college education with a strong liberal arts component combined with science. He got the immediate nod based on this bold response. Virginia 'Bobby' Murray, Joe's wife of more than 60 years, felt that his acceptance to Harvard Medical School was the beginning of his curious career: 'anxious to learn; eager for knowledge; habitually inquisitive; prying' all critical attributes in his development as a surgeon-scientist.

*In tribute to their dedicated efforts to science and medicine, deceased members of the Harvard Faculty of Medicine (those at the rank of full or emeritus professor) receive a review of their life and contributions with a complete reflection, a **Memorial Minute**.*

During medical school, he encountered Drs. Francis D. Moore and George W. Thorn, both pioneers and dedicated teachers in their own field who certainly left their imprint. He then went on to a surgical internship at the Peter Bent Brigham Hospital, the predecessor of the current Brigham and Women's Hospital.

The turbulence of World War II brought Dr. Murray to Valley Forge General Hospital, home to one of the best plastic surgery units in the country at the time. It was here that he was exposed to all relevant aspects his future 'curious' career. Veterans with severe burns and disfigurement required the best care of the plastic and reconstructive surgery service, of which Dr. Murray was the youngest member. Skin transplants in the severely injured patients were rejected but, interestingly, accepted by some who were extremely ill and septic. This curious observation demonstrated the complexity and significance of the immune system. Most important were the human spirit and courage demonstrated by the severely injured, who suffered through both physical and emotional pain on their long journeys of recovery. Those journeys profoundly shaped Dr. Murray's relationships with his patients and his humanitarian approach.

In 1947, Dr. Murray returned to Brigham Hospital and was appointed Assistant Resident in Surgery under Dr. Francis D. Moore, the new, young surgeon-in-chief. Dr. Murray complemented his residency training with specialized training in plastic, head and neck surgery under Dr. Hayes Martin at Memorial Hospital in New York City, a time which he described as an 'epiphany and outstanding guidance' for his future career. Dr. Murray would go on to build one of the most highly reputed and recognized plastic surgery divisions in the world. He was not only a pioneer and expert surgeon for facial deformities, such as Crouzon Syndrome (Craniosynostosis), and extensive head and neck cancer surgery, he also developed life-long friendly relationships with his patients. His skillful surgical, technical, and clinical skills and his passionate patient care were a model of excellence for the field.

Perhaps Dr. Murray's greatest contributions were to the field of organ transplantation. After his experiences during the war, he was eager to study the biology of rejection and joined the experimental transplant program, which had recently been initiated under the leadership of Dr. David Hume. The group worked to refine the technical aspects of kidney transplantation, and when Dr. Hume was called to serve in the Korean War, Dr. Murray assumed leadership of the clinical transplant program and laboratory.

When Richard Herrick walked through the doors of the Brigham in 1954, he was suffering from advanced kidney failure. The only way to save his life was through a kidney transplantation from his identical twin brother Ron. Dr. Murray debated the ethical dilemma of a kidney transplant from a living donor in great detail and accepted the responsibility to take this first, critical step toward demonstrating that organ transplantation was possible in the absence of genetic disparity. Richard Herrick lived for eight more years, with his brother's kidney.

In 1959, Dr. Murray performed the first allogeneic, non-identical twin transplant. The recipient, who had received a kidney from his non-identical brother, had been treated with total body irradiation and continued to live for another 28 years.

While this approach had been successful, it became clear that suppressing the immune system through total body irradiation had been 'merely a journey down a side road toward the success in the field of organ transplantation'(1). Drs. Schwarz and Dameshek, both at Tufts Medical School in Boston, had

described the immunosuppressive capacities of 6-Mercaptopurin, 6-MP in 1959. Dr. Murray teamed up with Nobel laureates Drs. George Hitchings and Gertrude Elion, both at Burroughs-Wellcome, who synthesized the agent. In 1962, Dr. Murray performed the first successful deceased donor kidney transplant treated with Imuran, a derivative of 6-MP and steroids. Thus, the “holy grail” – which Dr. Murray defined in his autobiography as the successful transplantation of an organ from a dead donor - had been achieved just eight years after the first successful identical twin donor transplant.

