

# Proximal Phalanx Fractures:

## Plates , Wires or Leave?

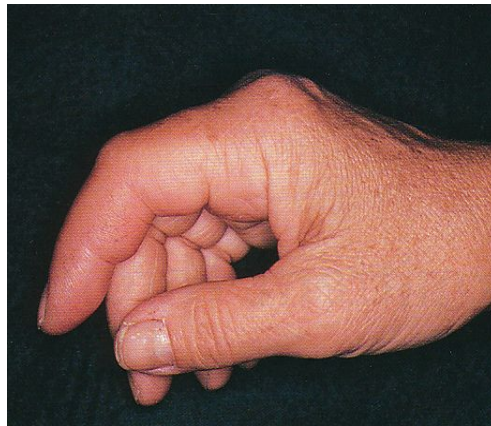
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Consultant Orthopaedic Hand Surgeon  
University Hospitals Southampton



# Overview

- Swanson:
  - **Deformity** from no treatment
  - **Stiffness** from overtreatment
  - Both **deformity and stiffness** by poor treatment



# Description of Fracture:

Site :

Obliquity:

Displacement:

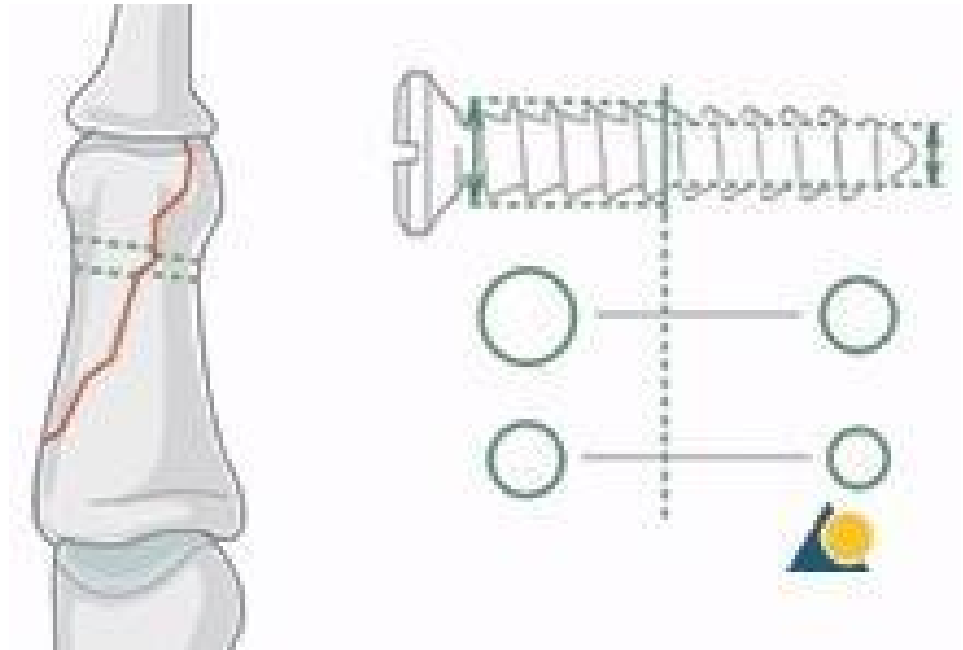


# Parts of a Screw



# Uses of a screw

- Hold 2 fragments
- Compress 2 fragments : “Lag Screw”
- Plate fixation

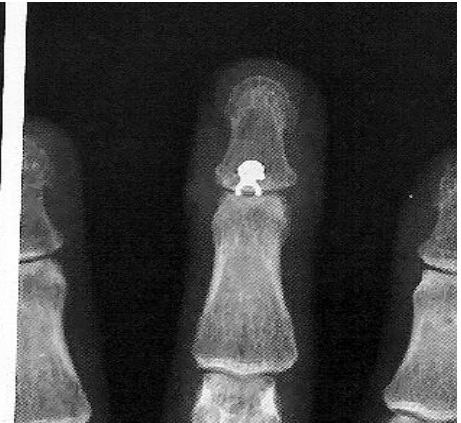


# Uses of a Plate

- Compression



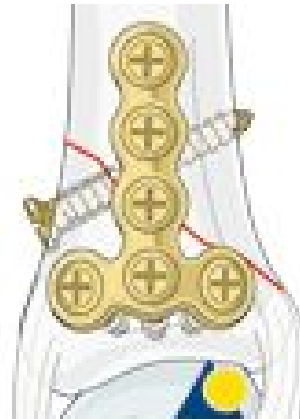
- Anti-Glide



