THE EPIDEMIOLOGY OF HAND EMERGENCIES

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- More than **16 million** people each year receive emergency care for hand injuries.
- Preserving function relies on maintaining the structural relationships of the intrinsic hand structures as well as musculotendinous connections from the forearm.
- **Prevention of disability from hand injuries is the primary goal of treatment.**
- **Maintenance of function, rather than cosmesis, is of paramount concern in the management of hand injuries**

https://emedicine.medscape.com/article/825271-overview#a6

Common in the Emergency Department



- Associated with significant patient morbidity
- Medicolegal risk for physicians.

The

- Co

- Independent Living

C3AP2b Traumatic limb and joint injuries - Upper limb

The trainee will be able to evaluate the patient who presents with a traumatic limb or joint injury, to produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Assessment Methods**	**GMP Domains**
Be able to recognise, including plain radiology appearances, and initiate treatment for fracture of: ▪ clavicle ▪ humerus ▪ radius and ulnar ▪ supracondylar ▪ radial head ▪ olecranon ▪ distal radius and ulna ▪ scaphoid ▪ metacarpals ▪ phalanges	E, Mi, C, ACAT	1
Dislocations of the: ▪ AC joint ▪ shoulder ▪ elbow ▪ Pulled elbow ▪ lunate and perilunate ▪ finger	E, Mi, C, ACAT	1
Musculotendinous injuries: rotator cuff, biceps, tendon injuries of the hand	E, Mi, C. ACAT	1
Infection - paronychia, pulp space, flexor sheath	E, Mi, C, ACAT	
Skills		
Be able to examine each joint	E, Mi, C, D	1
Be able to demonstrate assessment of limb function, detect neurological and vascular compromise	E, Mi, C, D	1

The College of Emergency Medicine

Clinical Standards for Emergency

Hand Injury

Standards

1. Pain was managed as per CEM standard (page 5)
2. Dominant hand documented
3. Mechanism of injury documented
4. Documented evidence that tendon injury was excluded
5. Documented evidence that nerve injury was excluded

References

1. These standards are consensus based

Mental Health

Standards

1. Patients who have self-harmed should have a risk assessment in the ED

Care of patients with acute hand injury in ED

- Focused history and physical examination.
- Diagnosis is achieved clinically or with plain radiographs.
- Most patients require straightforward treatment
- The emergency clinician must rapidly identify limb-threatening injuries
- Facilitate specialist consultation, when required.

Background

Hand injuries are a common presenting problem in emergency departments (EDs) . They are typically grouped into the following categories:

- Lacerations
- Soft-tissue injuries and amputations
- Infections
- Fractures/dislocations
- High-pressure (injection) injuries
- Burns (not discussed in this lecture)

UHS ED 4207 pts = September 2017 - June 2018

- Knott L, Tidy C. Hand injuries and their assessment. *Patient.info*. Reviewed: December 12, 2015. Available at: http://patient.info/doctor/hand-injuries-and-their-assessment. Accessed October 27, 2016.
- Tarr C. Hand injuries. *eMedicineHealth.com*. Reviewed: April 1, 2016. Available at: http://www.emedicinehealth.com/hand_injuries/article_em.htm. Accessed October 27, 2016.

0011: AN EPIDEMIOLOGICAL STUDY OF 600 HAND INJURY PATIENTS PRESENTING TO A TERTIARY REFERRAL CENTRE

C. Dover [1,*], D. Chester [2]. [1] *Princess Royal Hospital, UK;* [2] *Queen Elizabeth Hospital, UK*

Aim: Hand injuries are a common presentation of trauma, with fractures having an annual incidence of 4/1000. The impact on healthcare services is great, with consequences for the workforce and local economy. It is hoped that by understanding our population of hand-injury patients, we can adopt better prevention strategies and tailor rehabilitation programmes accordingly.

Methods: Our study was conducted in the emergency department of a tertiary referral centre. The inclusion criteria were an injury sustained to the hand or soft tissues of the forearm, as a direct result of trauma, between August 2012 and August 2013. An epidemiological study was then performed on patients within the identified busiest month of that year.

