Crushed Feet: Consideration of Column Bridge Plating

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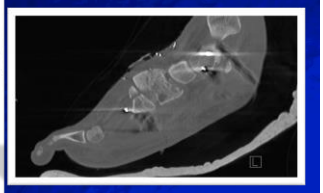
January 2016

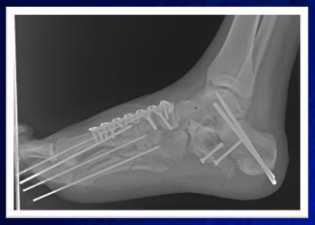
- AONA faculty- honorarium
- I have no disclosures related to this presentation
- The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of the Navy, the Department of the Army, or the Department of Defense.

22yo mounted IED blast

Midfoot comminution



Medial column spanning plate



Plantigrade foot

26yo M LLE run over by forklift



Provisional Pinning on DOI


PID 12 medial column + midfoot arthrodesis


Hardware removal at 3 months

F&A Outcomes

- Severe foot and ankle injuries seem to pose unique disabilities
- Chronic pain
- Residual deformity
- Global foot stiffness
- A-V insufficiency
- Post-traumatic OA
- 40% RTW

Long-Term Results of Salvage Surgery in Severely Injured Feet

Ricardo C. Ferreira, MD; Minoru A. Sakata, MD; Marco T. Costa, MD; Gastão G. Frizzo, MD; Roberto A. L. Santin, MD
São Paulo, Brazil

Foot and Ankle International, 2010. 31(2): 113-123

F&A Outcomes

- 182 open severely injured hindfoot or ankle injuries 1994-1997
- 130 foot, 11 ankle, 41 pilon
- 66 immediate BKA
- 116 limb salvage
- Salvage patients who required free flaps and/or ankle arthrodsesis had significantly worse out comes at 2 years

LEAP Study Group. The mangled foot and ankle: Results from a 2 year prospective study. J Orthop Trauma, 2013. 27(1): 43-48.

F&A Outcomes

- 63 patients with lower leg injuries secondary to IED
- 51% with multisegmental injuries
- 29% required amputation
- 6 late amputations for chronic pain (18mo)
- 14% RTD
- 74% with chronic symptoms

Outcomes of IED Foot and Ankle Blast Injuries *J Bone Joint Surg Am,* 2013 Mar 06;95(5):e25 1-7.

Crush Injuries

- Significant comminution often makes anatomic reconstruction impossible
- Prolonged external fixation- risks of pin tract infection
- K-wires may be insufficient to hold reduction over time

Goals of Treatment

- Maintain appropriate length of medial and lateral columns (prevent late cavus/planus deformity)
- Maintain appropriate relationship between forefoot and hindfoot to ensure plantigrade foot
- Preserving motion at the T-N and C-C and C-metatarsal joints
- Maintain anatomic reductions or stabilize arthrodeses

Temporary Bridge Plating of the Medial Column in Severe Midfoot Injuries

Thomas A. Schildhauer, Sean E. Nork, and Bruce J. Sangeorzan
Department of Orthopaedics, Harborview Medical Center, University of Washington, Seattle, Washington

- Technical Tricks, JOT 2003
- Case series n=7
- Avg age 39 (27-56)
- High energy MOI
- Variable length of plates
- Removed 4-8 months

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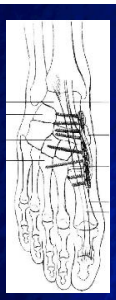


- Crush injuries with type 3 navicular fractures
- No loss of length and alignment of the medial column
- No wound problems

31M military parachuter- hot landing

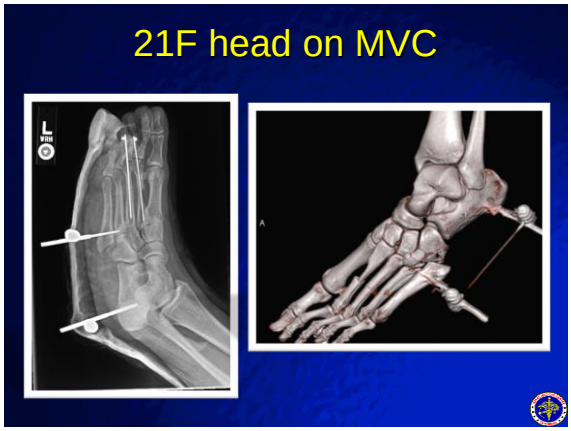
Medial and lateral column plates

22F foot run over by car

Comminuted navicular and cuboid

6 months post injury

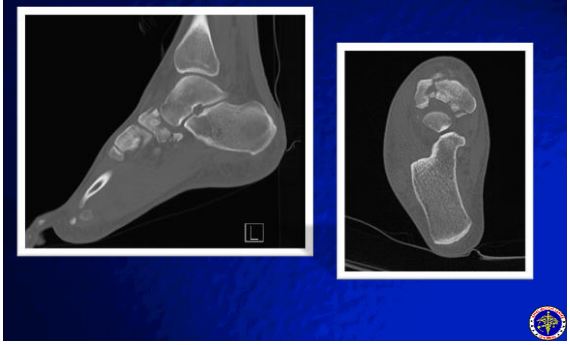
21F head on MVC



9 months post injury

30M fast roping injury

Comminuted navicular fracture



1 year, sig OA but min pain

Thank you

Questions?