

ARROWHEAD REGIONAL MEDICAL CENTER



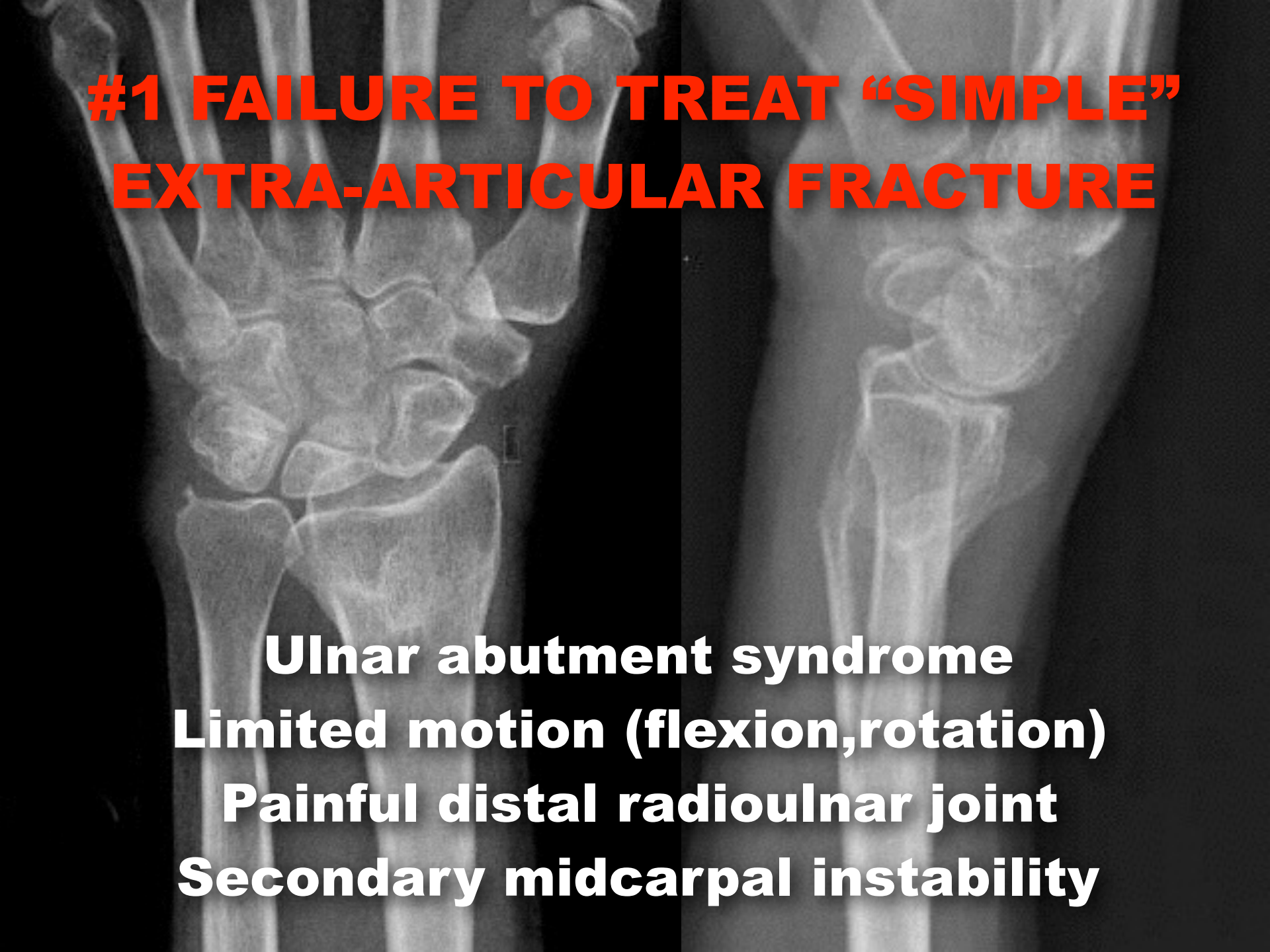
JAMES MATIKO, MD
COLTON, CA

How To Stay Out Of Trouble



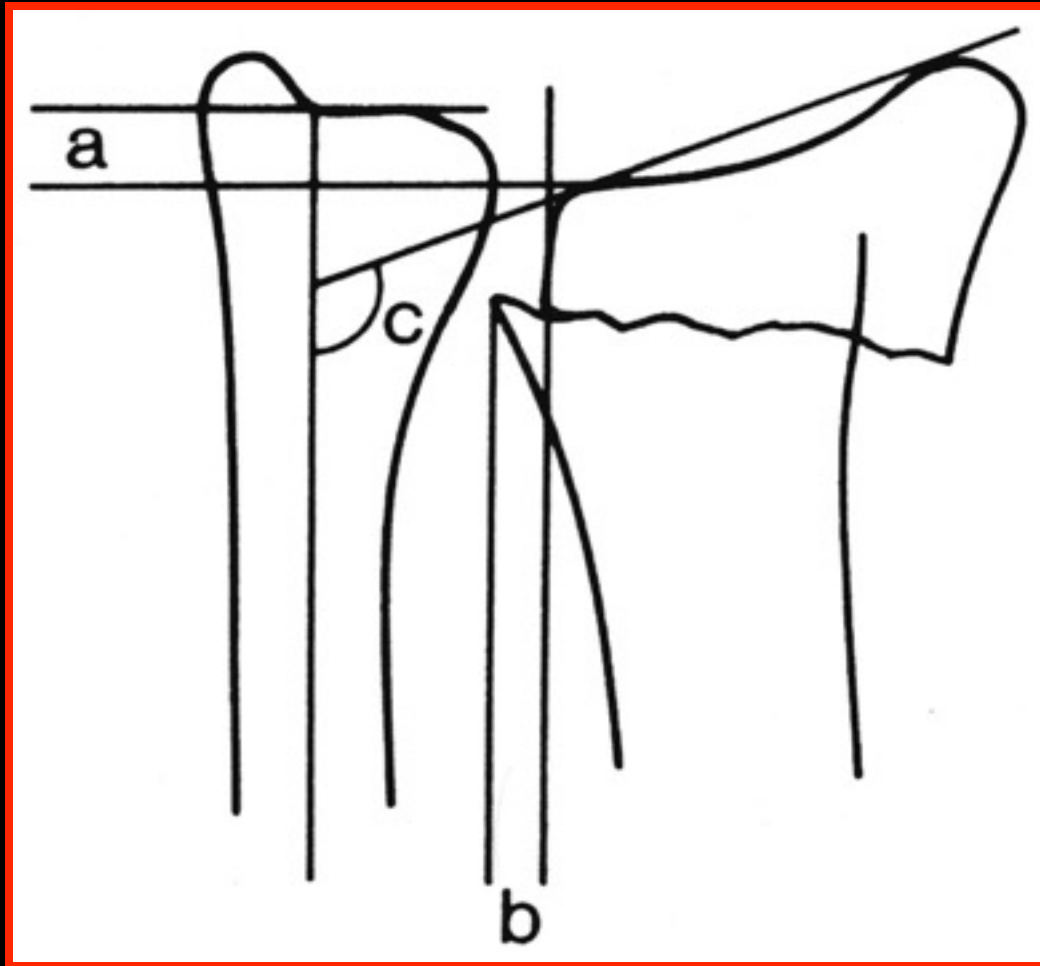
