

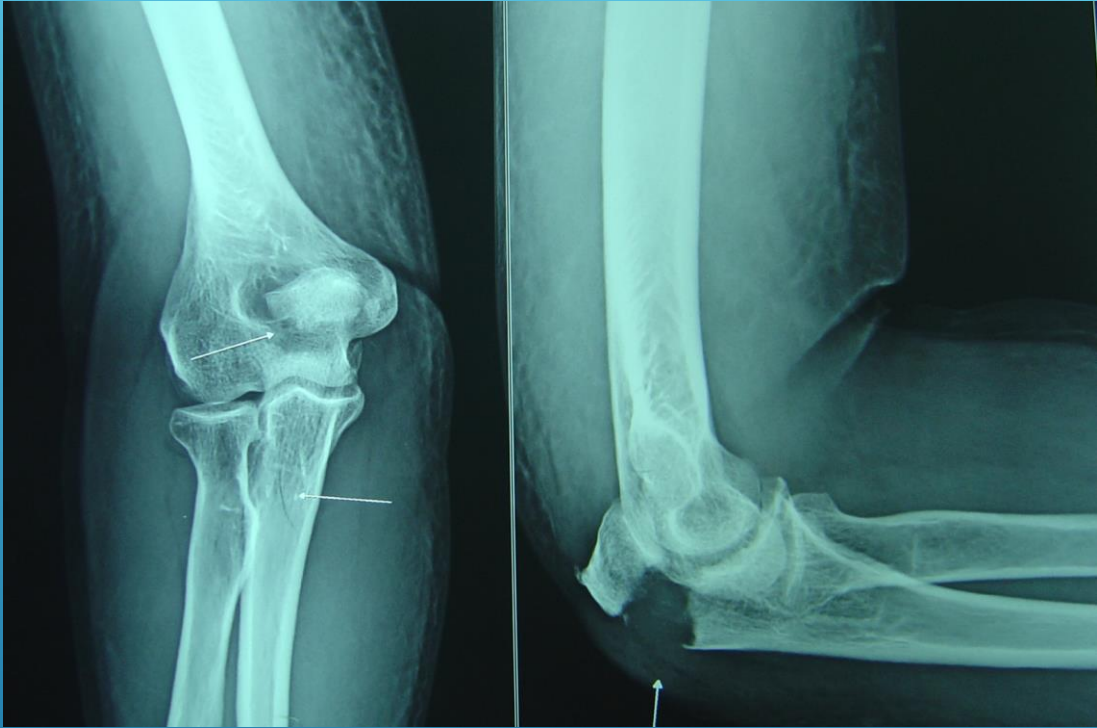
WIDE AWAKE HAND SURGERY

WALANT- WIDE AWAKE LOCAL
ANAESTHESIA NO TOURNIQUET

DR SHRENIK M SHAH

- ▶ M 45 years Diabetic type 2 uncontrolled with RBS 315 mg
- ▶ Hypertensive
- ▶ Cirrhosis of liver and portal hypertension
- ▶ H/o hematemesis before 1 year
- ▶ Bilateral pneumonia and interstitial fibrosis with respiratory failure
- ▶ Anemia Hb 8 gms, cytopenia and prolonged PT/APTT
- ▶ Sputum showed candida albicans

