



OFFICE HAND SURGERY A WIN-WIN OPPORTUNITY FOR PATIENTS *by Charles Eaton, M.D.*

A new anesthetic technique allows a number of common hand procedures traditionally done in a hospital or surgical center to be done more easily and less expensively - as office surgery. How? Many minor hand procedures are performed in an operating room environment only because of the need for sedation. Sedation is usually helpful - and sometimes mandatory - to counter tourniquet pain. Tourniquets are used to prevent a bloody field. The end result is that a relatively small procedure can become something of an ordeal in terms of both time and expense because of the possible need for sedation. All this can change with tumescent anesthesia technique.

Tumescent anesthesia refers to regional anesthesia produced by

local infiltration with a large volume of a dilute solution of lidocaine with epinephrine. This provides both anesthesia and hemostasis. There is a large experience with this approach reported in the plastic surgery literature. However, this technique has not been widely applied to hand surgery because of a long standing teaching that epinephrine is too dangerous to use in the hand because of the risk of digital necrosis. This teaching has recently been both explained and refuted. In 2005, Lalonde and others reported on the safety of epinephrine in the hand (1). In 2007, this group provided an explanation for the traditional teaching, and it's an interesting story (2). A thorough review of the literature suggested that reports of digital gangrene after digital nerve block were misinterpreted to implicate epinephrine as the causative agent. These reports date back to the late 1940s,

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(About the Author)

Dr. Charles Eaton was born and reared in West Palm Beach, Florida. He received hand surgery fellowship training at New York University and at the Microsurgery Research Center in Melbourne, Australia and was an assistant professor at the University of Utah before returning to Jupiter, Florida, where he is a private practice hand surgeon. He is CAQ certified in hand surgery, is the chairman of the Web Site Committee of the American Society for Surgery of the Hand, and is webmaster of e-Hand.com, the most visited hand surgery web site on the internet. In 2008, Dr. Eaton visited Dr. Donald Lalonde in New Brunswick, Canada to observe the application of the "wide-awake" approach, and has incorporated this into his practice.

Dr. Eaton has spent the last six years refining the technique of needle aponeurotomy, a minimally invasive office treatment for Dupuytren's contracture. He founded the Dupuytren Foundation (www.DupuytrenFoundation.org), a 501(c)3 public charity established to promote research and education to develop a cure for Dupuytren's disease, which is hosting the 2010 International Symposium on Dupuytren's Disease, May 22,23 in Miami, FL: www.DupuytrenSymposium.com.

CASE AT HAND - FROM THE THERAPIST'S PERSPECTIVE

RADIAL NERVE PALSIES ASSOCIATED WITH HUMERAL SHAFT

FRACTURES BY ROBERT W. FRANCESKINO OTR/L, CHT

Three main classifications can be identified with fractures to the humerus. Proximal humeral fractures occur in the head of the humerus as it sits within the ball and socket joint. This fracture, often associated with loss of shoulder mobility and range of motion (ROM), requires early intervention with skilled therapy to prevent tightening of the joint capsule and the ligamentous structures of the shoulder. Mid shaft fractures of the humerus occur away from both the shoulder and elbow. Statistically, 1 in 10 patients with a humeral shaft fracture will sustain some sort of radial nerve palsy. Distal humeral fractures occur near the elbow. Again, early motion in these injuries is key in preventing loss of elbow flexion and extension as well as forearm rotation. This article will explore mid shaft fractures to the humerus. Key principles and pearls for edema control, ROM and thermoplastic splinting will be addressed.

The radial nerve branches off of the posterior cord of the brachial plexus in the shoulder receiving fibers from C5-C8 and T1. The radial nerve enters the radial groove with the deep brachial artery and passes between the long and medial heads of the triceps. The radial nerve is mainly responsible for sensation on the dorsum of the hand as well as extension of the wrist and fingers. The order of radial nerve innervation is often studied as a clinical indicator for determining recovery of the nerve.

Injury to the radial nerve can be from traumatic force, from the nerve being caught in the fracture once reduced, or from the nerve being trapped with healing bone. Nerve palsy can be primary, indicated at the time of the injury, or through the course of treatment. There continues to be widespread debate on the management of radial nerve neuropraxia. Often recovery is spontaneous and surgical intervention is unnecessary.