Distal Radius Fractures

17 Tips for 2017

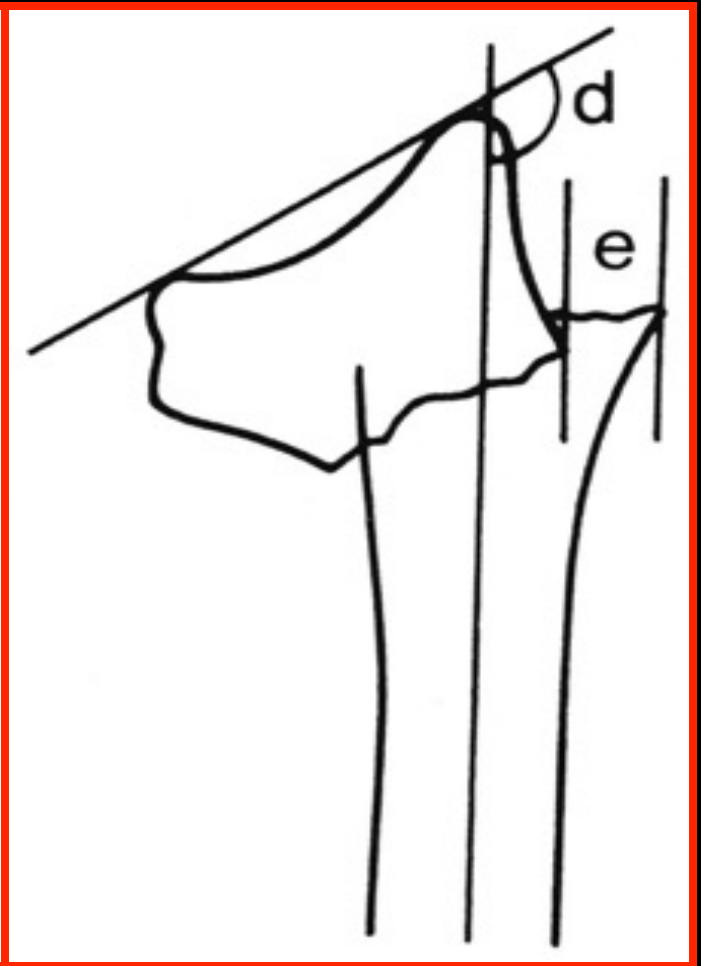


#1 FAILURE TO TREAT “SIMPLE” EXTRA-ARTICULAR FRACTURE

Ulnar abutment syndrome
Limited motion (flexion, rotation)