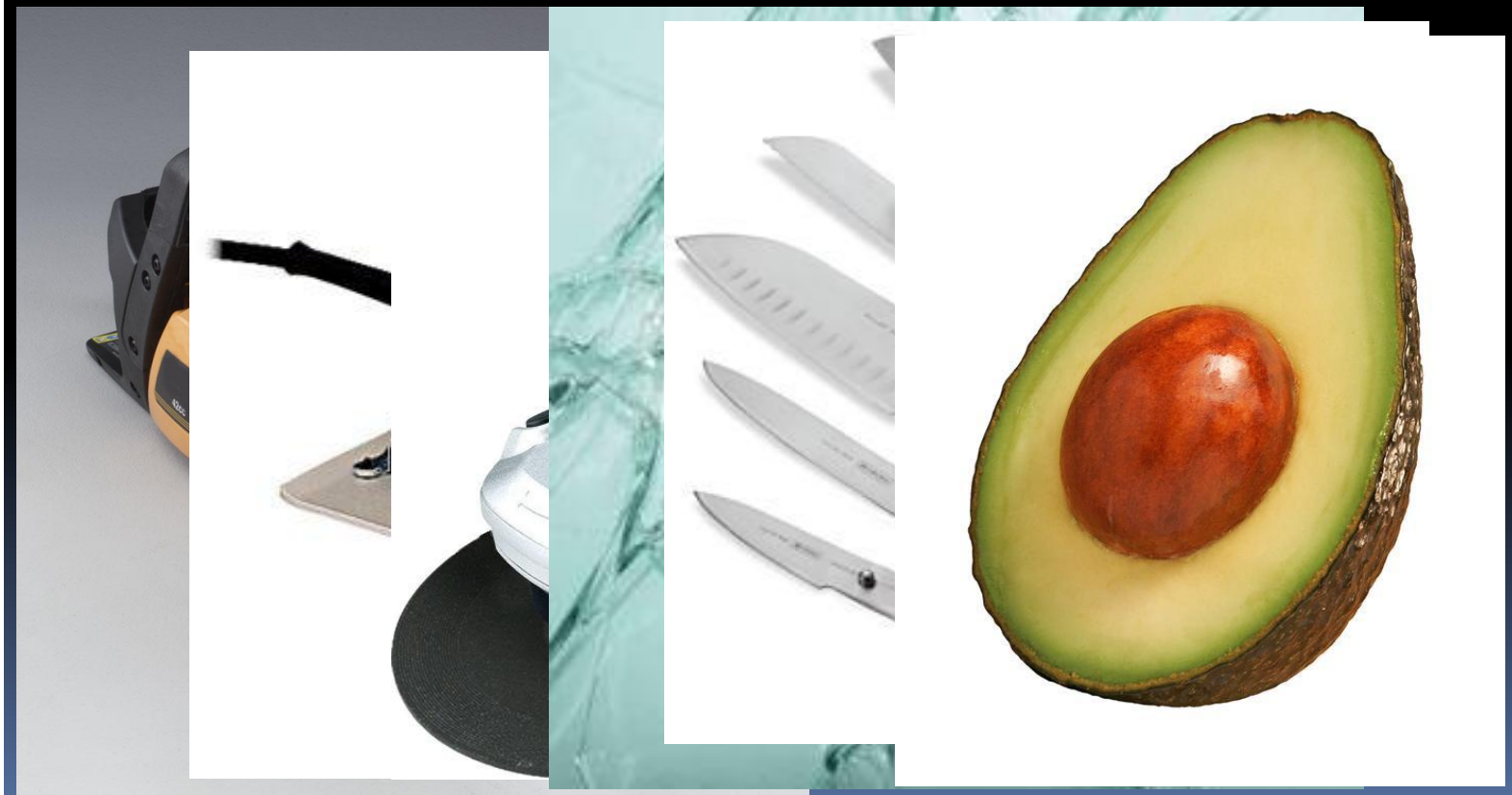
Results: Two-thirds of our population were male, and 61% aged below 35 years. Closed fractures and wounds, related to work and sport, were the most common presentation (88%). The majority of our patients presented out of hours (55%), and there was a correlation with socioeconomic class.

