

Early Practice in Hand Surgery



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HAND SURGERY VIEW FROM PGY6

I am in my final days of training at an integrated plastic surgery program well-known for hand surgery. I am confident that I have received the finest educational experience in both basic and complex hand surgery. Yet when my mentor, Dr. Neumeister, asks me to write a short 5-page article focused on mistakes made and lessons learned from a resident's viewpoint (due the next morning), I find myself at a loss for words. The authors of this book are the leaders in hand surgery, and they have presented reviews filled with invaluable education about anatomy, pathology, surgical indications, and tips/techniques in the field. These are the experts and sort of articles that I still rely heavily on at this point in my career for most of my decision making. Sure, there are tips that I've learned such as: hold a cut flexor tendon out to length with 22 g needle, but don't pierce the neurovascular bundle as you're putting it in; replant digits structure-by-structure, not digit by digit so you don't have to keep bringing the microscope in and out; and I prefer cysto tubing (hospital cost of \$2.70 at our institution), chlorhexadine injected into a 3L bag of saline, and a soft scrub brush for irrigating wounds, because Pulsavac is more expensive (hospital cost of \$34.40 at our institution) and soap is cheaper than antibiotic solution. I have a ton of pearls and tips I could share with others in training (**Box 1**). However, all of my lessons learned are at the hands of my mentors and what is found in the literature. My unique contribution to this body of evidence is that hand surgeons are trained differently now. In July of 2003, the Accreditation Council for Graduate Medical Education mandated a reduction in resident work duty hours.¹ Over the last decade, there has been increasing pressure from the public, medical

community, and regulatory agencies to demand a greater accountability of resident training in the face of increased work hour restrictions and limited resources. These regulations have been met with varying opinions from both educators and trainees²⁻⁴; nonetheless, these points have prompted a dramatic change in surgical education. Since I began residency six years ago, an important lesson that I have learned is how to become a competent hand surgeon in a time of evolving surgical education. At this point in my career, I don't feel like the expert in much – but I do know what makes a good resident in training.

Be an Active Learner

One of the attractive things about plastic surgery is that there are a lot of different ways to approach any given problem. A solid foundation in surgical principles and anatomy allow a young surgeon to treat basic or complex hand cases in a number of ways. Residency exposes you to various solutions, and the options are to either do what you've always seen done, or to go to the literature and try to find good evidence to support a different technique. Unfortunately, in our hunt for evidence-based literature a lot of what we find is level III & IV – anecdotal evidence, case series, and “how we do it articles.”^{5,6} A lot of us are drawn to the field of plastic surgery because we enjoy creativity and problem solving, but as a soon-to-be graduating resident – I find myself questioning my every decision. From the smallest details of whether to routinely give pre-operative antibiotics to diabetics undergoing elective hand surgery,⁷⁻⁹ to the more complex decisions like how to use spare parts in a mutilating hand injury.¹⁰⁻¹² Now, more than ever, there is a focus on the cost of healthcare that we provide our patients. As the

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Box 1**Just a few tips and pearls I learned in complex hand surgery in early practice**

Be honest with your outcomes

In microsurgery, make all your set up adjustments to make you feel comfortable, not just the attending
If a lumen is not absolutely clear on the inside, don't complete the microsurgical anastomosis...smudge or a hint of clot needs to be removed

If a stiff joint release is still stiff at the end of a procedure...it will never be supple post-operatively

It's a myth that wounds on a fingertip over 1 cm need a graft...if its my finger, let it heal by secondary intent even at 2-3 cm

Be meticulous with revision amputations. Patient hate nail remnants and poorly contoured stumps

Embrace replantations...patients deserve your expertise

A compromised flap or replanted digit will not get better in recovery...fix it now (in the operating room the first time)

Hand fractures: If the function is normal don't operate...you can only make it worse than normal

A successful reconstructive outcome demonstrates good range of motion, normal digit alignment and sensation, and a pain free hand...pain free is key

Flexor tendon repairs deserve respect. A tendon must glide normally through the pulley system without gap formation...before you leave the operating room

Therapists are invaluable. Tell them exactly what you did in the operating room and what needs to be protected in rehabilitation

Distally based flaps are precarious. Use them as a last resort...if at all

Fix it right the first time. Reconstruction is more complex

Debride complex injuries and mangled hands like they were pseudo-tumors. Be complete and extremely thorough

Never dispose of any tissue until the dressing is on. Spare parts are very valuable

Love what you do!

new generation of hand surgeons, it's important that we participate in high level research, get involved in committees, and understand the changing hospital environment with evolving policies and regulations.¹³

Learn About Our Past

In Dr. Peter Stern's Journal of Hand Surgery article entitled *Management of Fractures of the Hand Over the Last 25 Years*, he chronicles how, when he started his training in 1975 (before I was born), patients with unstable proximal phalanx fractures were admitted to the hospital the evening before surgery, stayed the night of surgery, and had a general anesthetic. K-wires were manually inserted with a hand-driven Bunnell drill and biplanar x-rays were obtained with time-consuming plain films between each attempt at fixation.¹⁴ This is fascinating to me. It's important to learn what was done in the past so we can appreciate where we've come and because, as they say, a lot of things old become new again. Surgical treatment for thumb

basilar joint arthritis has evolved from a simple trapeziectomy first described by Gervis in 1949,¹⁵ to the addition of tendon interposition in 1970 by Froimson,¹⁶ and to intricate ligament reconstructions introduced by Eaton and Littler in 1973.¹⁷ A lack of consensus as to the best surgical technique has given surgeons the opportunity to utilize a hybrid of options based on their own education and experience. Today a literature review yields a vast number of surgical techniques and modifications for treatment of CMC arthritis, with the majority of these techniques showing satisfactory outcomes. Ironically, the highest level of evidence supports Gervis's original plan of trapeziectomy alone.¹⁸ Two attendings may treat the same patient in very different ways. This is a testament to the variety that we see in training, but ultimately one day we will have to decide what works best for our patients in our hands. And as long as there is good evidence or experience to support our decisions, we should feel justified in our plans. Along those same lines, never criticize the work of other surgeons or physicians because you weren't there. You could not see what they

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