

HAND TRAUMA FOR TRAUMA SURGEONS
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SURGERY ARTICLES

The epidemiology of upper extremity injuries presenting to the emergency department in the United States
 Daan Ootjes • Kaj T. Lambers • David C. Ring

- Database query of emergency room visits in 2009.
- Incidence is 1,130 in 100,000 persons per year
 - 1/88 chance that a resident of the USA will present to the ER with an upper extremity injury in a given year.
- By site: Finger injuries (38.4%), shoulder injuries (16.8%), lower arm (15.3%), wrist (15.2%), elbow (10.5%), and upper arm (3.7%)
- Most common: Fracture (29.2%), lacerations (23.3%), strains/sprains (16.2%), contusions/abrasions (14.0%), and dislocations (4.6%)

EMERGENCY HAND SURGERY COVERAGE
 Hand and Microvascular Replantation Call Availability Study: A National Real-Time Survey of Level-I and Level-II Trauma Centers

Bret C. Peterson, MD, Daniel Mangiapani, BS, Ryan Kellogg, BS, and Fraser J. Leversedge, MD
 Investigation performed at the Department of Orthopaedic Surgery, Duke University, Durham, North Carolina

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- Level I institutions: 117/137 responded to the survey
 - 55% had immediate coverage
- Level 2 institutions: 132/153 responded to the survey
 - 29% had immediate coverage

HAND TRAUMA EMERGENCIES

- ▶ Amputations and vascular injuries
- ▶ Compartment syndrome.
- ▶ High pressure injection injuries
- ▶ Contaminated open injuries.
- ▶ Various dislocations.

HIGH PRESSURE INJECTION INJURIES

- ▶ Initially appear innocuous
- ▶ However, they carry a high risk of wound infection, tissue necrosis, compartment syndrome and amputation
- ▶ The degree of damage is influenced by the actual pressure of the injection and of the injected material



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HIGH PRESSURE INJECTION INJURIES

- ▶ Digit injections do worse than palm injections
- ▶ Organic solvents have the worst prognosis > automobile grease and hydraulic fluid > air and water
- ▶ Amputation rates 16%-80%



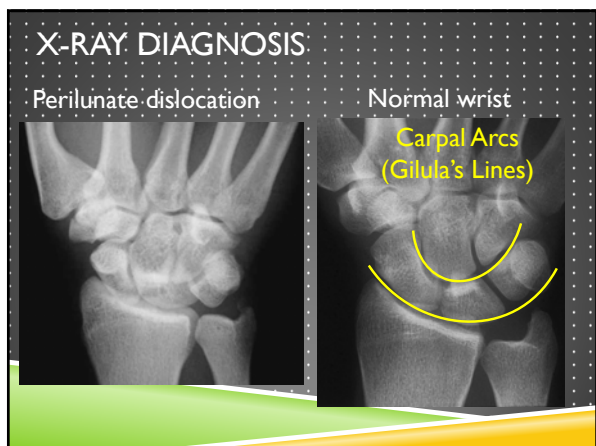


HIGH PRESSURE INJECTION INJURIES

- ▶ Prompt surgical decompression is the best that can be done
- ▶ Despite this, there may be residual impairment even with the best of treatment.

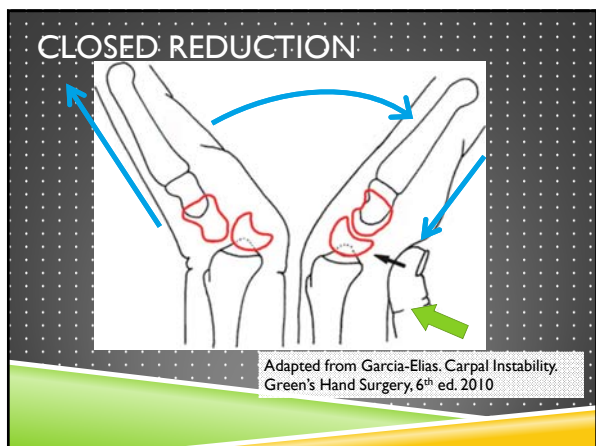
PERILUNATE / LUNATE DISLOCATIONS

- ▶ High-energy injuries
- ▶ Spectrum of ligamentous and bony damage
- ▶ Challenging to treat
- ▶ Historical outcomes poor
- ▶ Prompt reduction with ligamentous and bony repair can achieve favorable results.
- ▶ 25% may be missed on initial presentation









TREATMENT OPTIONS

- ▶ Closed reduction and casting
Rarely produces satisfactory alignment
Generally poor outcomes
- ▶ Closed reduction/percut. fixation
Difficult to achieve anatomic alignment closed
- ▶ Open reduction, ligament repair, internal and/or percutaneous fixation
Current standard of care





PROGNOSIS

- ▶ Guarded prognosis for return to previous function
- ▶ Outcomes improved by early anatomic reduction with SL repair/reconstruction
- ▶ Nearly all patients experience decreased grip strength and loss of ROM
 - ▶ Average ROM – 75%
 - ▶ Grip strength – 80%
 - ▶ High rates of radiographic arthrosis
