Volar Approach for Scaphoid Fractures

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- Internal Fixation indicated for displacement >1mm
- Percutaneous fixation recommended only for non-displaced or minimally displaced fractures
- Union rates and complication rates similar for open and percutaneous screw fixation
  - (94-100%, 0-30%)

Scaphoid fractures: Dorsal versus volar approach
- Polsky et al
- Orthopedics 2002
- 16 Dorsal
- 10 Volar
- No difference in healing rates. 80 versus 81%
Comparison of dorsal and volar percutaneous screw fixation methods in acute Type B scaphoid fractures.
- Acta Orthop Traumatol Turc, 2012
- 13 Dorsal
- 14 Volar
- No difference in healing, return to work, complications

Why go volar? 7 reasons:
- Maintain vascularity
- Correct the humpback / Easy reduction
- Avoid articular injury
- Can do percutaneously
- The more distal the better (ship to shore, screw perpendicular)
- Versatility:
  - Easy to add bone graft / nascent nonunion
  - Have bailouts: k wires, plate, carpentry

Why not go Volar?
- Screw Trajectory less than Ideal
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Maintain Vascularity

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Humpback / reduction:

wrist extension helps reduce the fracture

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3-4mm hole in the articular cartilage

Retrograde vs Antegrade

Krimer, Wrist 2003
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Dangers of Dorsal percutaneous screw

29%
Safe Volar Percutaneous approach

Capo et al., Techniques Hand and upper extremity Surg 2009

Case example: perc screw
**Measuring tip:**
Supinated view

See the Piso-triquetral joint

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More Distal Waist

Ship to shore, Perpendicular to fracture line

Concomitant injury

26 yr M with fall from 20 ft onto outstretched left hand. RH D1.
Internal IV in hand. Other injuries: L pneumothorax treated with chest tube
T-shaped DR fracture with scaphoid fracture.
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6 week old injury
8 week old injury

case from Anthony Sepienza MD
• Dx: Scaphoid waist fracture with humpback deformity
  2 months post injury

• Plan?
  • Volar approach:
  • Correct Humpback
  • Preserve blood supply
  • Add in bone graft support
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Case Example

- 20 RHD male, left wrist pain after falling from bicycle the previous day
- Focal snuffbox tenderness

Courtesy of Dr. Anthony Sapienza
Case Example

• 25 yo longshoreman with 6 week old wrist injury

Case Example

• Fibrous/sclerotic waist fracture site debrided
Case Example
• Iliac crest corticocancellous graft + plate

Case Example
• Intraop

Case Example
• 6 weeks postop
Case Example

• 12 weeks postop

Why not go Volar?

• Screw Trajectory less than Ideal

Screw trajectory
Screw too Volar
Screw trajectory

- Drill right through the trapezium
- STT arthritis?
Trans Trapezial insertion technique

18 patients, all healed, no complications

Zhongguo Xiu Fu Chong Jian Wai Ke Za Zhi. 2013 Sep;27(9):1025‐7.

Percutaneous trans trapezial volar approach

- 41 patients
- Mean of 36, range 14-68 months) follow up
- All healed by 10 weeks
- Central placement of the screw
- No symptomatic ST arthritis

JHS European 2008 Meermans et al
Measuring screw length using a second guide wire

JHS American Guerts et al, 2011

- 6 year follow up of the same group
- 34 patients available for Follow Up
- “No cases of Symptomatic ST arthritis”
- BUT:
  - 6 Screw protrusions
  - 2 screw removals

When should You go Dorsal?
Trans-scaphoid peri-lunate injuries
Thank you