- Buttress

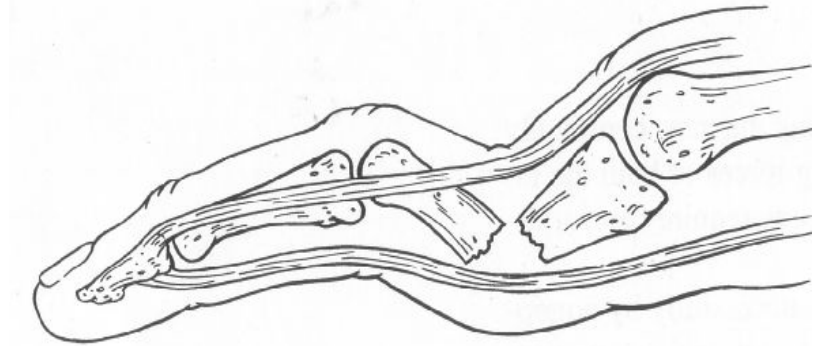
- Bridge

- Neutralisation



# Undisplaced Shaft Fractures

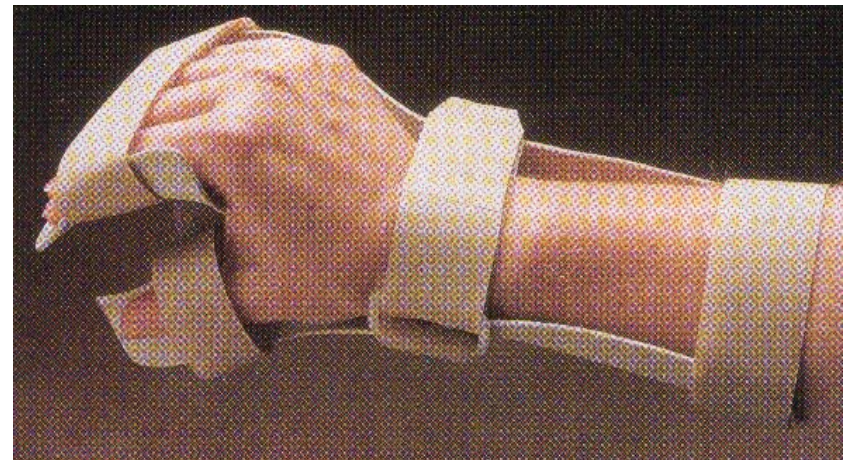
- Transverse #
- Oblique #
- Healing
  - clinically: 5 wks
  - Radiolog: 5 months





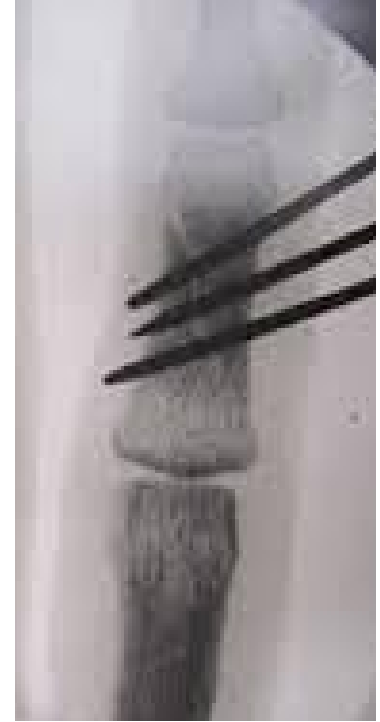
# Undisplaced Shaft - non op Rx

- Immobilisation
  - Buddy strapping
  - Bedford splint
  - Zimmer splint
- Reduction
  - Max MP flexion
  - Zimmer in POP





# Shaft fractures : Oblique



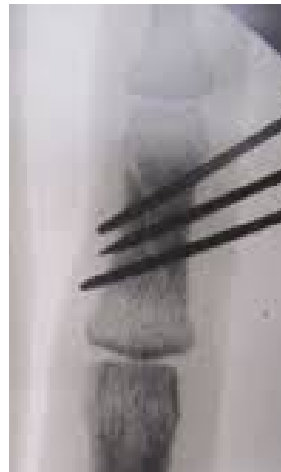
# A PROSPECTIVE RANDOMIZED CONTROLLED STUDY OF FIXATION OF LONG OBLIQUE AND SPIRAL SHAFT FRACTURES OF THE PROXIMAL PHALANX: CLOSED REDUCTION AND PERCUTANEOUS KIRSCHNER WIRING VERSUS OPEN REDUCTION AND LAG SCREW FIXATION

