CONCLUSION: Dorsal bridge plate fixation of distal radius fractures restores preoperative physiologic measures of the radius, ulna, and carpus. No significant carpal translocation occurred during distal bridge plate fixation to the 2nd or 3rd metacarpal bone. While additional studies are needed, fixation to the 2nd metacarpal is preferred as it does not translocate the wrist, and previous studies demonstrate fixation to the 3rd metacarpal bone can entrap the 1st and 3rd extensor compartments.

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Cost Analysis of Percutaneous Fixation of Hand Fractures in the Main Operating Room Versus the Ambulatory Setting

Joshua A. Gillis, MD; Jason Williams, MD, Med; Alexander Morzycki, MSc

INTRODUCTION: To date, there have been no studies identifying the cost differential for performing closed reduction internal fixation (CRIF) of hand fractures in the operating room (OR) versus an outpatient clinic setting. Our goal was to analyze the cost and efficiency of performing CRIF in these two settings and to investigate current practice trends in Canada.

METHODS: A detailed analysis of the costs involved both directly and indirectly in the CRIF of a hand fracture was conducted, including material and labour costs. Hospital statistical records were used to calculate efficiency. A survey was distributed to practicing plastic surgeons across Canada regarding their current practice of managing hand fractures.

RESULTS: In an eight-hour surgical block we are able to perform approximately five CRIF in the OR versus eight in an ambulatory setting. The costs of performing a CRIF in the ambulatory setting under local anaesthetics, not including surgeon compensation, is $115.59 Canadian (CAD) compared to $461.27 CAD in the OR, a 299% decrease in cost. The use of a regional block increases the cost to $665.49 CAD, a 476% increase. This was due to a significant increase in labour costs, 1062% and material costs, 72%. The main barrier to performing CRIFs in an outpatient setting is the absence of equipment necessary to perform these cases effectively, based on survey results.

CONCLUSION: The use of the OR for CRIF of hand fractures is associated with a significant increase in cost and hospital resources with decreased efficiency. We conclude that for appropriately selected hand fractures, CRIF in an ambulatory setting is less costly and more efficient compared to the OR and resources should be allocated to facilitate CRIF in this setting.

DISCLOSURE: None of the authors has a financial interest in any of the products, devices, or drugs mentioned in the manuscript.

Incidence of Trigger Digits after Carpal Tunnel Release: A Nationwide, Population-Based Cohort Study

Hsu-Tang Cheng, MD; Oscar J. Manrique, MD; Fu-Yu Lin, MD; Cheng-Li Lin, MSc; Yung-Chang Hsu, MD

INTRODUCTION: The onset of trigger digits after carpal tunnel release (CTR) have been reported inconsistently across the literature. The aim of this study is to assess the incidence of trigger digits after CTR using a nationwide population cohort data.

MATERIALS AND METHODS: We conducted a retrospective cohort study using the Longitudinal Health Insurance Database 2000 (LHID2000) from the National Health Insurance Database (NHIRD) in Taiwan. The LHID2000 contained one million beneficiaries randomly selected from the year 2000 Registry for Beneficiaries in NHIRD. From 2000 to 2010, 2,605 carpal tunnel syndrome (CTS) patients received CTR (CTR cohort, n = 2,605). For each CTR patient, 4 CTS patients without CTR were randomly selected in the control cohort from the general population frequency matched by age, sex, and diagnosed year (non-CTR cohort, n = 10,420). Both cohorts were followed up until the end of 2011 to investigate the occurrence of trigger digits. Adjusted hazard ratios (aHRs) with 95% confidence interval (CI) of trigger digits were estimated using the Cox proportional hazards model after controlling for age, sex and comorbidities.

RESULTS: The CTR cohort had a mean follow-up period of 5.58 ± 3.18 years and the non-CTR cohort had a mean follow-up period of 5.90 ± 3.10 years. The overall risk of trigger digits was 3.63-fold greater in the CTR cohort than in the non-CTR cohort (incidence rate: 12.6 vs 3.38/1,000 person-years, aHR:
The incidence of postoperative trigger digits was highest in the first six months (incidence rate: 27.9/1,000 person-years, aHR: 9.65, 95% CI: 5.27 - 17.7) and then significantly decreased over time.

CONCLUSION: CTR was significantly associated with the subsequent development of trigger digits, especially in the first postoperative six months.

DISCLOSURE/FINANCIAL SUPPORT: None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.

REFERENCE:
1. Cheng HT, Wu CI, Hsu YC. Coincidence or Complication? A Systematic Review of Trigger Digits After Carpal Tunnel Release. Plast Reconstr Surg. 2015;136(4 Suppl):21–2.

Congenital Syndactyly Reconstruction of 391 Webspaces

David Colen, MD; Michael Tecce, DO; Michael Lanni, BS; Brianne Mitchell, MD; Benjamin Chang, MD

INTRODUCTION: Congenital syndactyly occurs in isolated and syndromic forms; method of reconstruction must be tailored to the type of syndactyly and postoperative function will depend on the preoperative state of the hand in addition to the method of reconstruction selected. We present the 18 year experience of surgical reconstruction of congenital syndactyly in all of its forms at a high throughput children’s hospital.

METHODS: All patients who underwent webspace reconstruction for congenital syndactyly by the senior author over an 18 year period were included in this study. Data included demographics, medical history, anatomy and severity of syndactyly, surgical technique, follow up and need for revision. Patients who underwent hand surgery prior to their first clinic visit were excluded from outcomes analysis. Logistic regression was performed to identify factors that were associated with postoperative wound complications and revision.

RESULTS: Reconstruction was performed for 182 patients with 391 webspaces; 21 patients were referred from outside surgeons and excluded from outcomes analysis. Twenty-eight patients had complications over 32 webspaces. The most common complications were web creep (n=10), scar contracture (n=6), and flexion contracture (n=5). Dorsal VY advancement flap was the most common method for reconstructing simple incomplete syndactyly and was associated with decreased risk of complication in the 3rd webspace (OR=0.427 p=0.006) while triangular flaps and skin graft was associated with increased complications (OR=2.75, p<0.001). Presence of a complicated hand anomaly did not significantly increase the likelihood of complications (p=0.21).

CONCLUSION: Syndactyly is a common congenital hand condition that occurs as both an isolated anomaly and as part of several syndromic diagnoses. We describe the largest retrospective cohort of congenital syndactyly reconstruction to date and discuss important technical and clinical considerations to minimize postoperative complications and revisional surgery.

Development and Field-Testing of an Alternative Low-Cost Hand Splint for Burn Contracture

Kimberly E. Souza, BS*; Lawrence Z. Cai*, BS; Jana P. Lim, BS*; Mohan K. Dangol; Dinesh Chataut, MS; Nancy B. Chee, OTD, OTR/L, CHT; Shankar M. Rai, MBBS; James Chang, MD

*These authors contributed equally to this work.

INTRODUCTION: Burn scar contractures remain a common source of disability in low- and middle-income countries and often require complex reconstructive operations to restore function to the patient. Despite the high prevalence of burn scar contractures and subsequent release procedures, patients often face tremendous barriers to adequate physical therapy and follow-up care, which results in relapse of the contracture following a release. Static progressive splinting mechanisms are well-described for this indication, but these splints are cost-prohibitive or unavailable to patients in low- and middle-income countries. To that end, we describe our work to develop and test an alternative low-cost static progressive hand splint designed to prevent flexion re-contracture in burn scar contracture release patients.

METHODS: The splint was created through an iterative design-and-test process through collaboration with Stanford School of Medicine in the US, Kirtipur Hospital in Nepal, and Scheer Memorial Hospital in Nepal. Splints were given