



Hand Faculty



David Bozentka, MD



David Steinberg, MD



L. Scott Levin, MD, FACS



Benjamin Gray, MD



Robert Carrigan, MD



Apurva Shah, MD, MBA



Hand Division Update

David Bozentka, MD



It has been another banner year for the Hand Surgical Service in the Department of Orthopaedic Surgery. The program continues to expand the clinical and research efforts.

It is with great pleasure that we welcome back Dr. Stephen Liu to join the hand surgery section. Dr. Liu completed his undergraduate and medical school training at Tufts University. He graduated from the Orthopaedic Surgery Residency at the University of Pennsylvania in 2016. He is currently finishing his year of hand surgery fellowship training at the University of Pittsburgh with an exemplary performance. He will concentrate his hand surgical practice at Chester County Hospital.

Under the leadership of Dr. David R. Steinberg, director of the hand and microsurgical fellowship, two new hand surgery fellows started their year of training. The highly competitive program received over 100 applications for the two positions. Dr. Erwin Kruger, studied at Harvard University and University of Chicago, prior to completing his plastic surgery residency at UCLA. After his fellowship, Dr. Kruger plans to join a private practice group in Scottsdale, Arizona. Dr. Oded Ben-Amotz, completed a plastic surgery residency at Tel Aviv Sourasky Medical Center, Israel, as well as a one-year hand surgery research fellowship at UT Southwestern Medical Center in Dallas, Texas. Dr. Ben-Amotz has been accepted for a second year of hand fellowship training with the Christine M. Kleinert Institute in conjunction with the University of Louisville.

Benjamin Gray MD has established a strong hand surgery practice at Pennsylvania Hospital while completing his Masters of Science in Clinical Epidemiology. In addition to his exceptional clinical work, Dr. Gray has been invaluable to the service in his research efforts. Accordingly, Dr. Gray has been appointed Director of Clinical Research for the Hand Surgery Section. He will lead the direction of the robust clinical research effort within the division. The program has benefited from the extensive research experience of Annamarie Horan PhD as Director of Research for the Department of Orthopaedic

Surgery and Kim Lacy RN, BSN as the research coordinator. The group continues to enroll for the Axogen-sponsored study: A Multicenter, Prospective, Randomized, Subject and Evaluator Blinded Comparative Study of Nerve Cuffs and Advance Nerve Graft Evaluating Recovery Outcomes for the Repair of Nerve Discontinuities. In addition, enrollment is being completed for the blinded randomized control trial to compare Tylenol 3 versus Ibuprofen/Acetaminophen with Dr. David Steinberg as principle investigator. Dr. Steinberg has also continued his productive basic science research in collaboration with the McKay Orthopaedic Research Laboratory.

This past year, Dr. David J. Bozentka was elected to the Academy of Master Clinicians at the Perelman School of Medicine at the University of Pennsylvania. The Academy of Master Clinicians is the highest clinical honor for a Penn Medicine physician. The Academy recognizes outstanding physicians that exemplify the highest standards in patient care and professionalism.

Another successful Penn Flap course for hand and microsurgery fellows and residents was held at the Penn Orthopaedic Human Tissue lab. Local, regional and free tissue transfers were reviewed during the two-day course. The internationally renowned faculty also reviewed nerve transfers and brachial plexus procedures with didactic lectures combined with cadaveric dissection.

The third successful double hand transplant was performed by the Penn Hand Transplant Service on August 22, 2016 at the Hospital of the University of Pennsylvania. Ms. Laura Nataf, a 29 year old quadrimembral amputee due to sepsis, underwent the eight and a half hour procedure by the 30 member team of surgeons, nurses and anesthesiologists. She has since returned to her home in Paris, France where she is continuing her treatment.

It is an exciting time for the hand surgery section with continued expansion of the academic and clinical programs as we look forward to another successful year.



Paris to Penn Medicine: The First Trans-Atlantic Bilateral Hand Transplant



Erwin Kruger, MD, Oded Ben-Amotz, MD, and L. Scott Levin, MD, FACS

Department of Orthopaedic Surgery, University of Pennsylvania, Philadelphia, Pennsylvania



In 2007, 19-year old Laura Nataf, a French university student studying hospitality became septic, leading to multisystem organ failure. Both her arms and legs were amputated due to irreversible peripheral tissue damage from ischemia. Once Laura recovered, she began adjusting to her life as a quadruple amputee patient, and using prosthetics to perform her activities of daily living. Two years went by, and she

began asking her care team about hand transplantation, and sought experts in the field in France to evaluate her case.

Laurent Lantieri, MD chief of the department of Plastic Surgery at Hôpital Européen Georges Pompidou at Paris Descartes University took on her case and became her advocate. Dr. Lantieri had previously performed seven face transplants including one combined face and double hand transplant. He spent 7 years evaluating Laura for hand transplantation and achieved listing her as a candidate. However, problems within the healthcare system in France made it clear it would not be possible to perform Laura's operation in her native country. Dr. Lantieri turned to his colleague, and an equally passionate pioneer of hand transplantation—Dr. L. Scott Levin, MD, FACS, Chair of Orthopaedic Surgery at Penn Medicine and the director of Penn's Hand Transplant Program—for a unique collaboration to list Laura in the United States.

"I first met Laura in 2010 at the American Society of Reconstructive Transplantation meeting in Chicago," Dr. Levin remembers. "I was impressed with Laura's determination; she had her mind set on becoming a bilateral hand transplant recipient. She and I kept in touch through Laurent, and with our first adult bilateral hand transplant a year later, our program was building momentum and would continue to do so."

Dr. Levin and Lantieri then led a long-term commitment to the Laura as a patient, and what would be a first for all the collaborating institutions: Paris Descartes University, Penn Medicine, and the Gift of Life Donor Program, to prepare an international patient for a bilateral hand transplant. Months of detailed planning and preparation began simulating the bilateral hand transplant at Penn's Human Tissue Lab, with precise roles of the surgical personnel involved. Gift of Life initiated locating suitable organs for transplantation. Laura Nataf was actively listed for bilateral hand transplantation at Penn Medicine in May 2016. In August 2016, the call came in to Dr. Levin from Gift of Life—donor hands were available. It was time.

What happened next was one of the most challenging logistical case preparations to date for a bilateral hand



transplant. Laura Nataf was vacationing in Corsica, France, 730 miles from Paris, when she received the call to come to Penn immediately. Over the next 36 hours, Laura took a police escort and two plane rides to travel the 4,400 miles from France to Penn Medicine. All the while, the Penn Hand Transplant team of more than 30 members and three surgical specialties (Orthopaedic surgery led by Dr. L. Scott Levin, Plastic Surgery led by Drs. Benjamin Chang and Stephen Kovach, and Anesthesia led by Dr. Michael Hall) were mobilized. Laura arrived, the donor hands were procured, and nearly 9 hours of surgery later the first trans-Atlantic bilateral hand transplant was completed successfully.

Laura recovered for several weeks at the Hospital of University of Pennsylvania before returning home to Paris under the close care of Dr. Lantieri. She continues to show remarkable progress in her strength and motor function, and keeps in close contact with Dr. Levin and his team. The Penn Hand Transplant program has performed an adult bilateral hand transplant, the first pediatric bilateral hand transplant, and now with Laura the first international patient to receive a bilateral hand transplant in the United States. Laura Nataf's case was an international team effort, a very special case in all aspects, and because of the dedication of all involved, Penn Medicine is gaining experience as an epicenter of international limb transplantation and salvage.

