FROM APPRENTICE TO MASTER:

A SURGEON'S MEMOIR ON TEACHING IN MEDICINE

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Dr. Tosti with 4th year resident David Casper, MD

Today was "Match Day" for Hand Surgery Fellowship programs nationwide. On this day, orthopaedic and plastic surgery residents from across the country finally find out where their careers are heading after 4 years of medical school, 5 years of residency training, and 10-15 flights and interviews at various programs in the United States. As a young faculty surgeon at one of the top hand fellowships in the world, I found myself curiously immersed in this process "on the other side of the table" for the first time this year. My charge was to spend time with the applicants in the waiting rooms and inform them about their potential experiences at the Philadelphia Hand to Shoulder Center. I created a presentation to showcase our case variety to the applicants who wish to learn techniques for limb salvage – the so-called "ortho-plastics" approach to mangling limb trauma.

The first case I showed was of a man who was cut with an industrial steel press and amputated his thumb and two fingers. I explained how in order to bring life back into his grey fingers, we repaired an artery and two veins. I said, "Imagine sewing 8 simple stitches around two cut ends of a garden hose, but that garden hose has 1mm diameter and the stitch is thinner than your hair!" Then I asked the group "Has anyone independently repaired an artery or vein of this caliber?" And not a single hand rose.

The second case I showed was a man involved in an auto accident. The pavement had eroded his dorsal wrist down to the middle of the carpal bones essentially dissolving the skin, tendons, ligaments, and joints from the forearm to the mid hand. In most centers, performing an amputation at the wrist would have been "good enough" treatment. However, I explained that it was my

belief that "people don't come to Jefferson Hospital for good enough!" I showed photos of how my partners and I reconstructed his wrist with large fusion plates and silicone rods, which will later be used to facilitate tendon transfers. However, we still had a large wound with exposed bone and hardware, which we decided to cover with living tissue harvested from his back. We transplanted his latissimus dorsi muscle from his back to his wrist reconnecting the vessels to the ulnar artery and a nearby vein (under the microscope). Then I asked the group "Has anyone performed a free latissimus flap for wound coverage." And again, not a single hand rose.

After a year of being in practice, I have been given the honor of teaching residents and fellows how to operate as an assistant Professor of Orthopaedic Surgery at Thomas Jefferson University – a privilege upon which I began to reflect as the ruminations of my own experiences were recalled. I remember when I was in their seats as a fellowship applicant and had a particularly memorable interview. I sat opposite from a past President of the American Society for Surgery of the Hand who asked me, "What was your influence for choosing this career in Hand Surgery?" My answer was simple: in my 25+ years of schooling, the best teacher I ever had was a hand surgeon – and not coincidentally – was also a graduate of the Philadelphia Hand Center at Jefferson. I remember when I was an intern, and he taught me the basics like suturing or holding a pair of dissection scissors. I remember during second and third year when I learned how to release a carpal tunnel or repair a fracture. And finally in my chief years, I remember receiving the "professorial nod" as I grew to operate independently and began teaching my junior residents those same techniques by imitating his same style.

But probably more impactful were the intangible lessons I learned from my mentor; these ones were most important but ironically never tested or graded. His pedagogy was often laced with anecdotes of personal and professional conduct, but for me, the salient lesson was one regarding individual quality control. He would say, "Recognize the difference between 'that's good enough and that's the best I can do.' When you get into practice on your own, imagine showing me your case before you scrub out, and if you have to explain why it's 'good enough' but not your best, then you know you are not finished."

I never forgot these lessons. As I explained in that fateful interview, I imitated those same personal and professional attributes until I realized they became my own. In fact, after another year of tutelage as a fellow at Harvard Medical School and after 2 more years in practice on my own, I find myself still holding the scissors the same way or using the same steps to release a carpal tunnel. I find my mind unyielding in the middle of a challenging case and not giving in to the tired "that's good enough" temptation. I even have heard myself say aloud, "This is the best I can do for this patient" – and, for their benefit, made sure my fellows and residents heard me (even if they thought I was crazy and speaking to myself at the end of an 8hr surgery!).

A common phrase, "Imitation is the sincerest flattery," is a proverb dating wholly to the early 19th century but also has origins in antiquity with the writings of the Roman emperor Marcus Aurelius – who noted that the Roman gods were not impressed with flattery in the form of offerings. He believed that one could bring oneself closer to the perfect qualities of a deity (or a mentor) through imitation, and that was what pleased them. Although in today's media, this quote is often used to soften the blow after a comedic roast, my interpretation remains closer to that of Marcus Aurelius'. I believe imitation is a statement validating the methods of great teachers or tacticians when their students recognize their value and emulate them. Truly, no greater compliment can be paid to a practitioner of medicine than the one ends in "I learned that from you, doctor."

Often people will ask me why I like to train residents and fellows, since there is no direct compensation or incentive. If truth be told, I never thought about my motivation much; I supposed on a subconscious level, I might still be imitating. However, going back to this year's interview day for our fellowship, I did reach an epiphany on this matter. It was during the third case when I spoke about another patient who lost complete function of his entire right arm because of a devastating brachial plexus injury that required a combination of nerve transfers and nerve grafts. I showed how we took nerves from his legs to bridge the gaps and how we transferred an existing nerve in his neck to his shoulder. And again, I asked a question, "Has anyone ever sewn in a nerve graft from the C5 root to the anterior division of the upper trunk?" But this time there was a stirring in the crowd; a single hand rose from the back of the room. "I did that once… with you, Dr. Tosti," she said.