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Patients with an isolated spiral or long oblique fracture of the proximal phalanx were randomized into two groups. One was treated by closed reduction and Kirschner wire fixation and the second treated by open reduction and lag screw fixation. An independent observer assessed function, pain, movement, grip strength and intrinsic muscle function. X-rays were assessed for malunion. Thirty-two patients were entered the study and 15 in the Kirschner wire and 13 in the lag screw group were reviewed at a mean follow-up of 40 months. There was no significant difference in the functional recovery rates or in the pain scores for the two groups. X-rays showed similar rates of malunion and there were no statistically significant differences in range of movement or grip strength.

*Journal of Hand Surgery (British and European Volume, 2003) 28B: 1: 5–9*



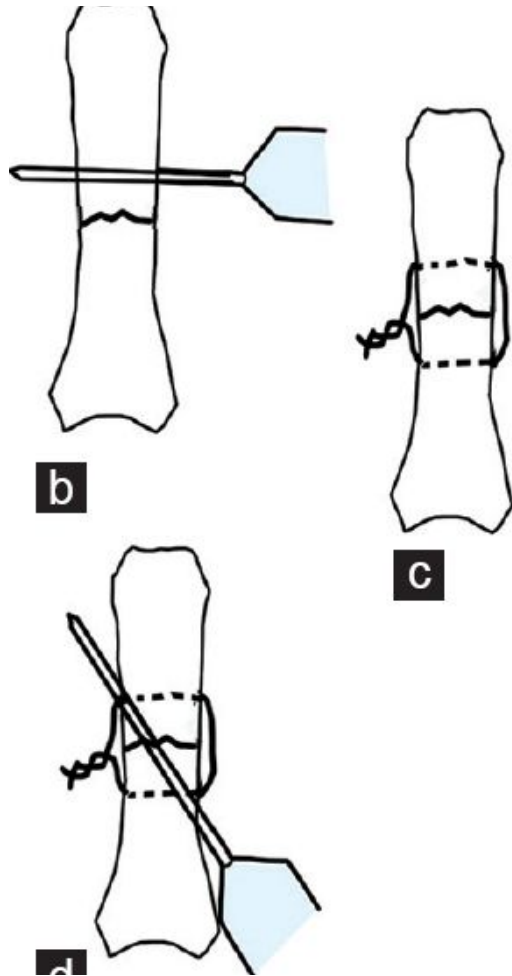
**No difference**

# Shaft : Transverse

- “Crossed K-wires”
- Skin tethering prevents early mobilisation
- Wire can tether joint
- Protect joint with MP flexion



# Shaft : Transverse



- “Lister” Loop
- Good if open Fr
- NB Knot placement



# Displaced unstable transverse fractures of the shaft of the proximal phalanx of the fingers in industrial workers: reduction and K-wire fixation leaving the metacarpophalangeal and proximal interphalangeal joints free

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The Journal of Hand Surgery  
(European Volume)

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# Intramedullary headless screw fixation for fractures of the proximal and middle phalanges in the digits of the hand: a review of 31 consecutive fractures

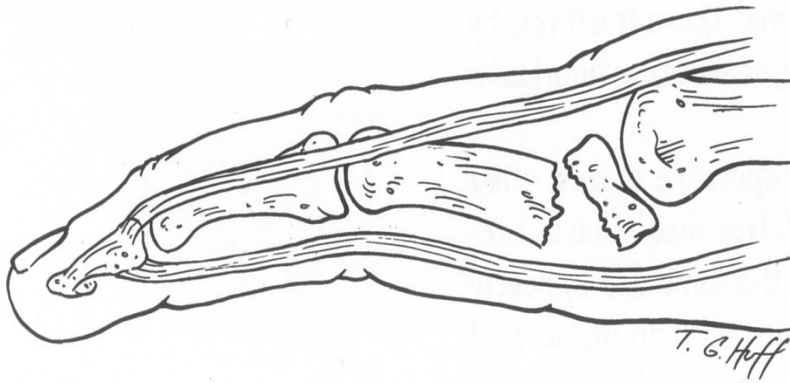
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T. Giesen, R. Gazzola, A. Poggetti, P. Giovanoli and M. Calcagni