Conclusion: Our tertiary centre continues to receive high volumes of patients with trauma to the hand, with an increased service demand over the summer and out of hours. The results of our study shall be used to target those patients identified as being at risk from hand trauma injuries.

Abstracts / International Journal of Surgery 23 (2015) S15eS134

Lacerations

- Very common cause of trauma.
- **Regardless of size, always have a high suspicion for more serious injury.**



Common Results

Infections 1

Pyogenic Flexor Tenosynovitis
*(*following penetrating injury)

- Usually limited to area
- Staphylococcus
- Often associated with trauma
- Treatment – Flucloxacillin/Fusidic acid, rest, elevate, drain pus, splint

Infections 2

- Felon
- Paronychia

De Quervain's tenosynovitis

- Abductor Pollicis Longus and Extensor Pollicis Brevis
- ? Overuse
- Crepitus
- Pain with stretching the tendons
- ? Signs of inflammation

- Management

Splint, Medication, "Don't do it again!"

or modify work practice

Review and further management

5 days/p.r.n. - ? Steroids +

Ligament Injuries

- Collateral Ligaments
  - Classification: depends on "stress test"
    - 1st degree: Neighbour strap
    - 2nd degree: Neighbour strap and splint dorsally
    - 3rd degree: as above and refer
- Isolated volar plate injuries: "hyperextension stress test"

Gamekeeper's/ skier's thumb

- Injury to ulnar collateral lig of the 1st MCPJ, sometimes associated with fractr base of PP