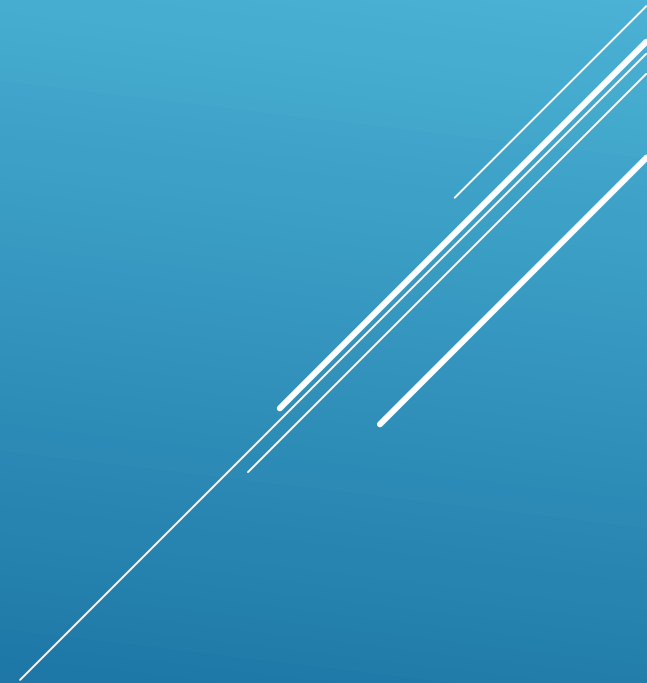
CASE 1: # OLECRANON AND CLAVICLE RT UPPER LIMB



- ▶ Physician, gastroenterologist and hematologist involved
- ▶ Extensively investigated
- ▶ Plan 6 units cryoprecipitate stat and 2 units FFP and 6 units PRP prior to surgery
- ▶ 6 units CRP, 4 FFP, 6 PRP per op
- ▶ FFP/CRP AND PRP 2 units each 6 hours after surgery
- ▶ Major concern was anaesthesia – GA/ Regional?

MANAGEMENT PRE AND POST OP

TRADITIONALLY, HAND SURGERY HAS BEEN PERFORMED UNDER TOURNIQUET CONTROL





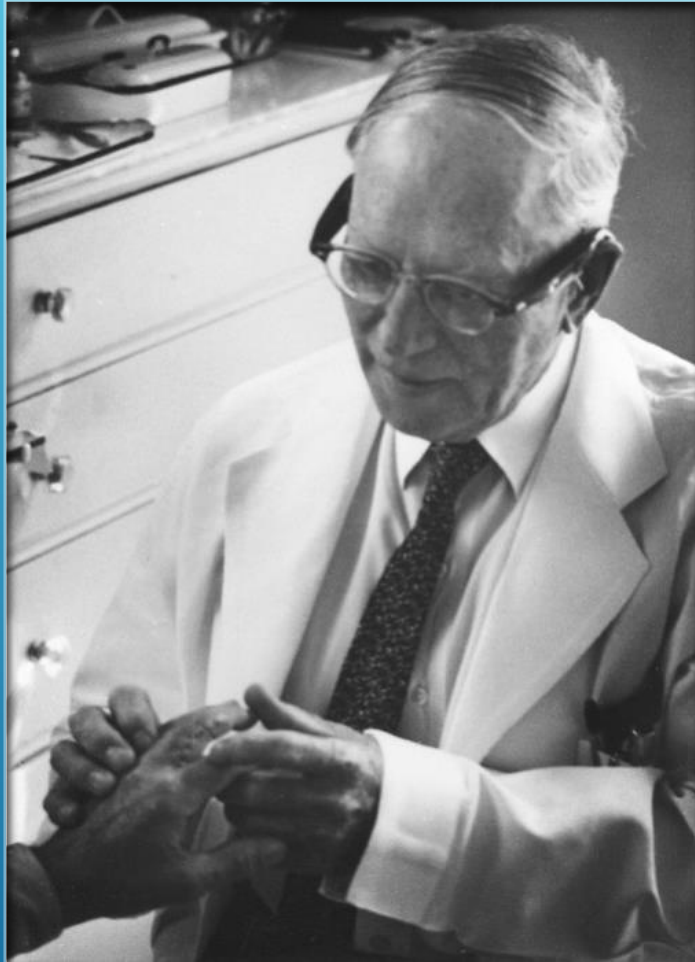
WHICH REQUIRES ANESTHESIA AND THAT IS EXPENSIVE

- Pre-op consultation
- Pharmacy
- IV
- Pre-testing – EKG, CXR, Labs
- Recovery room
- Total cost = RS.....



11TH COMMANDMENT OF HAND SURGERY THOU SHALT NOT USE EPINEPHRINE IN THE HAND

The use of epinephrine obviates the need for a tourniquet



STERLING BUNNELL

Father of Hand Surgery

- Injected a local anesthetic with epinephrine
- The finger died
- 60+ years of absolute obedience to #11
- Phentolamine described as antidote
- #11 is disproved
- Bunnell probably used procaine, which has a short shelf life

- ▶ Cost
- ▶ • Patient satisfaction > 90%
- ▶ • Patient safety – no anesthesia side effects
- ▶ • Patient safety – no stopping anticoagulants
- ▶ • Patient safety – no stopping diet, insulin, etc.
- ▶ • Quality – intra-operative assessment of tension of tendon repairs and transfers
- ▶ • Quality – assessment of adequacy of release
- ▶ • Increased compliance when patients watch

