

MATERIALS AND METHODS: Seven wrists underwent reverse radial wedge osteotomy.¹ Six wrists underwent reconstruction of the radio-carpal joint and sigmoid notch in a 2-phase surgery: (1) modified radioscapolunate arthrodesis with triquetrectomy and (2) distal scaphoidectomy. This results in a neo-DRUJ in which the ulnar head articulates with the former lunate. Mean follow-up was 105.4 (SD, 80.6) months and 47.6 (SD, 18.6) months, respectively. Clinical outcomes between the 2 approaches were compared using pain intensity, range of motion, and grip strength measurements; functional outcomes were compared using patient-reported outcome measures.

RESULTS: There were no differences found in postoperative VAS, grip strength, or range of motion, excluding extension which was significantly smaller in the radio-carpal joint and sigmoid notch reconstruction group (34.2 versus 54.3 degrees; $P = 0.04$). Quality of life scores (EQ-5D-5L) and overall MHQ scores were similar.

CONCLUSIONS: In this study, we describe a surgical approach for the treatment of Madelung deformity. In comparison to the “classic” osteotomy procedure, we found similar postoperative outcomes. Since the DRUJ in Madelung deformity can be significantly deformed, this novel approach could provide an alternative treatment option for a subset of patients. Although short-term outcomes seem satisfactory, longer follow-up is necessitated to confirm a lasting satisfactory result in terms of both functional outcome and preservation of the neo-DRUJ. Future research should focus on methodological reporting of all relevant variables and further investigate these differences, aiming for a systematic division based on characteristics of the deformity.

REFERENCE:

1. Mallard F, Jeudy J, Rabarin F, et al. Reverse wedge osteotomy of the distal radius in Madelung’s deformity. *Orthop Traumatol Surg Res.* 2013;99: S279–S283.

The Safety of Wide-Awake, Local Anesthesia, No Tourniquet Hand Surgery: Two Cases of Digital Ischemia

Presenter: *Julia Anne Cook, MD*

Co-Authors: *Daniel P. Donato, MD; Jeffrey N. Gross, MD; Patrick A. Gerety, MD; Sarah E. Sasor, MD*

Affiliation: *Indiana University School of Medicine, Indianapolis, IN*

PURPOSE: Wide-awake, local anesthesia, no tourniquet (WALANT) hand surgery has gained popularity in recent years. Lidocaine with low-dose epinephrine is used to minimize blood loss and improve patient comfort. WALANT surgery reduces the need for preoperative testing, avoids sedation requirements, allows for patient cooperation during surgery, and decreases cost and procedure time.¹ Multiple studies show that local anesthesia with epinephrine is safe to use in the fingers;^{1,2} however, a few cases of ischemia have been reported.^{3,4}

MATERIALS AND METHODS: We present 2 cases of digital ischemia after WALANT surgery that were successfully reversed with phentolamine.

RESULTS: Case 1—A 31-year-old female with rheumatoid arthritis underwent nail plate removal for chronic paronychia performed under a digital block (5 ml of 1% lidocaine with 1:100,000 epinephrine). The patient presented to the emergency room 12 hours later with persistent ischemia and anesthesia. Topical nitroglycerin cream and a warm compress were applied with minimal improvement. Five milligrams of phentolamine in 1 ml of sterile saline was injected at the base of the proximal phalanx with complete resolution of ischemia within 2 hours. At 1-week follow-up, the patient’s finger was perfused.

Case 2—A 76-year-old female with multiple medical comorbidities, including cardiac stents (on apixaban) and COPD (on 3 L of home oxygen), underwent trigger finger release under local anesthesia (6 ml of 1% lidocaine with 1:100,000 epinephrine mixed 1:1 with 0.25% plain bupivacaine). She returned to clinic 4 hours later with persistent ischemia. Topical nitroglycerin cream and a warm compress were applied without improvement. 1.5 mg of phentolamine in 1 ml of sterile saline was injected at the level of the A1 pulley. After 90 minutes, there was some improvement but the finger remained ischemic distal to the proximal interphalangeal joint. Another 1.5 mg of phentolamine in 1 ml of sterile saline was injected at the level of the proximal interphalangeal joint with significant improvement. At 10-day follow-up, the patient’s finger was perfused.

