

Surgical Mission Honduras

Hand Surgical Cases

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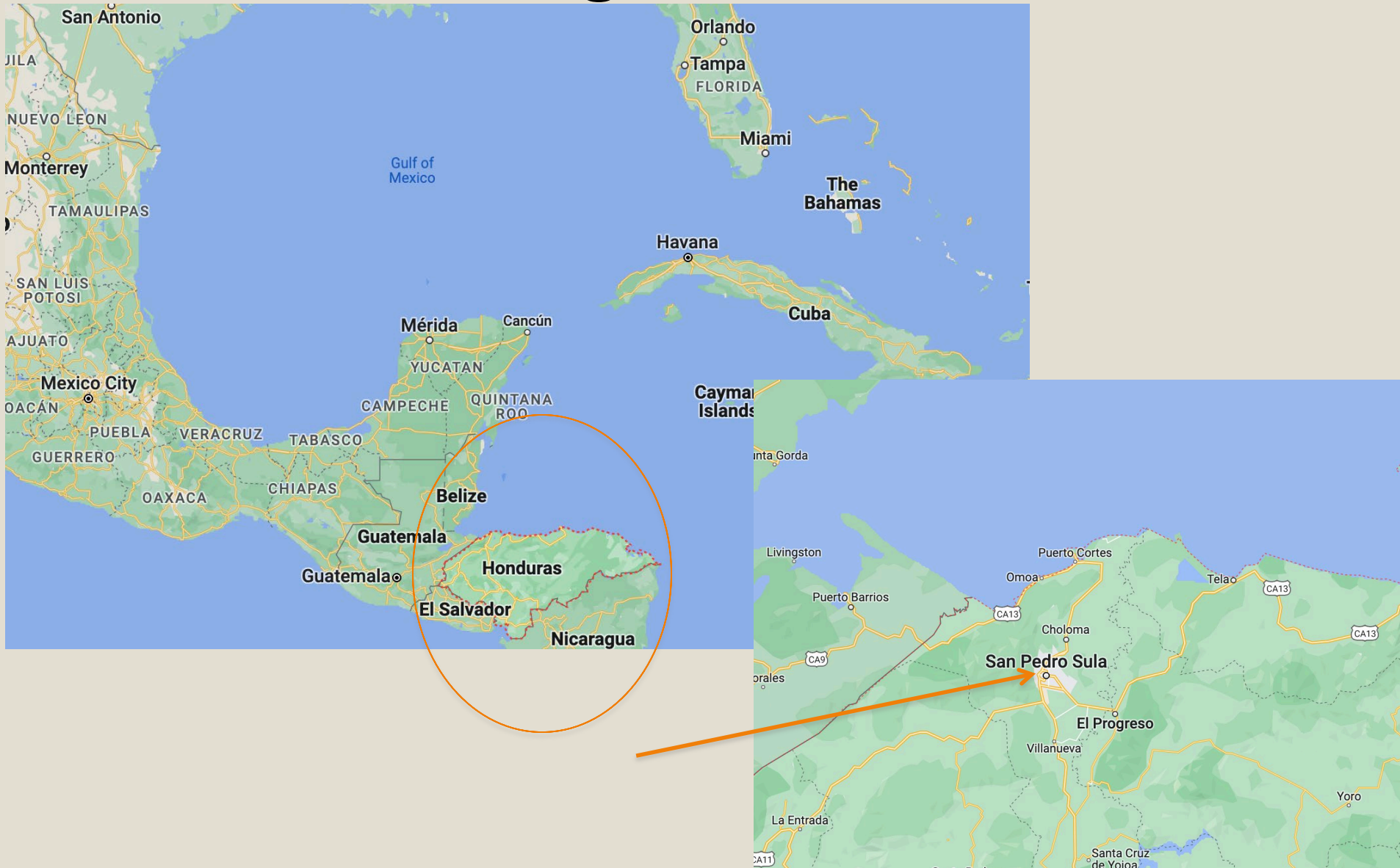
Big Rapids, Michigan



No Disclosures



World Surgical Foundation











Hand Surgery in US

- CTR
- Trigger finger release
- Arthritis (thumb basal joint)
- Trauma (wrist fractures, fingertip injuries, tendon lacerations)