ADVANTAGES OF WALANT

- ▶ > 1,000 cases
- ▶ • Age range 12 to 100
- ▶ • Excellent patient acceptance
- ▶ • Some cases are just better this way

ANDREW W. GURMAN, MD
JANUARY 21, 2014

- ▶ • Buffer the medication
- ▶ • Slow injection
- ▶ • Adequate time to “soak in”
- ▶ • Pre-op and intra-op coaching

WALANT TECHNIQUE

McKee D,. Optimal time delay between epinephrine injection and incision to minimize bleeding Surg Plast. Reconstr. Surg. 131: 811,2013.)

- ▶ • Level I evidence from humans 2013
- ▶ • It takes a mean of 26 minutes for maximal vasoconstriction after injection of 1:100,000 epinephrine with lidocaine beneath human skin (NOT 7 minutes –1987 pig study)
- ▶ • Helpful to inject the local anesthesia before bringing the patient into the operating room.

- ▶ How to inject local anesthesia so that it hardly hurts at all
- ▶ Sept 2013 PRS with movies
- ▶ *1. A critical look at the evidence for and against elective epinephrine use in the finger.*
- ▶ *Thomson CJ, Lalonde DH, Denkler KA. Plast Reconstr Surg.*
- ▶ *119(1): 260-266, January 2007.*

**DON LALONDE MD SAINT JOHN, CANADA
PROFESSOR SURGERY DALHOUSIE UNIVERSITY**



ANTIDOTE

1mg phentolamine in 1-5cc of saline and inject it everywhere epi has been injected in small volumes

There are 2 problems with lidocaine and epinephrine

- **Epinephrine “jitters or shakes”**

- **Solution** Warn patients after each injection – “may feel shaky like you have had a little too much coffee, nervous, temporary, normal and will go away in 15-20 minutes, you are not allergic to it”

- **Fainting – vasovagal attack (always inject patients laying down)**

- **Recognize it** Patient says “I’m not feeling well”

- or “I think I’m going to be sick”

- Patient yawns or gets pale between the eyes

- **Solution** get more blood to brain - Flex hips and knees, put pillow under feet, lower head of bed

Calculation of safe dose of lidocaine + epinephrine

7mg / kg is more than safe; Dr Vasconez and colleagues showed 35mg/kg is safe
Plast Reconstr Surg. 1996 Jun;97(7):1379-1384.

- 70 kg lady X 7 mg/kg = 490 mg of lidocaine with 1: 100,000 epinephrine
- 490 mg of lidocaine is 49cc of 1% lidocaine with epi is extremely safe
- I stay at 50cc of 1% lidocaine with epi to always stay out of trouble without monitoring

Volume and dosage of local infiltration for most hand operations Oct 2013 J Hand Surg

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IN BRIEF

Dosage of Local Anesthesia in Wide Awake Hand Surgery

Donald H. Lalonde, MD, Alison Wong, MD

ONE OF THE MORE NOTABLE recent changes in hand surgery is the method of delivery of the anesthesia. Similar to when they are having a dental procedure, patients who understand and are offered the wide awake alternative like the ideas of (1) no preoperative testing, (2) no tourniquet pain, (3) less time at the hospital to have the surgery, (4) the ability to speak to their surgeon during the surgery, and (5) no sedation to cloud their head when they get home from their surgery.¹

THE PRINCIPLE OF MINIMAL PAIN INJECTION TUMESCENT LOCAL ANESTHESIA

Tumescent local anesthesia is like a tourniquet-free extravascular Bier block in which lidocaine with epinephrine is injected subcutaneously only where it is needed; everywhere the surgeon will be dissecting, moving fractures, or inserting K-wires (see

