Percutaneous osteosynthesis

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Conflicts of interest

No conflicts of interest with company
Introduction

« Hand fractures can be complicated by deformity from no treatment, stiffness from overtreatment, and both deformity and stiffness from poor treatment »

AB Swanson fractures involving the digits of the hand. Orthop Clin North Am. 1:261-274 1970
Introduction

Tennant, 1924

Bosworth, 1937

Tennant C. Use of steel phonograph needle as a retaining pin in certain irreducible fractures of the small bones. JAMA 1924; 83:193.
Introduction

PERCUTANEOUS

Iselin, 1956
Von Saal, 1953
Lanthier, 1950

Iselin M, Blangueron S, Benoit D. Fracture de la base du premier métacarpien. Mem Acad Chir 1956; 82:771-774
Mini invasive technics

- Percutaneous pining
- External fixation
  - HK2
  - MétaHUS
  - Ligamentotaxor
  - others
- Percutaneous screw fixation
- Nailing
Technics

Percutaneous pinning

Intermetacapal / Carpo-metacarpal

Intramedullary / Bouquet

Cross
Technics

External fixation

Stated: mini HOFFMANN, HK2 / MétaHUS

Hinged/dynamic: Agee, Suzuki Ligamentotaxor®
Technics

Percutaneous screw fixation

Bicortical /Non cannulated

Double thread pitch screw / Cannulated
Technics

Nail fixation

Locking nail: Distal radius

Non locking nail: Metacarpal and phalangeal shaft
Literature review

ADVANTAGES

- Low invasive surgical approach
- Less adherence
- Ligamentotaxis
Literature review

DISADVANTAGES

- Technically demanding
- Learning curve
- Specific risks
Literature review

- No differences
  - Al-Qattan 2008

- Plates > K-wires or screws
  - El-Saeed 2019

- More adherence with plates
  - Koostra 2019

- Plates for complex fracture
  - Von Kieseritzky 2017

- Ligamentotaxor for PIP
  - Körting 2009
Literature review

- **K-wires > Plates**
  - Facca 2010

- **Meta-analysis**
  - Melamed 2017

- **Plates for mobilization**
  - Vasilakis 2019

- **1st => TM screw / K-wire / locking plates**
Literature review

- Percutaneous screw
- Screw = conservative
  - Alnaeem 2016, Al-Ajmi 2018
- Why choosing screw
- Screw for sport
  - Goffin 2019
Literature review

- No differences
  - Tronci 2013

- Plates > K-wires for complex
  - Zyluk 2018

- Mini invasive + plates
  - Zemirline 2014; Lebailly 2014

- Mini invasive + plates > Nails
  - Thomas 2019
Literature review

- **Tendon, Artery, Nerve**
  - Evens 2015

- **Infection external K-wire**
  - Padegimas 2016, Rafique 2006

- **Out of OR, same results**
  - Garon 2018
Failed procedure

- Goal: Reduction and stabilization
- Conversion
- Time of tourniquet
Thank you for your attention!