



## PITFALLS OF PERCUTANEOUS SCREW FIXATION OF SCAPHOID FRACTURES

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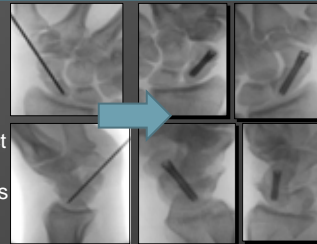
Example: Scaphoid waist fracture that typically will heal in 10-12 wks with acute immobilization, but is also amenable to percutaneous fixation.

**Objectives: To review common technical pitfalls experienced in a procedure being offered with increased frequency to patients with minimally or non-displaced fractures.**

- More surgeons gaining exposure to percutaneous techniques in training
- More common to offer patients surgical option
- Technically challenging
  - Complex shape, bony anatomy
  - Location in wrist

Goal: in appropriately indicated patient

- Optimal guidewire placed from either volar or dorsal aspect
- No injury to surrounding structures or cartilage



### Technical considerations

- Patient selection
- Fracture pattern
- Guidewire placement
- Screw length

### Patient/fracture selection pitfalls

- Failure to consent for possible conversion to open procedure
- Applying technique to displaced or comminuted fractures
- Accept non-anatomically reduced fracture
- Difficult to place optimal guidewire from volar if fracture involves proximal waist

### Screw length pitfalls

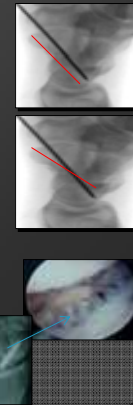
- Too long → can damage joints proximal and distal
- Too short → compromises compression/healing
- Not buried subchondral

Literature supports choosing screw 4-6 mm shorter than measured intraosseous guidewire length



### Guidewire placement pitfalls

- Starting point errors
  - Dorsally - risk to extensor tendons, SBRN, PIN if done truly percutaneously (mini-open safer)
    - risk to SLIL if too ulnar
  - Volarly - can cause screw position to be too volar or aimed too dorsal leading to insufficient fixation in proximal fragment or break out from bone
    - potential injury to S-T joint
- Guidewire placed oblique to fracture line is likely to displace fracture when compressed
- Eccentric placement
  - damage to peri-scaphoid cartilage
  - poor compression/fixation



### SUMMARY

- Percutaneous technique is technically challenging
- Being offered more frequently to patients
- Done correctly, it achieves the same goal as casting (union), but has inherent potential pitfalls
- Avoidance of pitfalls critical to success
- Learn from experience
- Careful fracture selection and attention to detail