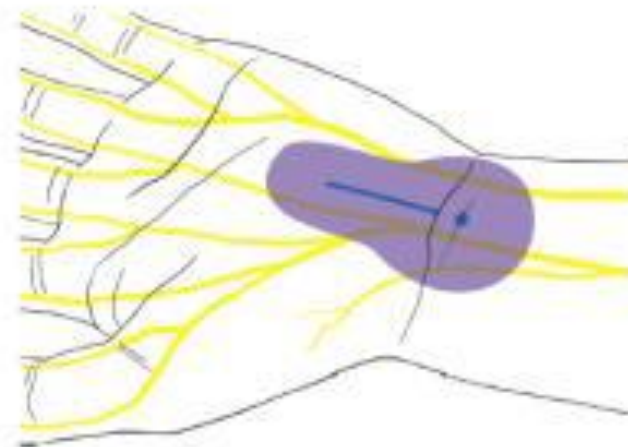


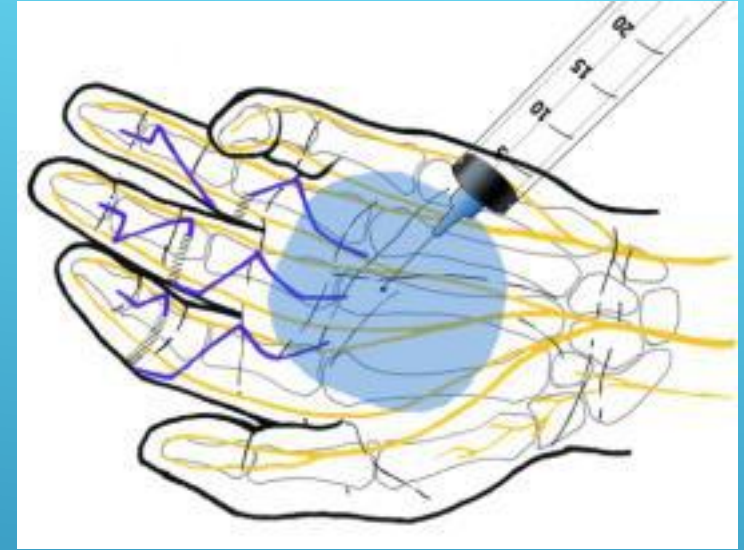
FIGURE 1: Carpal tunnel. Insert 10 cc in the subcutaneous fat without moving the needle at the blue dot. Eliciting paresthesias should be avoided; it may mean fascicle laceration by the sharp needle bevel. Insert a second 10 cc under the incision in the subcutaneous fat.

Contraindications to epinephrine in the finger

- If they have a nice pink finger before I inject, they will have a nice pink finger after I inject unless I hurt the blood supply to the finger with my surgery
- Patients who don't have good perfusion in the finger before I inject such as Buerger's disease Bad renal failure

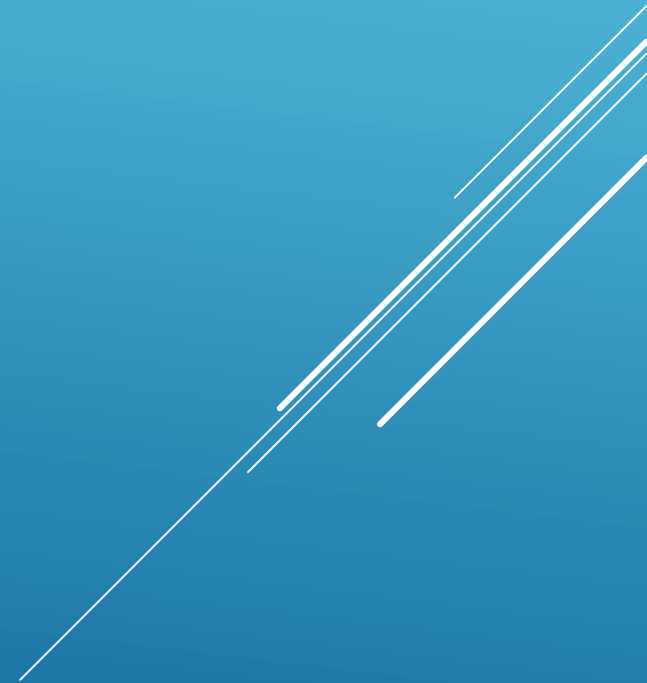
WALANT flexor tendon repair

- Less rupture
- Less tenolysis
- Better patient assessment and education during the surgery
- Know if superficialis should be repaired or not
- Comfortable starting true active movement after surgery



WALANT tendon transfers

- Can adjust the tension of the transfer before you close the skin so you get it not too tight or too loose
- Patient can see transfer works with his own eyes



THANK YOU
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