CONCLUSION: Prolonged digital ischemia after WALANT surgery is rare, but surgeons should counsel patients on warning signs and be prepared for phentolamine rescue when needed. The incidence of epinephrine-induced digital ischemia may increase as WALANT surgery gains popularity. It is mandatory for surgeons performing WALANT procedures to have access to phentolamine.

REFERENCES:

1. Al Youha S, Lalonde DH. Update/review: changing of use of local anesthesia in the hand. *Plast Reconstr Surg Glob Open*. 2014;2:e150.
2. Thomson CJ, Lalonde DH, Denkler KA, et al. A critical look at the evidence for and against elective epinephrine use in the finger. *Plast Reconstr Surg*. 2007;119:260–266.
3. Zhu AF, Hood BR, Morris MS, et al. Delayed-onset digital ischemia after local anesthetic with epinephrine injection requiring phentolamine reversal. *J Hand Surg Am*. 2017;42:479 e471–479 e474.
4. Zhang JX, Gray J, Lalonde DH, et al. Digital necrosis after lidocaine and epinephrine injection in the flexor tendon sheath without phentolamine rescue. *J Hand Surg Am*. 2017;42:e119–e123.

Improving Outcome Collection Following International Surgery Trips: A Proof of Concept From a Pediatric Hand Reconstruction Trip to Peru

Presenter: Connor J. Peck, BS

Co-Authors: Nicole K. Le, BS, MPH; Jack J. Kanouzi, MD; Anusha Singh, BS; Lily J. Saldaña, MD; Marco Lazo Nunez, MD; Ulises Aguilar Cornejo, MD; Marc E. Walker, MD; J. Grant Thomson, MD, MSc

Affiliation: Yale School of Medicine, New Haven, CT

BACKGROUND: Plastic surgeons frequently participate in international surgical trips. This model of care is often criticized due to a lack of postoperative follow-up, which limits outcome measurement and decreases surgeon accountability. This study assessed the efficacy of collecting outcomes from international pediatric patient parents using the social media application “WhatsApp.”

METHODS: All patients in this study were operated on during a pediatric hand surgery trip to Lima, Peru, in May 2019. All parents of patients receiving surgery were invited to participate in the study. General follow-up and a satisfaction survey utilizing a Likert scale (1–5) was sent to patient providers through WhatsApp at 3- and 6-week intervals.

RESULTS: Forty-five patient providers agreed to participate in this study. Eighty percent (36/45) responded fully to surveys at 3-week postoperatively, and 51% (23/45)

responded fully at 6 weeks. Patients reported high levels of satisfaction with the outcome of operations (4.3/5), attitude of the treatment team (4.6/5), and changes in quality of life (4.3/5), hand appearance (4.1/5), and hand function (4.1/5). Of those who responded at 3 weeks, 50% (17/34) sent postoperative photos, and 50% (17/34) had specific unanswered questions related to their care. Four patients had concerns of limited finger mobility (8.9%), 3 had continued contracture (6.7%), and 1 patient (2.2%) was rehospitalized following surgery for prolonged infection.

CONCLUSION: The parents of international pediatric hand surgery patients had access and were responsive to provider communication through the WhatsApp application. Although most parents reported high levels of satisfaction, many still had unanswered questions related to their care, highlighting the importance of our postoperative follow-up. All plastic surgeons operating internationally should consider using WhatsApp and other related messaging tools for outcome collection and the improvement of patient care. Future studies will aim to establish a more standardized and robust model for this type of outcome collection.

Novel Use of an Internal Distractor for Metacarpal Lengthening

Presenter: Laura E. Bashour, MS

Co-Authors: Charles E. Hill, MD; Sarah A. Frommer, MD, PhD; Steven L. Henry, MD, FACS

Affiliation: Dell Medical School at the University of Texas at Austin, Austin, TX

INTRODUCTION: Proximal digit amputation, especially of the thumb, can result in significant functional compromise. Toe transfer may be the best way to replace the missing tissues, but many patients are reluctant to undergo this procedure. For these patients, distraction osteogenesis of the metacarpal can restore length and improve function. Although external distractors are traditionally used for metacarpal distraction, internal distractors are appealing in that they are much less prominent and cumbersome. Although frequently used for craniofacial distraction osteogenesis, the use of internal distractors in the extremities has only been described in case reports for brachymetatarsia. Here we present a case series with the novel use of internal distractors for metacarpal lengthening.