- Conservative managmnt with splint but mostly requires surgical repair

Tendon Injuries

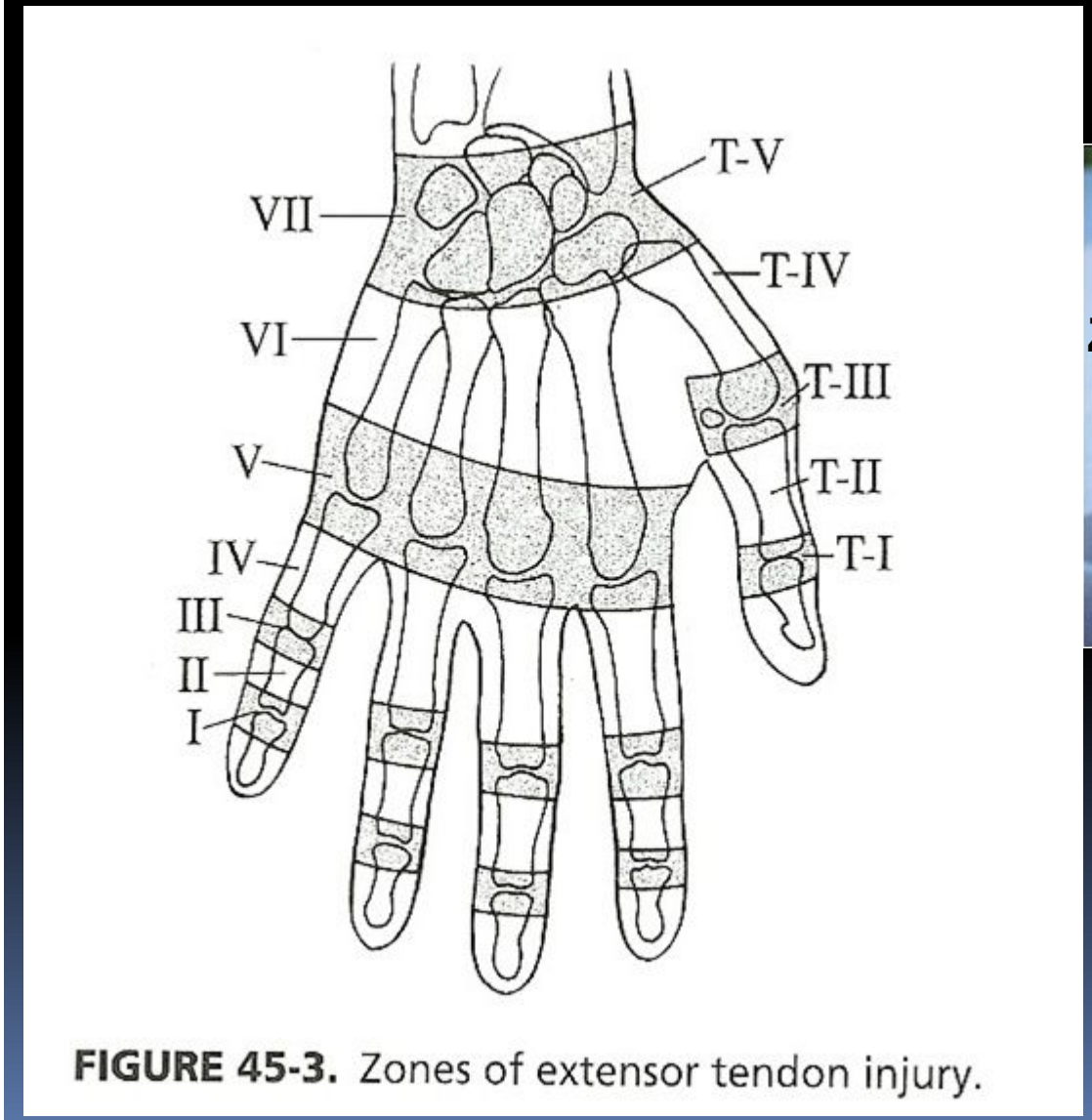
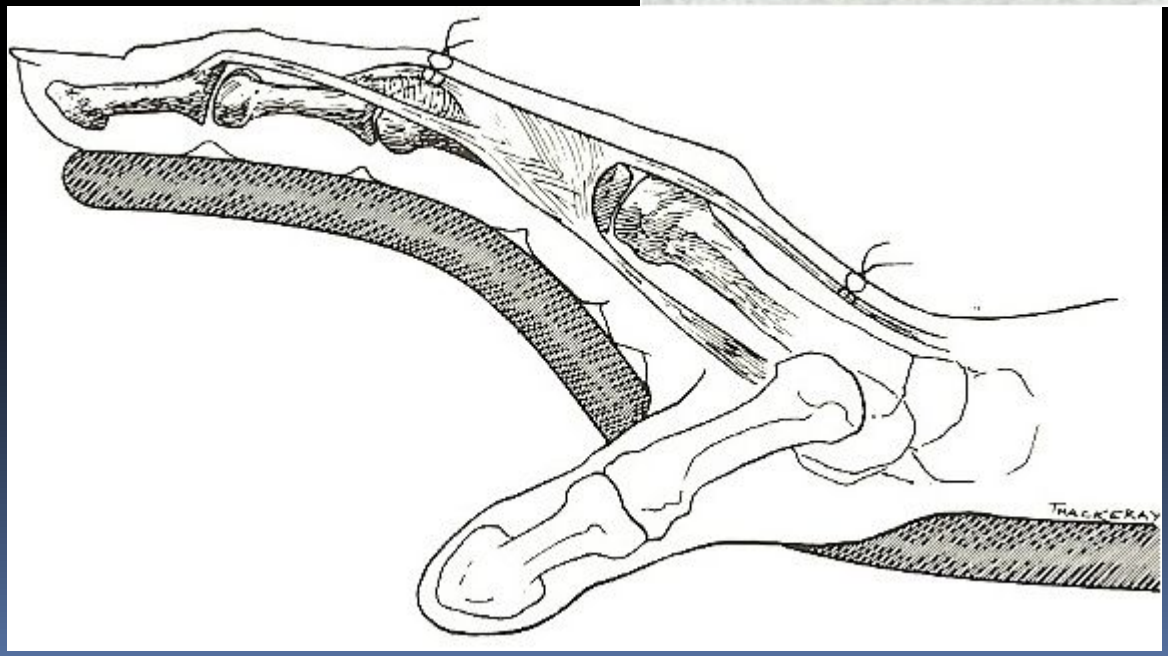
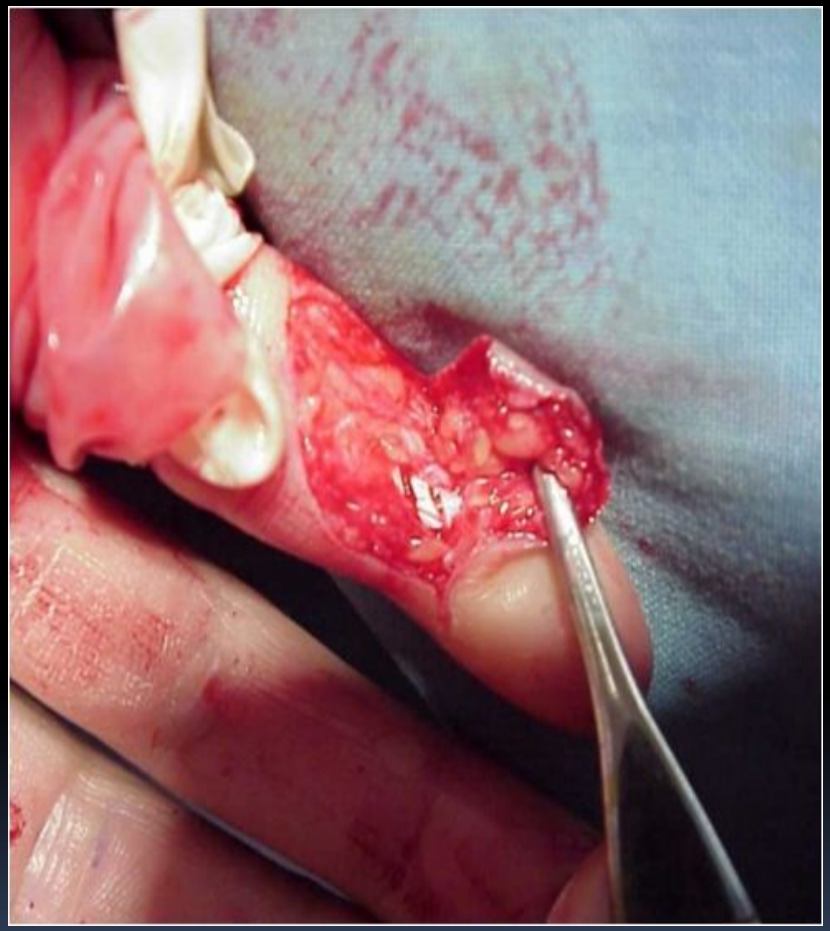