As a therapist evaluating a patient with a radial nerve injury, several issues need to be addressed in order to maximize recovery and healing. Due to the absence of active extension of the wrist and digits, the volar based flexors will quickly start to shorten. A thermoplastic splint, positioning the wrist in 15-20 degrees of extension, is commonly fabricated. Positioning the wrist in extension also helps to alleviate pressure on the radial nerve, aiding in the healing process. The initial splint fabrication may

require bringing the wrist to a comfortable level of extension by remodeling the splint at subsequent visits, slowly increasing the amount of wrist extension to patient tolerance as pliability of the flexor musculature increases. Another option that utilizes dynamic tenodesis of the wrist and MP joints via outriggers can also be fabricated. Often age, skin integrity and the time frame in which you evaluate the patient after injury will play a role in choosing the best splint option.

Edema control is essential during the recovery period of the radial nerve. Undue pressure on the nerve may deter recovery. Elevation is very important during the initiation of therapy. Compression sleeves may also be used to control swelling. Careful attention needs to be placed on the amount of force applied during application and the patient will need to be instructed to inspect his/her skin for any irritation or pressure areas which may occur.

Passive ROM to increase flexion of the elbow, forearm, wrist and digits is performed during the early stages of therapy. Patients in acute stages of a mid-shaft humeral fracture will often wear a Sarmiento humeral brace. Instruction in proper donning and doffing of the brace, as well as teaching the patient to monitor for pressure areas caused by positioning, also becomes a therapist's essential task. A radial nerve injury may recover in as little as three months; however, up to two years has been recorded.

Lastly, it is important to remember the emotional status of the person you are treating. Although not usually permanent, radial nerve injuries are often debilitating. There can be a loss of pride due to lack of independence in ADL skills, inability to work and inability to perform the recreational skills they previously enjoyed. Driving may be difficult. The family or caregivers must be educated to help to adapt the environment and to utilize any compensatory or remedial skills needed to ease daily ADL and self-care needs until nerve function increases.

In summary, it is essential that the patient gain an understanding of the exercises they will need to continue during their time of recovery. The primary focus of therapy is edema management, ROM and splinting. The therapist will need to gain insight into the patient's daily ADL and self-care needs and any adaptive or compensatory techniques should be instituted early on to increase functional independence.

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before the introduction of lidocaine. Procaine was the only local anesthetic, and at the time, was dispensed without an expiration date. Over time, procaine breaks down to form very acidic components in solution, lowering the pH enough to cause direct tissue damage from injection. Only half of the reported cases of digital block induced gangrene involved epinephrine, but all



Office surgery with wide-awake anesthetic technique: Fowler tenotomy for locking swan deformity. Results are confirmed immediately with patient participation and documented on video.

involved procaine. Old procaine, not epinephrine, was the culprit.

Tumescent anesthesia without tourniquet or sedation is referred to as the "wide-awake" approach. This technique can be used as the only anesthetic for even major hand procedures, including basal joint arthroplasty, palmar fasciectomy, tendon repairs and others. Wide-awake technique is particularly suited to tendon surgery, as the patient has no tourniquet weakness, and active tendon tension and excursion can be assessed in real time.

Tumescent anesthesia also allows a number of hand operations to be performed as office surgery, avoiding the ordeal and expense of a standard operating room procedure. Open hand procedures, such as those for trigger finger, deQuervain's tendinitis, or carpal tunnel syndrome require only a simple instrument setup, and are ideal for this approach. This has two advantages for the patient. The first is simplification: having minor hand surgery need be no more complicated than going to the dentist: no blood tests, no fasting and no anesthetic hangover. The second is financial: more and more patients are choosing high deductible insurance or finding that there are no hand surgeons on their plan. In-office surgery with wide-awake anesthesia doesn't incur either facility fee or anesthesia fee: the patient's outlay for deductible is considerably reduced, even when going out of network, a welcome alternative to patients struggling in these difficult financial times. ■

References

1. Lalonde D, Bell M, Benoit P, Sparkes G, Denkler K, Chang P.: A multicenter prospective study of 3,110 consecutive cases of elective epinephrine use in the fingers and hand: the Dalhousie Project clinical phase. *J Hand Surg [Am]*. 2005 Sep;30(5):1061-7.
2. Thomson CJ, Lalonde DH, Denkler KA, Feicht AJ. A critical look at the evidence for and against elective epinephrine use in the finger. *Plast Reconstr Surg*. 2007 Jan;119(1):260-6

HANDS UP NEWS - ADVOCACY/MANAGED CARE

Lesley R. Sankin, Communications Director

Therapy Cap Repeal Legislation

As of the date of publication of this issue, the current therapy cap exceptions process was due to expire on December 31, 2009. The exceptions process will continue unchanged for the time frame directed by Congress. Contact your Representatives and Senators and urge them to co-sponsor the Medicare Access to Rehabilitation Services Act of 2009 that would repeal the Medicare therapy caps that limit coverage of outpatient rehabilitation services to \$1,840 (2009). For occupational therapy services, the limit is \$1,860 for CY 2010.