Painful distal radioulnar joint
Secondary midcarpal instability



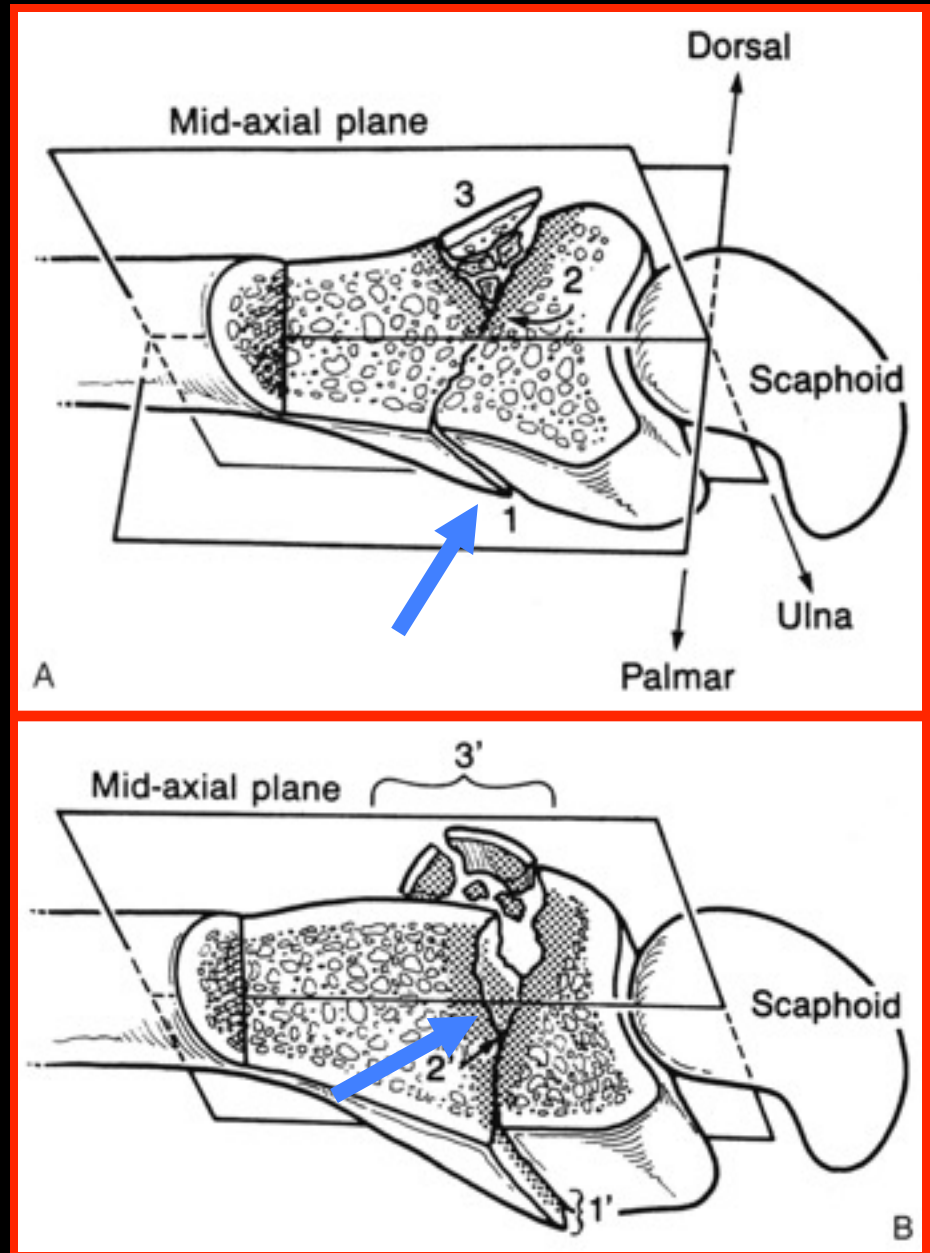
- (a) Radial shortening
- (b) Radial displacement
- (c) Radial angle