All steps necessary to establish organ transplantation as the clinical treatment of choice for patients with irreversible organ failure have been initiated by Dr. Murray. His participation in defining brain death, the organization of the first international conference on human kidney transplants in 1962, followed by the founding of the National Kidney Registry, the forerunner of the current United Network Of Organ Sharing (UNOS), were milestones in the field of transplantation. A multidisciplinary approach was a cornerstone of the success of transplantation during the pioneering days and this approach remains critical to its success today. Most recently, vascularized composite allotransplantation has been successfully applied clinically and some of the pioneers in this field were mentees of Dr. Murray.

The combination of scientific clinical advancement and excellence, with an overriding humanitarian approach, was what made Dr. Murray’s contributions so unique and invaluable. When Ron Herrick, the first kidney donor, passed away two years ago, there was no doubt in Dr. Murray’s mind that we were to drive up to rural Maine. Generations of Herricks attended the services, all looked like the twins: none of the children and grandchildren would have been there without surgery that happened 58 years earlier (2). It was a remarkable and moving sight.

The impact he had on his patients’ lives was life giving and long lasting. His patients knew that each day they received, through Dr. Murray’s work and treatment, was a gift.

The Nightingale twins came back to Boston to celebrate the 50th anniversary of their transplantation. Lana and Johanna, now 62, came to celebrate with Dr. Murray, who had been with them at all stages of their journey 50 years ago at age 12. At the time, a decision by the Massachusetts Supreme Court was required to proceed with the live donor nephrectomy of the 12 year old donor twins. Critical to saving Johanna’s life was not only the courageous action of the surgical team, but also the patients’ bravery (3).

Dr. Murray’s work was honored by numerous awards in addition to the 1990 Nobel Prize, including several honorary degrees from prominent societies and academic institutions. Moreover, he was appointed Academician of Pontifical Academy of Science to the Vatican.

Dr. Murray, a life-long resident of Wellesley, remained active and pursued his passion for the outdoors throughout his life. He and his family spent their summers on Chappaquiddick Island where they had personally built a summer vacation home.

Dr. Murray celebrated a wonderful Thanksgiving in 2012 with his large and very tight-knit family. Later that day he suffered a cerebral hemorrhage. He died on November 26, 2012 at the Brigham and Women’s Hospital, surrounded by his devoted family.

“What a wonderful world” by Louis Armstrong was the song Dr. Murray had requested to be played when he was put to rest. Although the occasion was sad, the song put a smile on faces at Dr. Murray’s service, as attendees knew that the song’s refrain is what Dr. Murray would have said at that moment.

During the memorial service, BWH President Betsy Nabel, MD, read a proclamation signed by Mayor Thomas Menino, declaring Jan. 10, 2013, Dr. Joseph E. Murray Day in the City of Boston.

Dr. Murray is survived by his wonderful wife Virginia 'Bobby' Murray to whom he was married for 67 years, his children Ginny, Meg, J. Link, Kathy, Tom and Rick, 18 grandchildren, and 9 great grandchildren.

His life-long curiosity, gentle persistence, continuous availability, optimism and smiling face will guide us in moving surgery and organ transplantation forward.
We shall all miss him.

Respectfully submitted,

Stefan Tullius, *chairperson*
Michael Zinner

References:

1. Joseph E Murray: Surgery of the Soul: Reflections on a Curious Career. Science History Publications, USA, 2001
2. Joseph E Murray: Ronald Lee Herrick Memorial: June 15, 1931 – December, 27th, 2010. American Journal Transplant 2011; 11:419.
3. S. G. Tullius, J.A Rudolf, S.K. Malek: Moving Boundaries – The Nightingale Twins. New England Journal of Medicine, 2012; 366: 1564 – 1565.