Elastic Garments-Non-Covered

CMS has determined that elastic garments do not meet the statutory definition of a brace because they are not rigid or semi-rigid devices. Therefore, effective for claims with dates of service on or after April 1, 2009, these items (L3651, L3652, L3700, L3701, L3909 and L3911) will be denied as noncovered, no benefit category.

Red Flag Rules

The Federal Trade Commission (FTC) has delayed the compliance deadline of the Red Flag Rules until June 1, 2010, which follows three earlier extensions to May 1, June 1 and then later to November 1. This delay is a result of continued advocacy by the AMA and others who continue to object to the applicability of this rule to health care providers and other professionals.

HANDLE WITH CARE

Simple Solutions to Improve Worker Well-Being

Mike Kind, Jaymil Ergo & Office Solutions, mkind@jaymil.com, 603-629-9995

By focusing on the physical setup of your workstation and the tools you use, you can reduce the potential of injury. Evaluation should include the work process, including job organization and task variety.

To improve your workstation, you should set up your tools so that they fit your personal physical and comfort needs. For example the desk or work surface should be set up so that all documents, reference materials and workstation tools are arranged properly so that you don't have to reach for them and are easily accessible.

Your computer monitor should be set at a distance at which it is clear and easy to read without leaning forward or looking to one side. The screen should be at eye level or within 15 degrees below eye level and is an arm's length away.

Your chair should be positioned at the height that allows your feet to rest flat on the floor. It should also provide maximum support to maintain spinal curvature.

Arranging work so that it could be performed either sitting or standing would be ideal as this would limit the amount of stress put on the body. If this is not possible, varying postures from time to time is recommended. You should be able to keep your neck in a neutral position and minimize the need to look up or to the sides continuously while you are working. Strive to eliminate most movement from your waist. Keeping the workstation and workstation tools within reach will help reduce the need to lean, bend, or twist at the waist frequently.

Stretch Breaks

The most common injuries affect the back and trunk followed by arms, hands, legs and feet.

Simple stretching exercises performed before work and periodically during the day can prevent many of these injuries.

odically during the day can prevent many of these injuries.

Here are some quick and easy stretching exercises that can be done before starting work and periodically during the day to keep bodies flexible and muscles relaxed while they work.

Neck stretches:

- Lower head toward the chest, stretch neck gently, and raise head slowly.
- Turn head gently from side to side.
- Tilt head slowly first toward one shoulder, then the other, then backward.

Shoulder stretches:

- Shrug shoulders and roll them forward and back.
- With elbows out, move arms back to bring shoulder blades together.
- Reach arms overhead, stretch, and bend gently from side to side.

Arm and wrist stretches:

- Place arms out in front of body. Lace fingers together and rotate hands so that palms are facing out. Straighten elbows and push palms gently away from body for a few seconds.
- Place arms out in front of body. Turn wrists so that palms turn out. Then turn wrists back so that palms turn in.
- Place arms out in front of body. Bend wrists up so that palms face out and hold for a few seconds. Then bend wrist down so that palms face in and hold for a few seconds.

Hand Stretches:

- Make a fist and then extend and stretch your fingers.
- Touch thumb to little finger and hold for a few seconds.

Lower back stretches:

- Stand with knees slightly bent and place hands on lower back just above hips. Gently bend backwards (just a little!).

Leg stretches:

- Sit in a chair, raise each leg in turn out in front (parallel to the floor), and hold for a few seconds. Then alternate.

OUT OF HAND STAFF NOTES

The Fort Lauderdale Hand Clinic is proud to announce the addition of Robert W. Franceskino, OTR/L, CHT to its professional staff. Rob, a graduate of Quinnipiac University, joins us after practicing on the Gulf Coast of Florida and in Connecticut.



Robert W. Franceskino,
OTR/L, CHT

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PHILADELPHIA HAND REHABILITATION FOUNDATION

Philadelphia, Pennsylvania – March 6-9, 2010

The Philadelphia Hand Rehabilitation Foundation is proud to present The Philadelphia Symposia: Hand Surgery Symposium “The X-Games of Upper Extremity Trauma” (March 6 - 8, 2010) and Hand Therapy Symposium “Surgery and Rehabilitation of the Hand: With Emphasis on Trauma” (March 6 - 9, 2010). For more information go to: www.handfoundation.org.