Hand Surgery in Honduras

- Congenital: Syndactyly, duplicate thumb, radial club hand
- Neglected trauma or infection:
- Neuromuscular: CP, arthrogryposis, brachial plexus

Absolute Necessity

- Hand table
- Lead hand
- Tourniquet
- Basic instruments-scalpel blades, fine forceps, fine scissors, skin hooks, bipolar cautery
- Sutures 3/0, 4/0, 5/0, 6/0

One Step Better

- Fluoroscopy
- Power equipment
- K-wires
- Dressing material
- Casting material





18 year old, electric burn



2 year old untreated RCH



2 year old thumb duplication



Syndactyly



Adult post traumatic contracture



Congenital Hallux Varus



7 year old Arthrogryposis



Unstable Non Union



Post Traumatic Contracture



SYNDACTYLY

- Simple vs Complex
- Complete , Incomplete
- Isolated, Syndromic

- Surgical Treatment starts at 18-24 months
- And completed by 5 years

Principles of Surgery

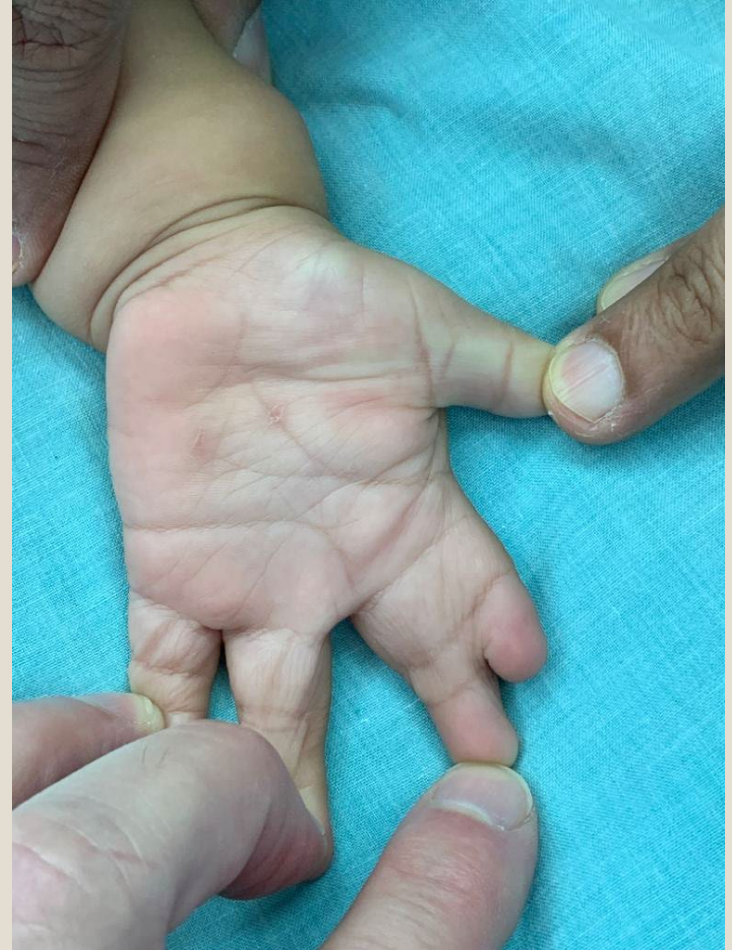
- Separate unequal digits first
- Avoid operating on both sides of a digit
- Excellent tourniquet control
- Loupe magnification
- Respect tourniquet time

- Broad based dorsal flap for web
- Mirror image zig zag incisions
- Bias towards dominant digit
- Expose and protect NV bundle
- Separate skeletal elements in complex cases
- Defat generously
- Split nail and reconstruct the tip with local flap
- Release tourniquet for hemostasis

- Full thickness skin graft
- 6/0 chromic or monocryl
- Long arm cast for 2 weeks
- Regraft promptly if take is not 100%