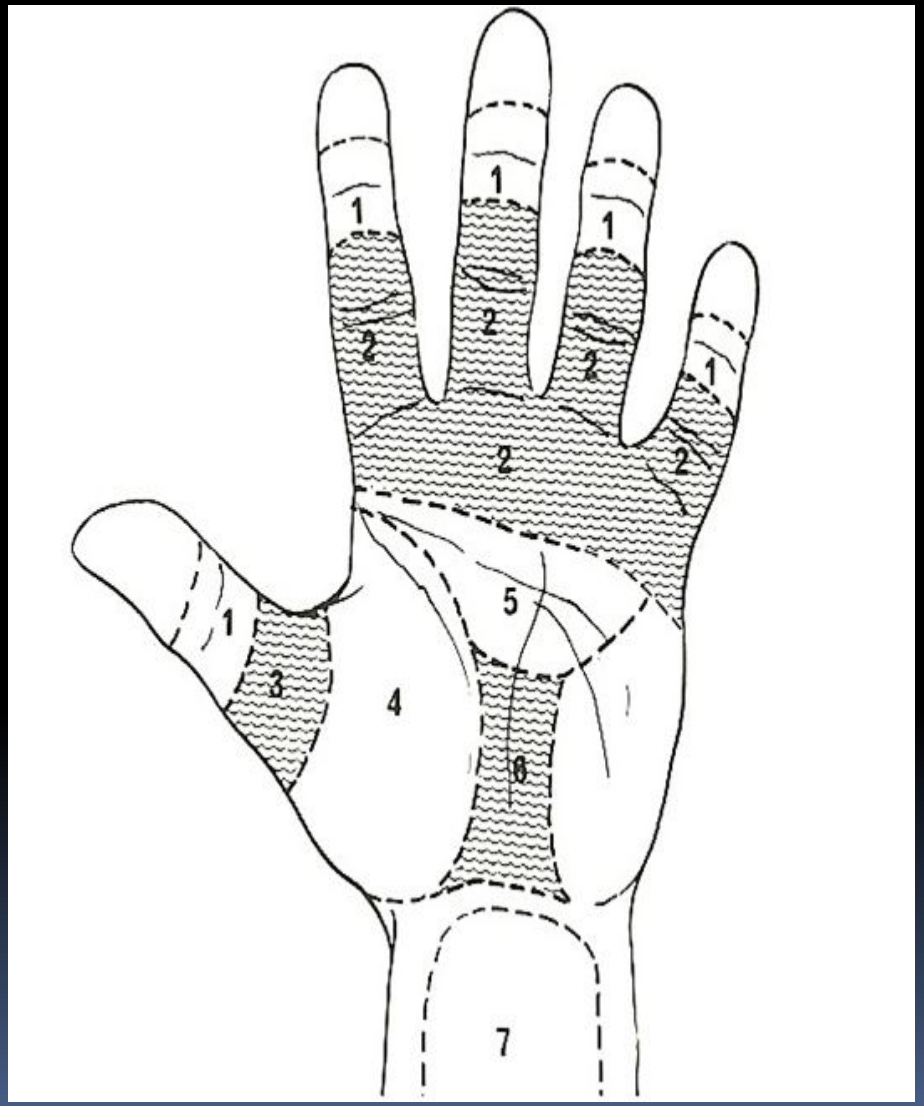
FIGURE 45-3. Zones of extensor tendon injury.