- (d) Dorsal angle
- (e) Dorsal displacement

**>2mm dorsal translation
at palmar cortex of distal
fragment associated with
increased instability
(positive shelf sign)**

**Comminution and/or
impaction extending past
the midaxial line on the
lateral radiograph has
strong correlation with
instability**



Unstable Extra-articular Fracture



Osteotomy for Malunited Fracture

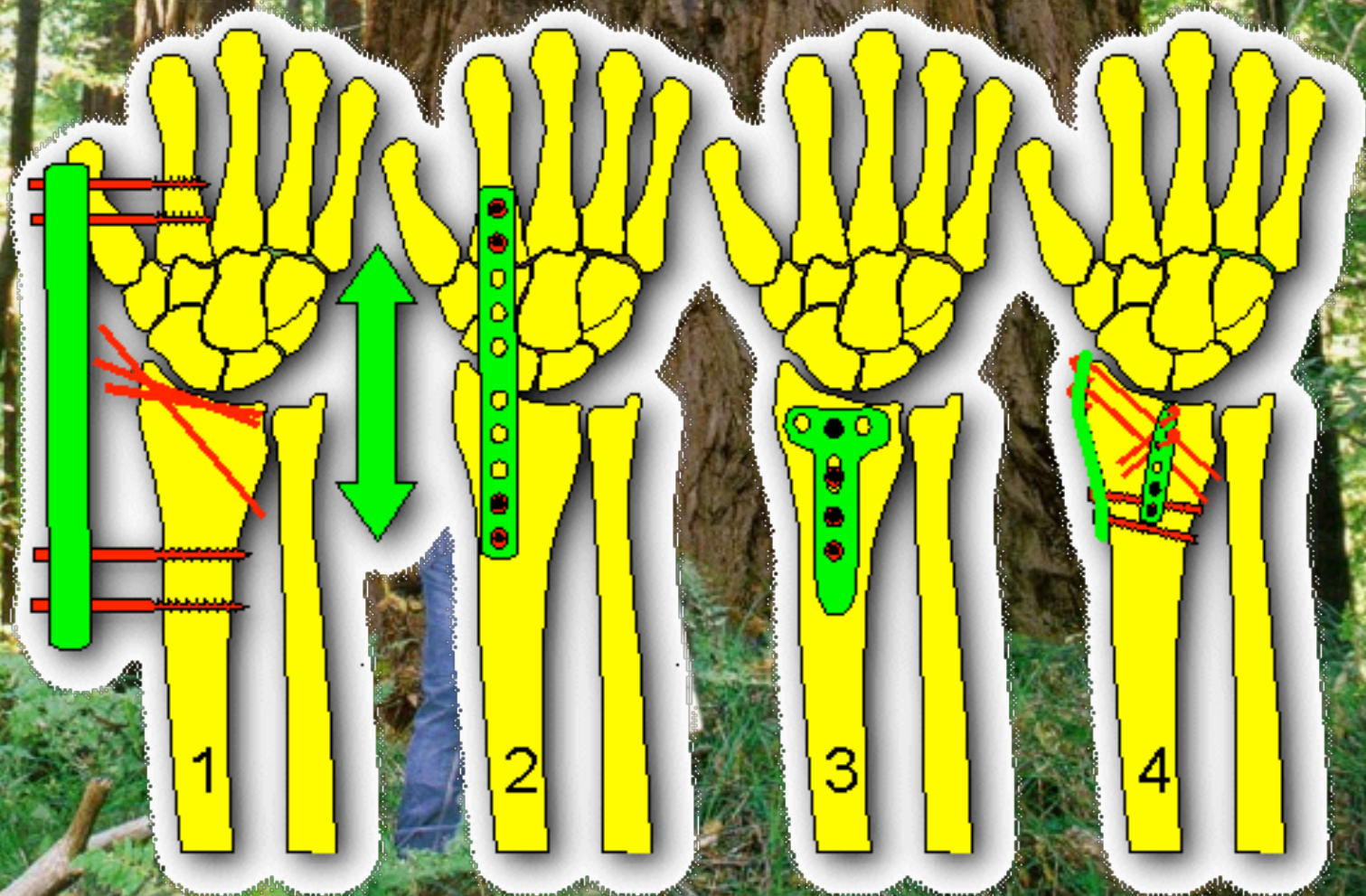




#2 DON'T UNDERTREAT THE ELDERLY!



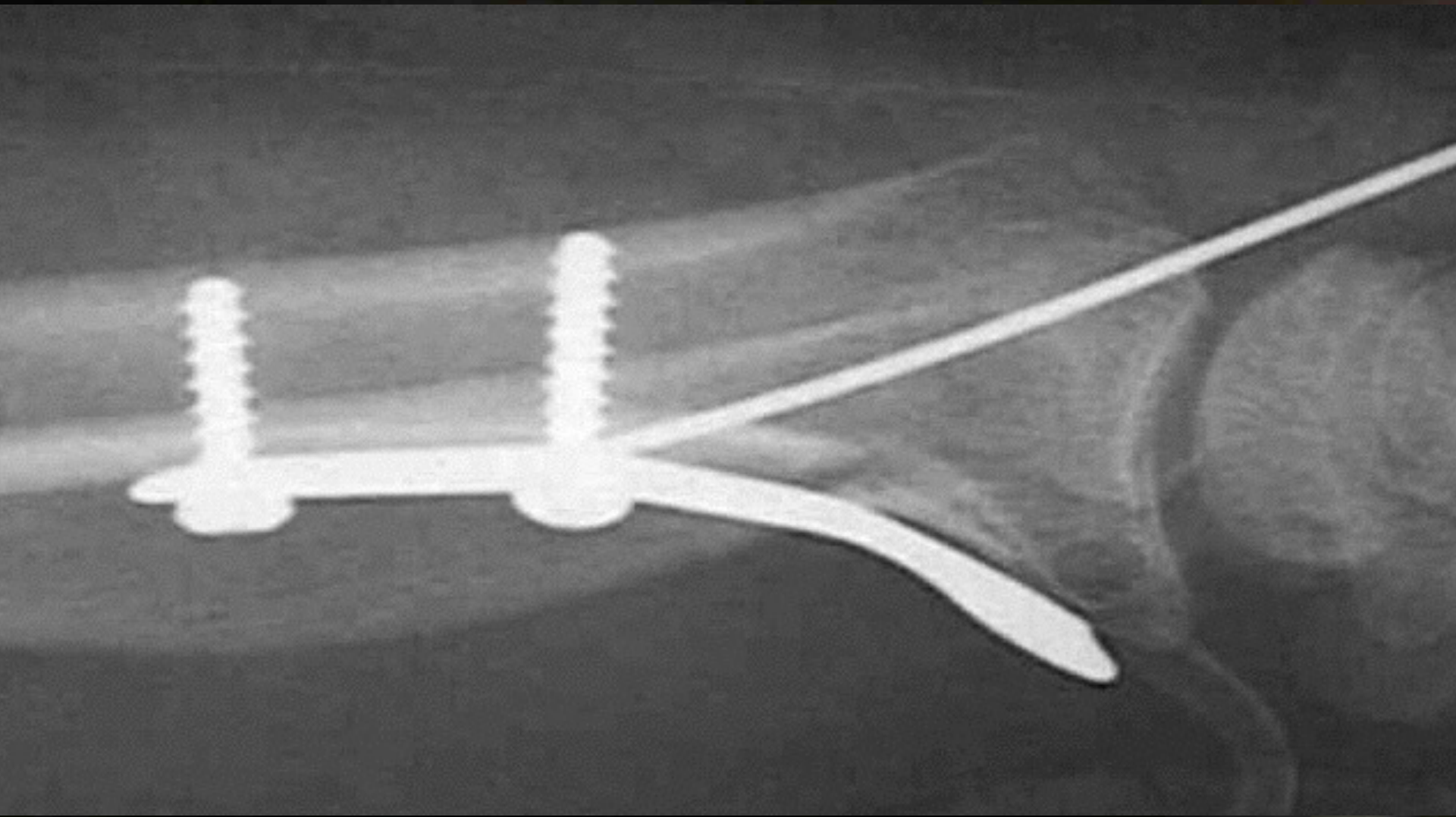
#3 USE THE RIGHT TOOL FOR THE JOB!