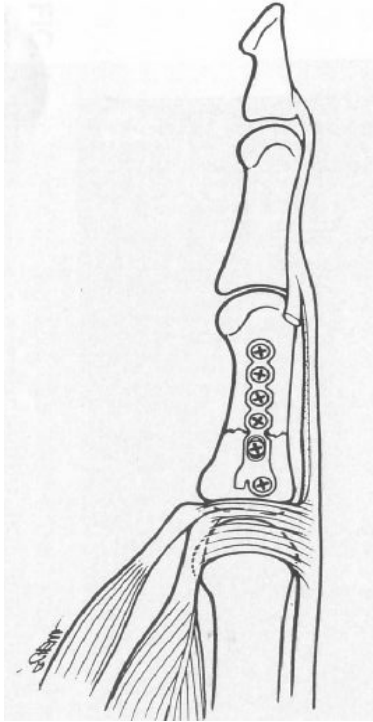


# Base of Prox Phalanx



- Difficult to Xray
- Difficult to control
- Difficult to fix

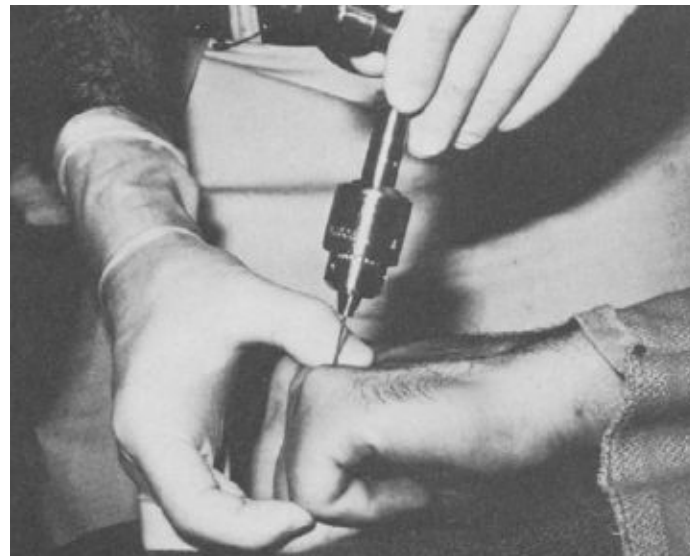
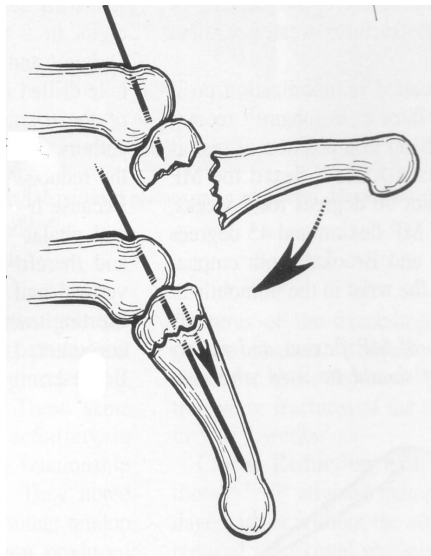




# Closed reduction and internal fixation of proximal phalangeal fractures

Displaced fractures of the shaft of the proximal phalanx can lead to marked deformity and disability when poor results are obtained. Despite the attention popular concepts of open reduction and internal fixation have received, a less invasive technique has been our standard approach. A prospective study of closed reduction and percutaneous Kirschner wire fixation in 100 consecutive fractures yielded good or excellent results in 90% of cases when treated within 5 days of injury. (J HAND SURG 9A:725-9, 1984.)

Mark Richard Belsky, M.D., Richard G. Eaton, M.D., and Lewis B. Lane, M.D.,  
*Boston, Mass., and New York and Manhasset, N.Y.*