Stack splint
©MMG 2001



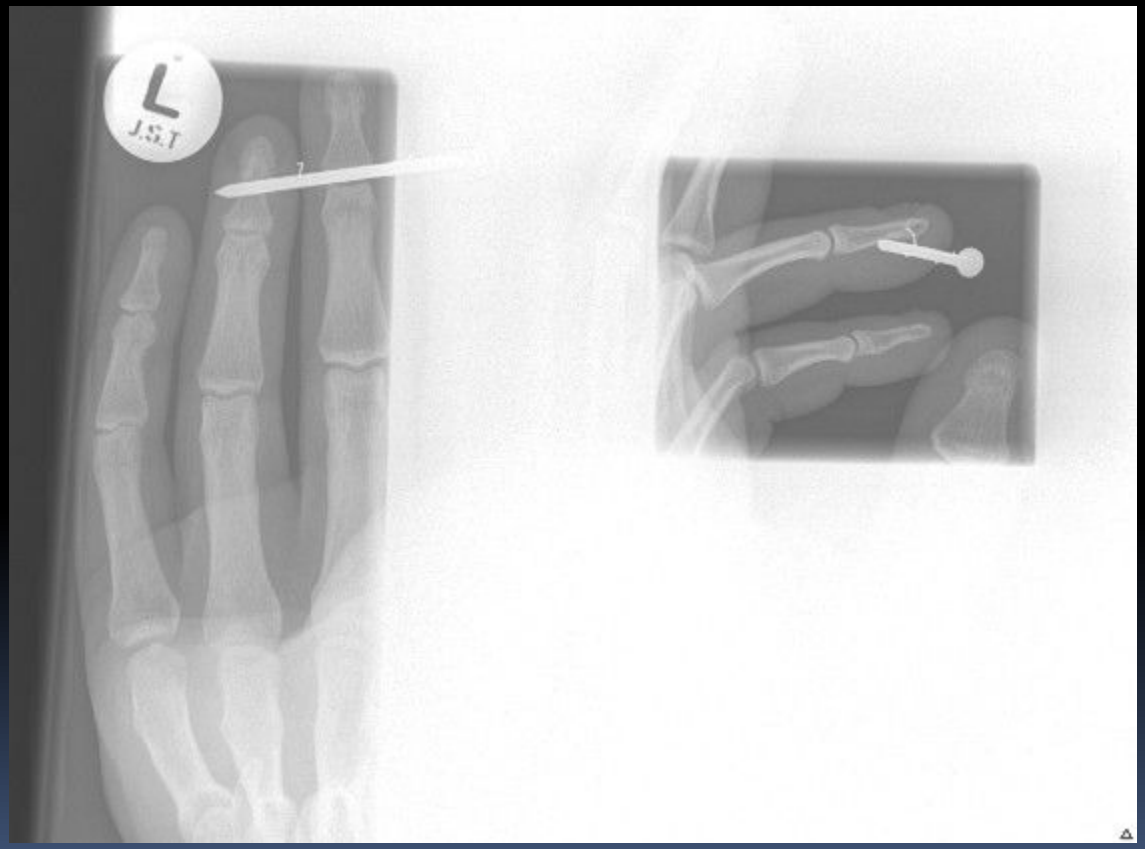
FLEXOR TENDON INJURY





High-Pressure Injection Injuries

- Relatively uncommon
- Surgical emergencies.
- The injected contents spread along fascial planes, tendon sheaths, and neurovascular bundles and can cause significant damage.
- Presentation of these injuries is usually unimpressive and consists of a small puncture wound
- As a result, the time to diagnosis is usually delayed in these patients, worsening clinical outcomes.
- In the ED, Abx/tetanus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FRACTURES

Fractures

- Distal Phalanx
  - Extra-articular
  - Intra-articular
- Middle and Proximal Phalanx
- Metacarpal
  - Neck
  - Shaft
  - Bennett's fracture

Metacarpal Fractures

- Relatively common. 30-40% of hand fractures
- Direct trauma commonly results in transverse fracture, usually midshaft.
- Most fractures are easily reducible, stable and managed non-operatively.
- Indications of surgical intervention:
  - *Intra-articular fractures,*
  - *Displaced and angulated fractures,*
  - *Unstable fracture patterns,*
  - *Combined or open injuries,*
  - *Irreducible and unstable dislocations*

Boxer’s Fracture

Bennett's Fracture

Fracture at the base of the 1st Metacarpal.

Intra-articular fracture subluxation

Swelling and pain at the thumb base

Closed reduction and immobilization with thumb spica splint

- ORIF

Phalangeal Fractures

Distal Phalanx:
Extra-articular fractures are common

Intra-articular fractures are associated with extensor tendon avulsion

Proximal Phalanx:
More common than middle phalanx fractures.

May result in a great deal of disability.

- **Dorsal or palmar angulation may occur with these fractures.**

Dislocations

- Dislocations: Carpal Bones
  - Lunate
  - Perilunate
- Metacarpal: Volar plate involvement and entrapment
- Phalangeal: Check volar plate and collateral ligaments post reduction

Tissue loss

- Nail loss
- Pulp loss
- Amputation

Nail Bed Laceration

- Mech of Injury
  - Crush injury
  - Laceration by sharp object
- Presentation
  - Small subuncal haematoma
  - Large subuncal haematoma
  - Associated skin laceration / fracture

Management

- Analgesia
- Drain subuncal haematoma >50%
- Remove nail and explore if subuncal haematoma and
  - Nail partially removed / disrupted
  - Laceration extends to skin
  - Displaced fracture distal phalanx

Repair

- Ring block
- Suture / glue nail bed
- Replace nail if available
- Remember antibiotics if fractured
- Review 24 hours

Compartment Syndrome

- Yes, it can occur in the hand
- Crush injuries and circumferential burns are the most common mechanisms
- Gross swelling
- Loss of sensation a later sign
- Severe pain
- Needs fasciotomy - ortho


Question
Time

THANK YOU