Simple Syndactyly







Thumb Index Syndactyly



Thumb-IF syndactyly

- Early separation necessary
- Wide release of 1st web
- CMC joint may need release
- Defect usually requires local flap, in some cases distant or free flap (lateral arm flap)
- Thumb hypoplasia





3 years later



RADIAL CLUB HAND

- Preaxial longitudinal deficiency
- 0.8 per 10,000
- Sporadic, rarely familial
- 50% associated with a syndrome or other anomalies
- Musculoskeletal, cardiac, GI, hematological, respiratory, neuro, genitourinary



- TAR (Thrombocytopenia-Absent Radius) syndrome. Thumb always present, platelet count generally improves
- Fanconi syndrome: Absent thumb, associated anomalies, usually fatal outcome

- Holt Oram Syndrome:
 - Autosomal dominant
 - Atrial septal defect
- VACTER : Vertebral, Anal atresia, Cardiac, T-E fistula, Esophagial atresia, Radial Club hand

Radial Club Hand

- 50% bilateral
- Absent thumb
- Stiff elbow
- Absent radial artery, nerve and radial musculature. Multiple anomalies in entire limb

Radial Club Hand Treatment

- Assess for other anomalies
- Serial stretching of elbow extension contracture
- Serial stretching and splinting of wrist deformity

Radial Club Hand Classification

- Type I: Short Distal Radius; minimal wrist deformity
- Type II: Hypoplastic Radius : very short
- Type III: Distal 2/3rd absent
- Type IV: Complete absence

Radial Club Hand Type II



Radial Club Hand Type III



Radial Club Hand Type IV



Functional Deficit

- Stiff elbow, unstable deformed wrist, short forearm, absent thumb



Unilateral cases: affected limb will always be non dominant

Bilateral: difficulty with feeding, personal hygiene, reaching hands and feet, prehension



Treatment



- Centralization
- Index Pollicization
- Corrective osteotomy of ulna
- Ulnar lengthening
- Free Fibular Epiphyseal transfer

Surgical Principles

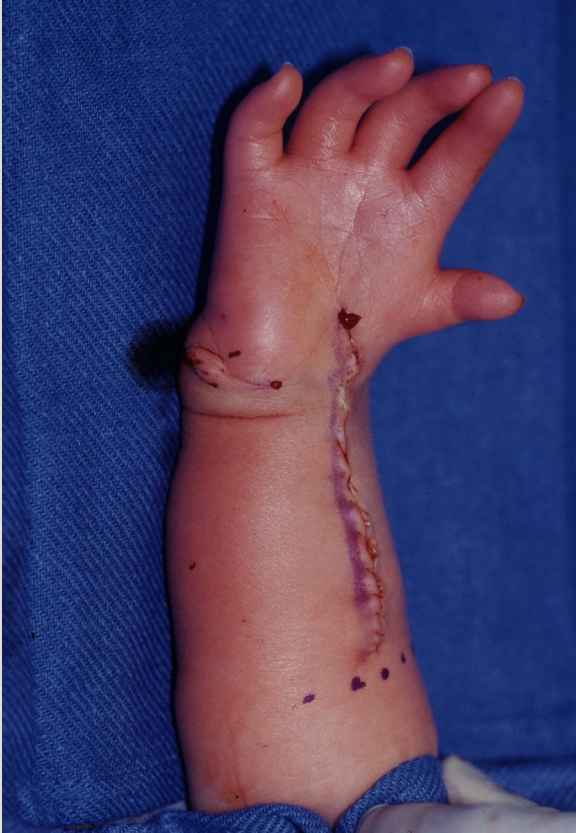
- Release all contracted radial sided structures
 - Fibrous bands, anomalous muscles/tendons'
fibrocartilagenous radius remnant, wrist joint

Protect Median Nerve

Ulnar incision- realign wrist, ? Tendon transfer

Radial Club Hand Type IV







Thumb Duplication



- Neither thumb is normal, usually the ulnar one is better formed
- Excise the smaller thumb
- Retain parts of the excised thumb to reconstruct the retained thumb
- Collateral ligament, abductor pollicis brevis
- Correct skeletal deformity, web contracture