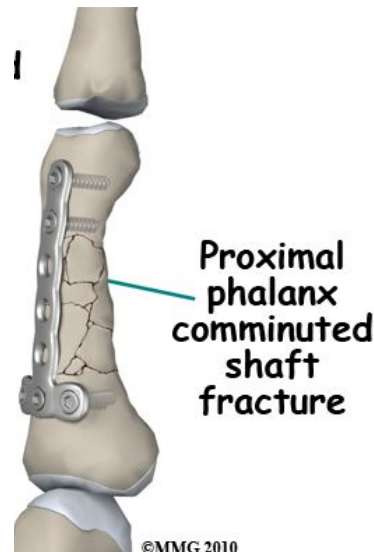
# Comminuted Fractures

- External Fixator
  - Mini AO
  - Wires in cement



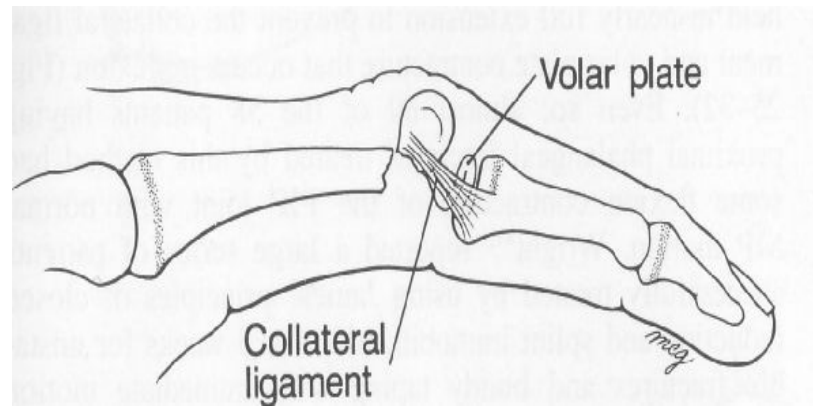
- Bridging plate

- K wires



# Neck Fractures

- Rare
- Centralised XR
- Poor outcome
- Accurate reduction



# PHALANGEAL NECK FRACTURES IN ADULTS

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*Journal of Hand Surgery (British and European Volume, 2006) 31B: 5: 484–488*

Table 1—Al-Qattan's classification of phalangeal neck fractures

<i>Fracture type</i>	<i>Description</i>
I	Undisplaced fracture
II	Displaced fracture. Radiologically, the distal fragment maintains some bone-to-bone contact with the proximal fragment
III	Displace fracture. Radiologically, there is loss of bone-to-bone contact between the proximal and distal fragments at the fracture site. This may either be due to the original injury (the distal fragment displaces volarly or dorsally) or as a result of 90 to 180° rotation of the head following fruitless attempts at closed manipulation with rapid longitudinal traction



# Neck fractures

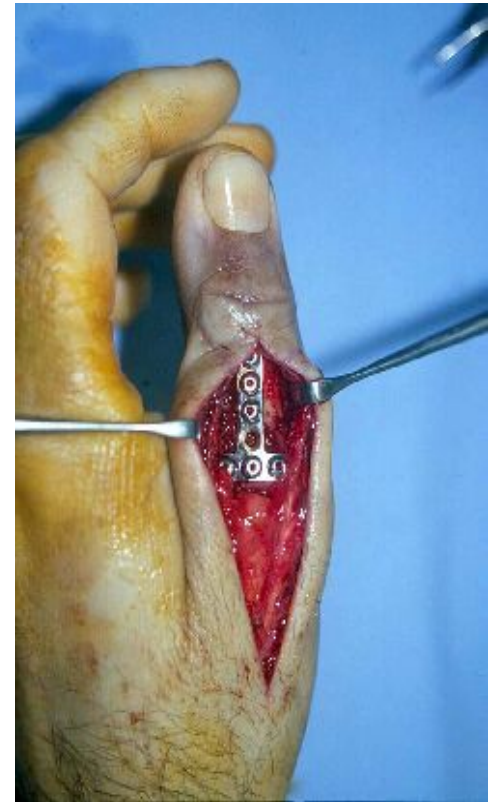
- Malunion
- Corrective osteotomy
- Trim spike





# Thumb

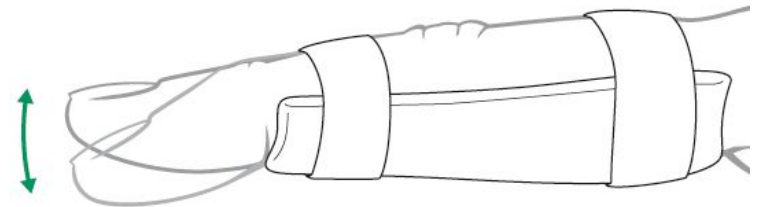
- Aim:
  - Stable, painfree post
- Motion:
  - Limited esp MP joint





# Rehabilitation

- Swelling:
  - Early control
  - Elevation
  - Coban tape
- Mobilisation
  - Affected joint
  - Other joints
- Communication



# Complications

- Stiffness
  - Joint, Tendon, Metalwork
- Malunion
- Nonunion
- Prominent metalwork
- Infection-
  - Pin-site, Joint
- Osteoarthritis
  - Fusion, Replacement



# Worse case scenario

- Malunion
- Nonunion
- Tendon tethering
- Joint stiffness
- Infection



Thank You !