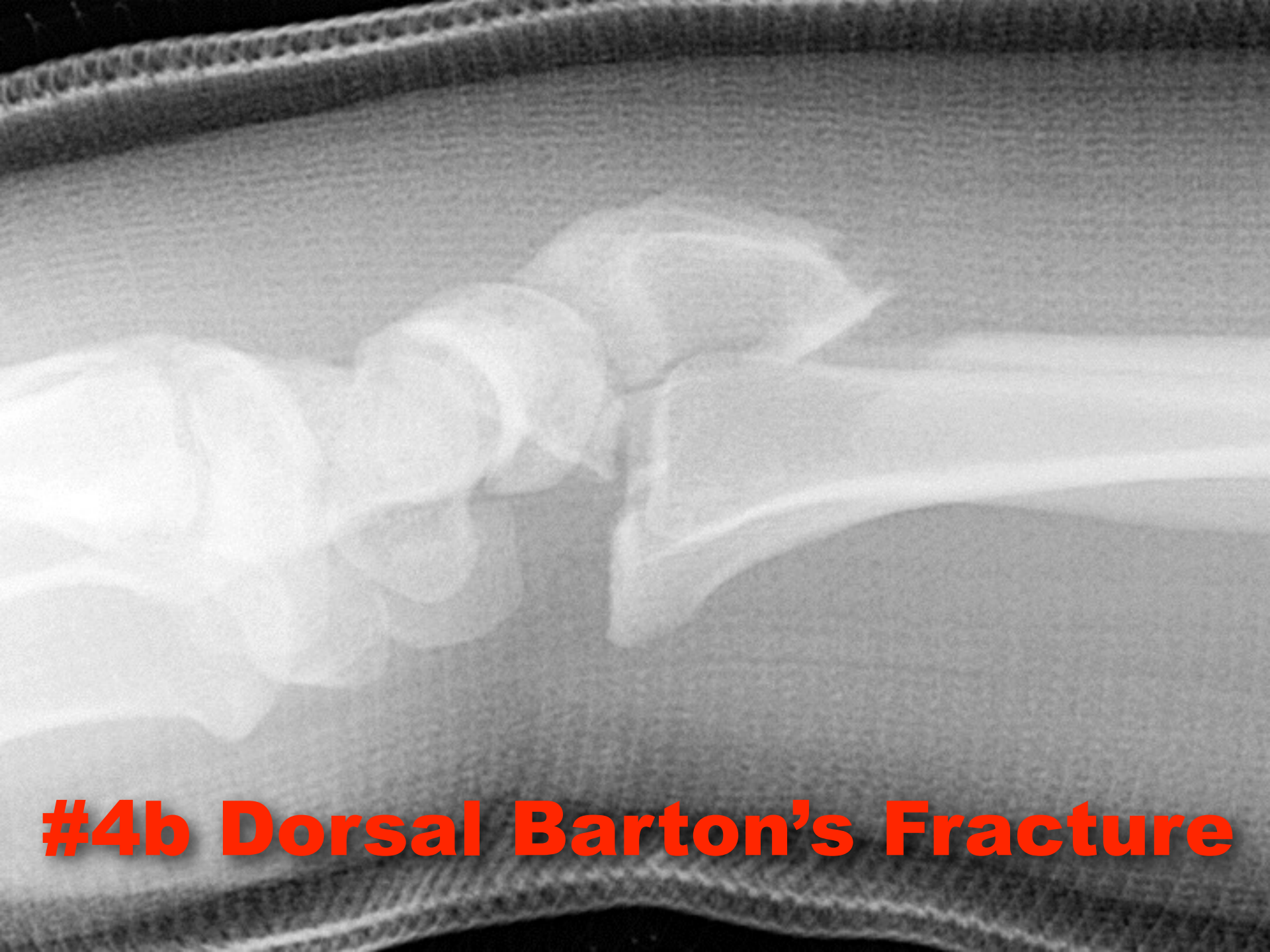
If it's potentially stable, do anything



If it's unstable, do the right thing...the first time