FLORIDA HAND SOCIETY

Marriott Orlando Airport Hotel - Orlando, Florida, April 16 and 17, 2010

The next annual meeting of the **Florida Hand Society** will be held in Orlando on April 16 and 17, 2010 at the **Marriott Orlando Airport Hotel**. On Friday, April 16, 2010, the meeting will begin with a light buffet lunch at noon, followed immediately with a series of educational presentations. All those interested in presenting may contact **Richard Curtis, MD at jaxhanddoc@aol.com**. Friday's events will conclude around 5 p.m. followed by cocktails and a gala dinner social event. The meeting resumes early Saturday morning with a buffet breakfast and continued educational presentations. It will conclude around noon with a brief business meeting to discuss plans for the following year. Instructional courses following the meeting will be announced at some time in the future. Anyone wishing to present or attend may contact either Dr. Curtis for presentations, or the FHS administrative office for membership/attendance information. Remember to “Save the Date” for this educational and fun meeting – the 2009 meeting was a huge success highlighted by the exceptional presentations given by our very special guest speakers Dr. Robert Beckenbaugh and Dr. Ed Homan and Paige Kurtz, OTR/L, CHT and a lively dinner social event with jazz music by “String Sessions”. Judith E. Greathouse's line of functional jewelry (stretchiesbyjudith.com) was displayed at the 2009 Florida Hand Society Annual Meeting where her blend of style, beautiful design and functionality was applauded. She will be a vendor again this year at the FHS annual meeting and she has also been invited to exhibit at the International Federation of Societies for Hand Therapy 8th Triennial Congress in 2010 (see below).

DUPUYTREN FOUNDATION & DUPUYTREN SOCIETY

Miami, Florida, May 22-23, 2010

The Dupuytren Foundation and the Dupuytren Society, endorsed by the American Society for Surgery of the Hand, will co-host the 2010 International Symposium on Dupuytren's Disease at the Intercontinental in Miami, Florida on May 22-23, 2010. Find out more, submit your abstract, register online at www.DupuytrenSymposium.com or contact Stacy Snyder at 561-762-8791 or stacy@dupuytrensymposium.com.

INTERNATIONAL FEDERATION OF SOCIETIES FOR HAND THERAPY (IFSHT)

Orlando, Florida, June 24-27, 2010

The International Federation of Societies for Hand Therapy (**IFSHT**), sponsored by American Society of Hand Therapists (**ASHT**), will be holding its 8th Triennial Congress “Entwining the World of Hand Therapy” at the Caribe Royale Hotel in Orlando, Florida, June 24-27, 2010.

AHTF BURKHALTER NEW INVESTIGATOR GRANT

The AHTF BURKHALTER NEW INVESTIGATOR GRANT was established in honor of Dr. William Burkhalter (1928-1992), a long time advocate and promoter of hand therapy. AHTF established the grant in 1993 for any hand therapist in order to provide seed grants to therapists conducting scientific clinical research related to hand and upper extremity rehabilitation. Because of the generous unrestricted contributions received by the Foundation in 1996, the Burkhalter Grant was increased to \$4,000 from the

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initial amount of \$1,000. AHTF grant submissions are now due on February 28 of the calendar year awarded. Applications for any of the AHTF grants can be accessed at <http://www.ahtfgrants.com>.

EVERLYN MACKIN GRANT FOR RESEARCH IN HAND THERAPY

Information on how you can apply for the \$3000 Evelyn Mackin Grant for Research in Hand Therapy, funded by ASHT, is now available. Grant seekers eligible for this award include practitioners, graduate students, and tenured/untentured faculty members. Faculty members must be affiliated with accredited occupational/physical therapy programs.

Visit <http://www.ahtfgrants.com/> to download an application.

HAND SURGEON-SCIENTIST AWARD

A 75K Hand-Surgeon Scientist Award is being offered by the Plastic Surgery Educational Foundation (PSEF) and American Foundation for Surgery of the Hand (AFSH). Applicant must be a young faculty member in United States Accredited Plastic Surgery Program and must also be a member of the American Society for Surgery of the Hand. The applicant must demonstrate that he/she has received a commitment from the NIH with written proof at time of application.

Applications will be accepted January 1 – December 1, 2010.

For more information, please contact Sarah Meyer Hughes (smeyerhughes@assh.org) at 847-384-8300 or the PSEF Research Office at 847-228-9900.

AT FIRST HAND “BY HAND”

Robin E. Miller, OTR/L, CHT gets a first hand look at Delta Cast as fabricated by Kim McVeigh, OT, CHT of the Mayo Clinic Florida at a recent in-service presented by Tony Perez of BSN Medical and held at the Fort Lauderdale Hand Clinic in June 2009.



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Therapists at the Fort Lauderdale Hand Clinic are certified by the Hand Therapy Certification Commission (HTCC). *Established in 1981, by Robin E. Miller, OTR/L, CHT, the Fort Lauderdale Hand Clinic is therapist-owned and specializes in upper extremity splinting and rehabilitation.*