1 Comprehensive Orthopaedic Review
Hand Fractures and Dislocations
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2 Mallet Finger: Results of Early Versus Delayed Closed Treatment
Garberman et al., JHS 1994; 19A: 850–52
• 75 pts w/closed bony or tendinous mallet injury rx w/continuous DIPJ extension splinting 6–10 weeks
• Prospective, randomized w/Stack or Alumafoam
• Early Rx Grp (< 2 wks) had 9° extensor lag
• Late Rx Grp (> 4 wks) had 10° extensor lag
• Therapeutic Level I (Univ NY at Buffalo)

3 Seymour Fracture Characteristics
• Juxta-epiphyseal fracture of terminal phalanx, skeletally immature, Salter–Harris type I or II (not types III – V)
• Flexion deformity at fracture
• Proximal nail plate subluxation
• Nail bed laceration

4 Seymour Fracture – Anatomy & Biomechanics
• Weakness of epiphysiometaphyseal junction
• Different insertions of terminal flexor (epiphysis & metaphysis) and extensor (epiphysis only)
• Epiphyseal plate is weaker than terminal tendon
• Beware post-traumatic mallet deformity in child
• Lateral projection radiograph mandatory

5 Seymour Fractures: Retrospective Analysis and Therapeutic Considerations
Krusche-Mandl et al., JHS 2013; 38A: 258–64
• Retrospective review 24 skeletally immature pts
• Removal nail bed from fx, reduction of fx and proximal nail plate, K-wire fixation if fx unstable
• Consider open injury, rx prophylactic antibiotics
• 23 / 24 pts good ROM, good–excellent outcome
• Therapeutic Level IV (Univ Vienna, Austria)

6 A Biomechanical Study of Distal Interphalangeal Joint Subluxation After Mallet Fracture Injury
Husain et al., JHS 2008; 33A: 26–30
• 29 fresh-frozen cadaveric fingers had P3 base osteotomized to create bony mallet fractures
• Subluxation not observed if fragment < 43%
• Subluxation occurred if fragment > 52%
• Expect subluxation if fragment > 50% P3 base
• Cadaver study (Northwestern Univ)

7 Current Concepts: Fracture–Dislocation About the Finger Joints
Calfee et al., JHS 2009; 34A: 1140–47
8 Irreducible dorsal dislocations of the proximal interphalangeal joint
   Green et al., JHS 1985; 10A: 85–87
   • 4 cases (3 open, 1 closed) of irreducible PIPJ dorsal dislocations
   • Primary block was interposed volar plate avulsed from proximal membranous
     attachment
   • Open reduction of volar plate allows PIPJ reduction.
   • Volar plate repair is not needed.
   • Case series (HJDOI, New York)

9 Chronic palmar dislocation of proximal interphalangeal joints
   Posner et al., JHS 1986; 11A: 253–58
   • 7 cases with chronic volar PIPJ dislocation
   • Essential lesion is central slip avulsion
   • Associated collateral ligament partial tears and volar contracture of the lateral
     bands
   • Open reduction PIPJ, release volar plate and collaterals, dorsal advancement of
     lateral bands
   • Case series (HJDOI, New York)

10 Hemi–Hamate Arthroplasty Provides Functional Reconstruction of
    Acute and Chronic Proximal Interphalangeal Fracture–Dislocations
    Calfee et al., JHS 2009; 34A: 1232–41
    • 33 pts w/dorsal PIPJ fx–dislocations > 50% joint
    • Evaluated 22 pts mean follow-up 4.5 years
    • Mean PIPJ flexion 70°, flexion contracture 19°, grip strength 95% opposite side
    • HHA good option for PIPJ reconstruction
    • Therapeutic Level IV (Washington Univ)

11 Mini–Screw Fixation for the Treatment of Proximal Interphalangeal
    Joint Dorsal Fracture–Dislocations
    Hamilton et al., JHS 2006; 31A: 1349–54
    • 9 pts w/ORIF for unstable dorsal PIPJ fx–disl
    • Mean PIPJ motion 70°, flexion contracture 14°
    • 8 of 9 pts had residual flexion contracture
    • Approach procedure cautiously if comminution
    • Therapeutic Level IV (Univ of Cincinnati)

12 Irreducible MCPJ Dorsal Dislocation
    • Dorsal dislocations more common than volar
    • Index finger most frequently dislocated
    • MCPJ hyperextended, volar plate avulsed from metacarpal neck and interposed in
      joint
    • Metacarpal head prominently displaced in palm
    • Collateral ligaments torn if rotation stress

13 Review Article: Metacarpophalangeal Joint Dislocation
    Dinh et al., JAAOS 2009; 17: 318–24

14 Volar Approach to Complex Dorsal MCPJ Dislocation
    • Permits better visualization
    • A1 pulley excision frees flexors
Digital nerve at risk for injury
Volar plate divided in dorsal approach
Lumbrical, FDI contribute to irreducibility

15 Injuries to the Ulnar Collateral Ligament of the Thumb Metacarpophalangeal Joint
Heyman, JAAOS 1997; 5: 224–29
• pUCL is taut in flexion, lax in extension
• aUCL is taut in extension, lax in flexion
• Test for laxity in 30° flexion, then extension

16 Rupture of the Radial Collateral Ligament of the Index Metacarpophalangeal Joint: Diagnosis and Surgical Treatment
Kang et al., JHS 2007; 32A: 789–94
• 12 pts w/index RCL tears were repaired to bone w/suture anchor, 6 wks immobilization
• 7 avulsed from MC attachment, 5 from P1
• No Stener-like lesions (sagittal band, ext hood)
• All pts satisfied w/ROM, stability, grip & pinch strength restored
• Therapeutic Level IV (HSS, New York)

17 Three Cast Techniques for the Treatment of Extra-Articular Metacarpal Fractures
Tavassoli et al., JBJS 2005; 87A: 2196–2201
• 263 extra-articular MC fx rx 5 wks immobilization
• Grp 1, MCPJ flexed, IPJ free; Grp 2, MCPJ extended, IPJ free; Grp 3 – MCPJ flexed, IPJ extended
• No difference in fx reduction, ROM, grip strength
• MCPJ immobilization in flexion not necessary
• Therapeutic Level III (Portsmouth, VA)

18 Acute Dislocation of the Carpometacarpal Joint of the Thumb: An Anatomic and Cadaver Study
Strauch et al., JHS 1994; 19A: 93–98
• 38 cadaver thumbs dorsally dislocated at CMCJ
• Dorsoradial ligament found to be primary restraint
• After reduction, CMCJ most stable in pronation and extension which tightens anterior oblique ligament
• Cadaver study (New York Ortho Hosp, NY)

19 Bennett’s Fracture
• MC adducted & supinated by adductor pollicis, pulled proximally by APL
• Reduction by palmar abduction, traction, pronation, pressure at MC base