Digital Sympathectomy at the Time of Fasciectomy for Dupuytren’s Contracture

Presenter: Jesse R. Smith, MD, MS
Co-Author: Orhan Kaymakcalan, MD
Affiliation: University of Chicago, Chicago, IL

INTRODUCTION: Open fasciectomy is perhaps the most popular treatment for Dupuytren’s contracture. Vascular complications are rare but may be unrecognized and are underreported. Digital sympathectomy at the time of open fasciectomy for Dupuytren’s contracture may potentially prevent, or at least allow for early recognition of, missed injury to the digital arteries.

CASE REPORT: A 78-year-old, right-handed male who is a retired laborer was diagnosed with Dupuytren’s contracture involving the right long finger. The metacarpophalangeal joint and the proximal interphalangeal joint of the long finger were contracted in approximately 85 and 60 degrees of flexion, respectively. A standard open fasciectomy involving the palm and the long finger was performed under tourniquet. Prior to closure, a Jeweler forceps was used to carefully dissect off 1 cm of adventitia from each of the digital arteries supplying the long finger. At the end of the case, with the long finger in near full extension, the digit appeared pink and without evidence of vasospasm immediately following deflation of the tourniquet. At time of 1-month follow-up, the patient had a favorable outcome without complication.

CONCLUSION: The peculiar pathoanatomy responsible for Dupuytren’s contracture displaces the neurovascular structures supplying each digit centrally and superficially to a position of greater risk for surgical injury during open fasciectomy. There are 2 described cases of arterial injuries during surgery for Dupuytren’s contracture that culminated in gangrene and amputation. When these injuries are recognized early, salvage is possible. Digital sympathectomy allows for careful inspection of the neurovascular bundles prior to wound closure and prevents immediate post-operative vasospasm. The implications of these findings, as well as the potential for long-lasting benefits to the patient that may include decrease in likelihood of recurrence and reduction in use of narcotic pain medication and incidence of complex regional pain syndrome following surgical treatment, will be discussed.

Patient Preferences in the Management of Acute Non-Displaced or Minimally Displaced Scaphoid Fractures: A Conjoint Analysis

Presenter: Ronnie L. Shammas, BS
Co-Author: Scott G. Wallace, BS; Nate Mela, GED; Joel C. Huber, PhD; Betty C. Tong, MD; Suhail K. Mithani, MD
Affiliation: Duke University School of Medicine, Durham, NC

INTRODUCTION: We hypothesized that out-of-pocket costs would have a greater influence on patient decision making for operative or non-operative management of a scaphoid fracture when compared to the time spent in a cast or brace, degree of soreness, or the risk of treatment failure.

METHODS: Survey participants were recruited using Amazon Mechanical Turk. A conjoint preference experiment derived the relative importance of attributes thought to be influential in the decision to undergo operative or non-operative management of a scaphoid fracture. The attributes described were time in a cast, time in a brace, remaining soreness/stiffness, risk of treatment failure, and cost. Respondents chose among 13 different alternatives that differed in these attributes. Survey respondents were then asked to choose between operative or non-operative management.

RESULTS: A total of 250 people participated in this survey. The most important factors in respondent decision-making were cost, followed by time spent in a cast and risk of treatment failure. Time spent in a brace and remaining soreness/stiffness were less important. The relative importance of these attributes was used in conjunction with a 5-point scale that assessed the respondents’ apprehension to undergo surgery. This allowed for a prediction to be made about the type of management the respondent would choose to undergo; and in conjunction with a sensitivity analysis, the proportion of respondents who would choose operative management given different outcomes (i.e. higher cost, higher risk of treatment failure, etc.) was estimated. Overall, 37% of respondents chose operative management. Instead of paying...
$500, people would rather experience two weeks in a cast, three weeks in a brace, two months of soreness, or a 2% increase in the risk of treatment failure. A one point decrease in an individual’s apprehension about surgery has the same impact on treatment selection as a $600 reduction in the cost of surgery. Individuals who have undergone surgery in the past, and those with a higher level of education, were less apprehensive about surgery.

CONCLUSION: Cost and apprehension about surgery are important factors in patient decision making for the treatment of scaphoid fractures. Surgeons should address these concerns while discussing the treatment options for their injury.

Outcomes of Intramedullary Fixation of Metacarpal Fractures Using Headless Compression Screws: A Literature Review

Presenter: Christina M. Beck, PhD
Co-Authors: Marisa Cornejo, BA; Peter J. Taub, MD
Affiliation: Icahn School of Medicine at Mount Sinai, New York, NY

INTRODUCTION: Metacarpal fractures are a common occurrence in the United States, making up 33.3% of all hand fractures. The majority can be treated nonoperatively, but surgery is indicated when fractures cannot be reduced or fracture alignment cannot be stabilized using closed methods. In 2010, Boulton et al reported intramedullary cannulated headless screw fixation of a comminuted subcapital metacarpal fracture. This method has since been described as an operative technique for displaced, comminuted subcapital, and metacarpal neck and shaft fractures. The purpose of this review is to evaluate the recent studies reporting on the outcomes of intramedullary screw fixation of metacarpal fractures.

METHODS: Pubmed, Web of Science, and Cochrane were searched. All outcome data from articles reporting on the use of intramedullary screws for the treatment of metacarpal fractures were combined.

RESULTS: A total of five articles, one of which was the original case report, were identified for a total of 115 metacarpal fracture repairs performed using intramedullary screw fixation. The majority (84%) were in the small finger with fracture location in the metacarpal neck (69%). All studies used 2.4mm or 3.0mm screws ranging from 32-50mm in length for fixation. Average follow-up was 14 months with an average MCP flexion of 82 degrees (n=78). One study (n=18) did not record MCP flexion, but reported each digit to have a total active motion >240 degrees. All but one study measured radiographic union as an outcome, and all (n=78) resulted in 100% union at or before the latest follow-up. Additionally, grip strength was assessed in two studies (n=29), which showed an average of at least 98% of the contralateral hand. No serious complications were reported. Only one hardware removal was performed due to radiographic suspicion of intra-articular screw penetration. Of note this was a complication of the Y strutting technique in which two intramedullary screws are placed.

CONCLUSION: Intramedullary fixation of metacarpal fractures using headless compression screws has thus far proven to be a safe and successful surgical treatment option for metacarpal fractures. Advantages of this technique over previously described methods (intramedullary nail or percutaneous K-wire fixation) include no requirement of K-wire removal and increased rotational stability, thus allowing for earlier mobilization.

Use of a Multi-Vector Mandibular Distractor for Treatment of Pediatric Proximal Interphalangeal Joint Pilon Fractures: A Case Based Review

Presenter: Rachel Pedreira, BA
Co-Authors: Brian H. Cho, MD; Angela Greer, BS; Ramon DeJesus, MD
Affiliation: Johns Hopkins University, Baltimore, MD

INTRODUCTION: The difficulties in surgical treatment of pilon fractures of the finger include fracture reconstitution and a fibroblastic reaction around the PIP joint causing stiffness. In adults, external fixation combined with traction and early