Thumb Duplication

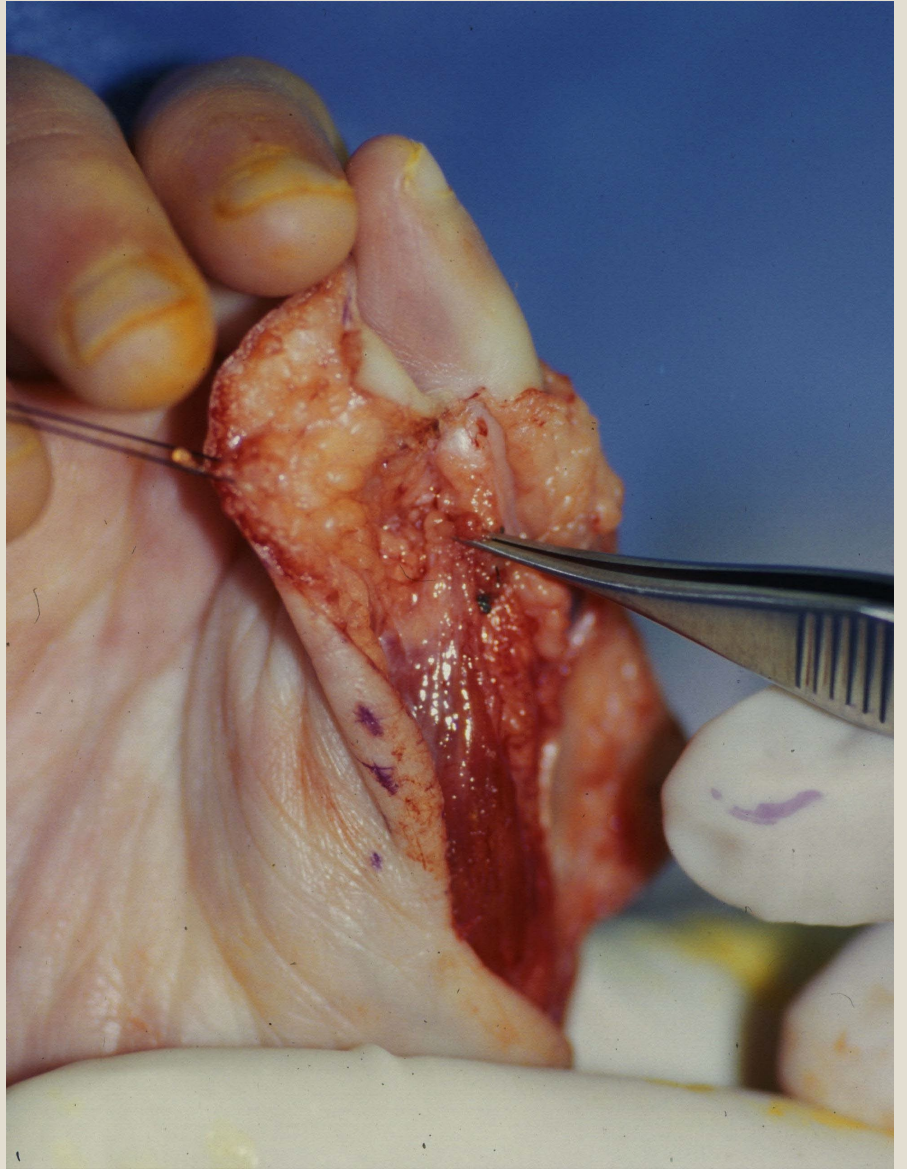
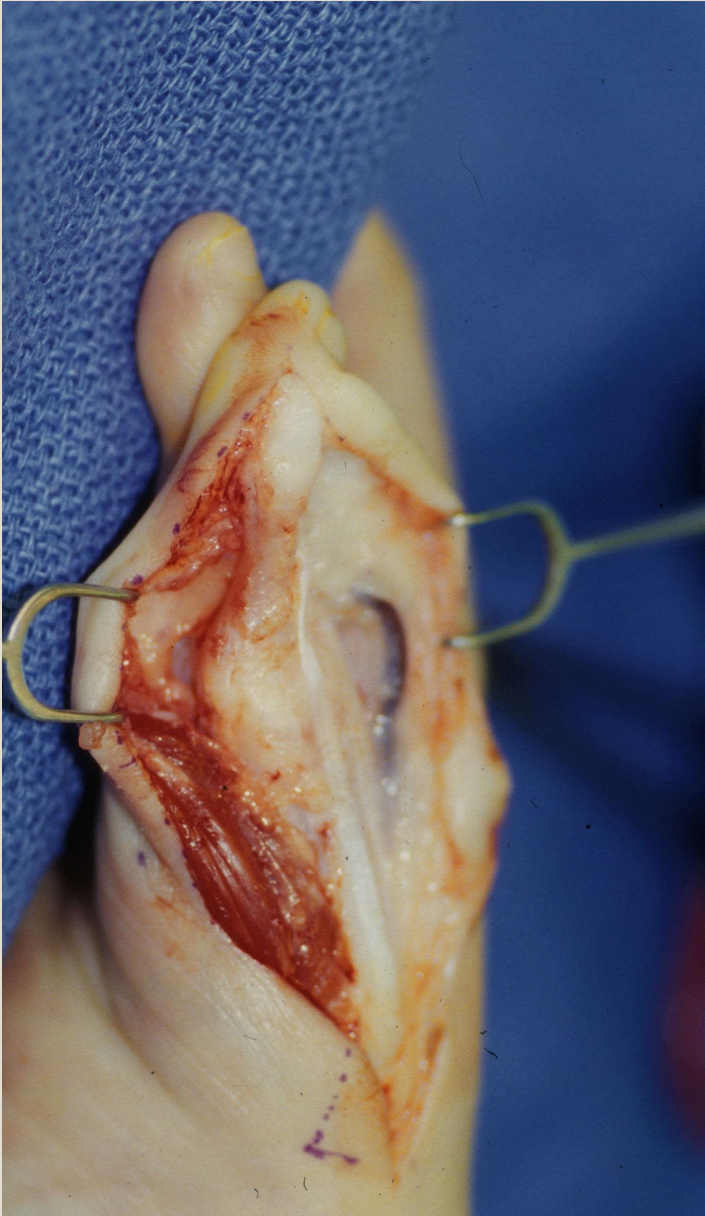
Wassel Classification

- I-partial terminal phalanx
- II-complete terminal phalanx
- III-partial proximal phalanx
- IV-complete proximal phalanx
- V-partial metacarpal
- VI-complete metacarpal



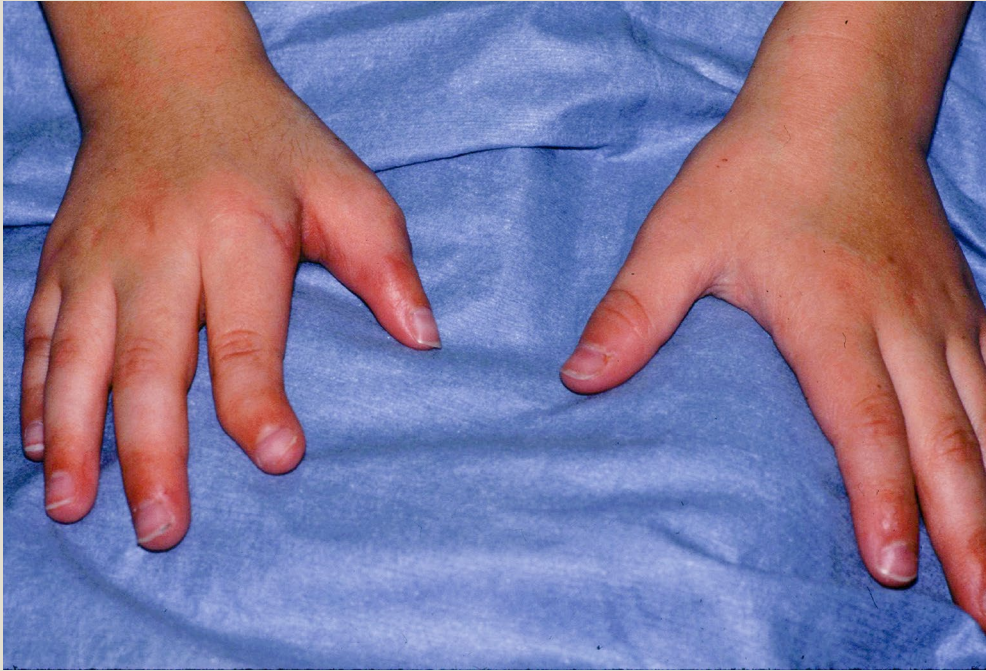
Type IV duplication





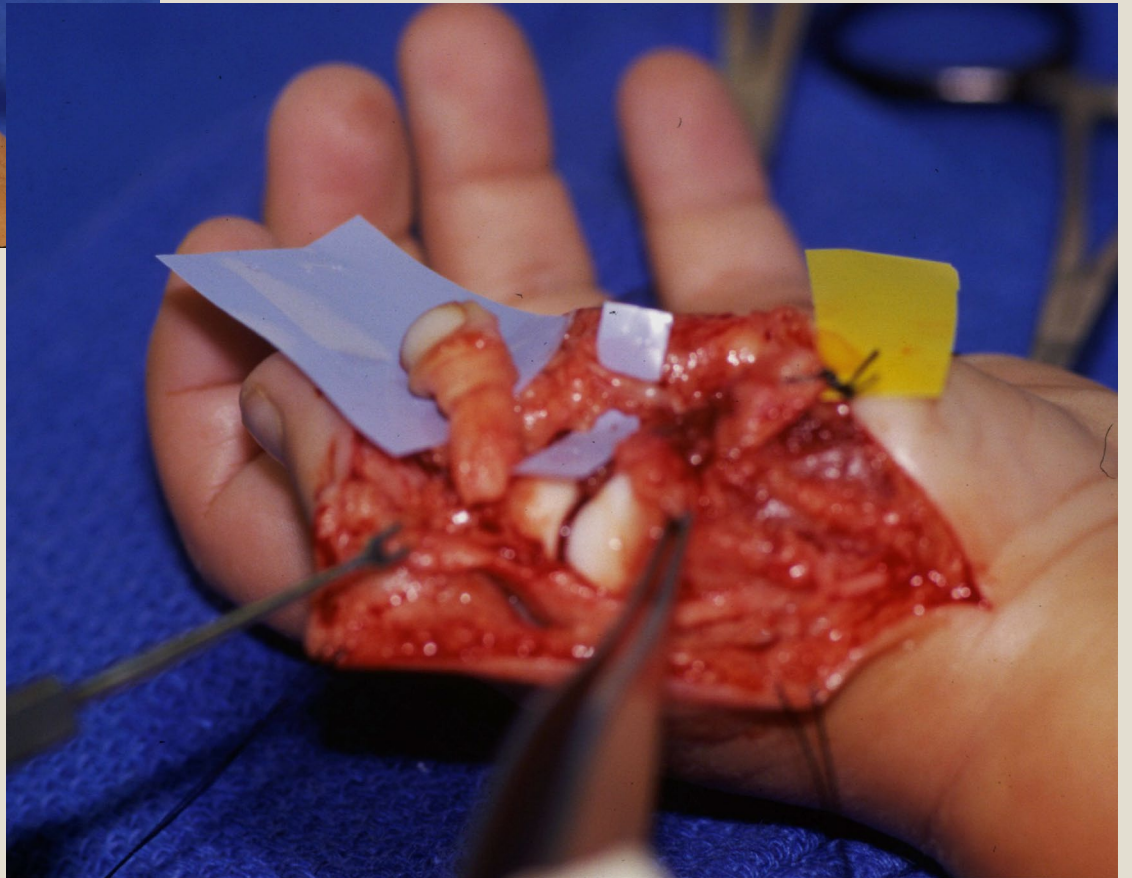


1 year later



Type III duplication







Post Traumatic 1st Web Contracture





3 year follow up



The Surgical Mission

- *We make a living by what we get. We make a life by what we give (Winston Churchill)*
- *I cried because I had no shoes until I saw someone with no feet (Anon)*
- *Charity begins at home but it should not end there (Francis Bacon)*