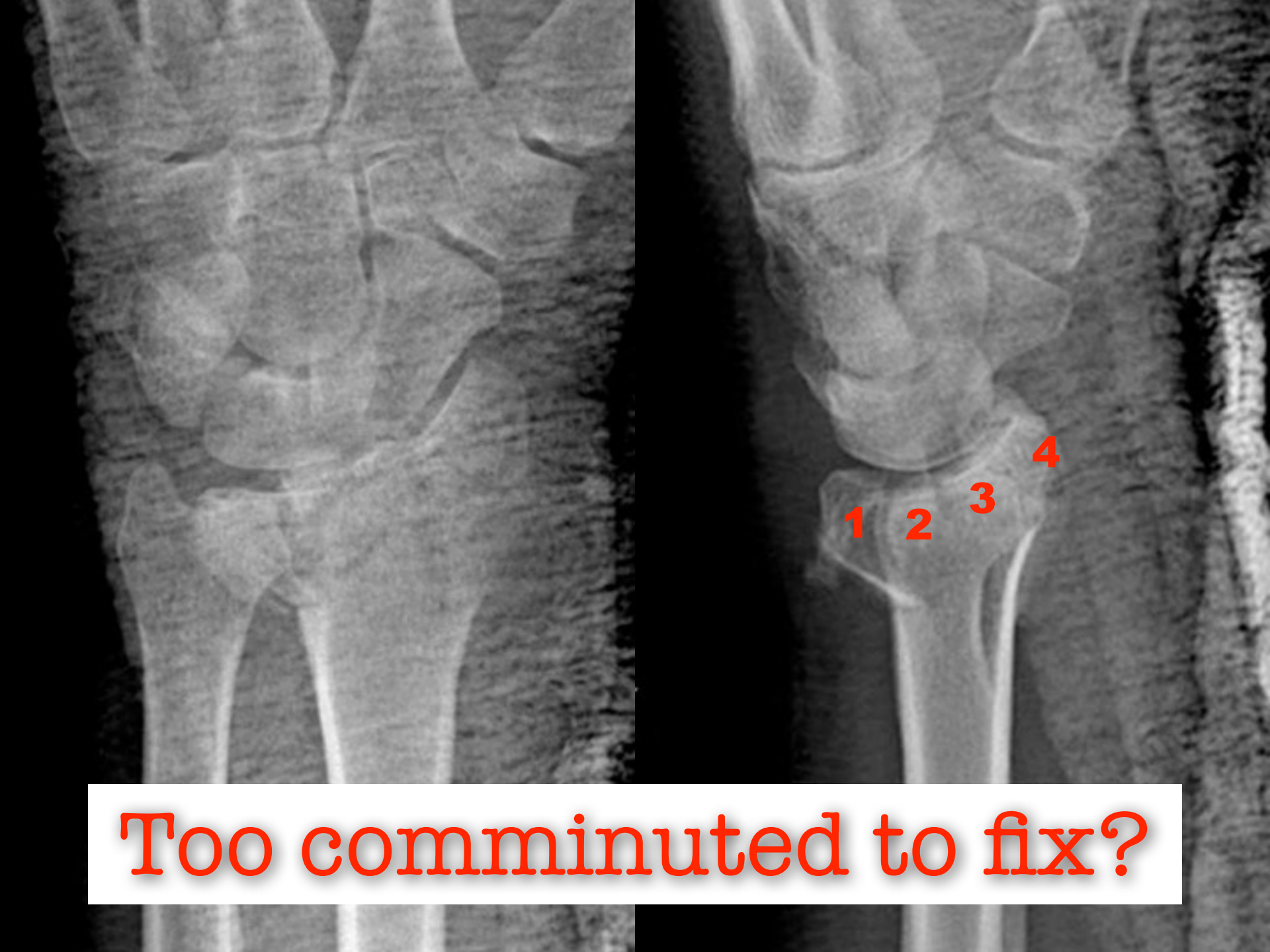
#4a Volar Barton's Fracture



#4b Dorsal Barton's Fracture

Fragment-specific fixation





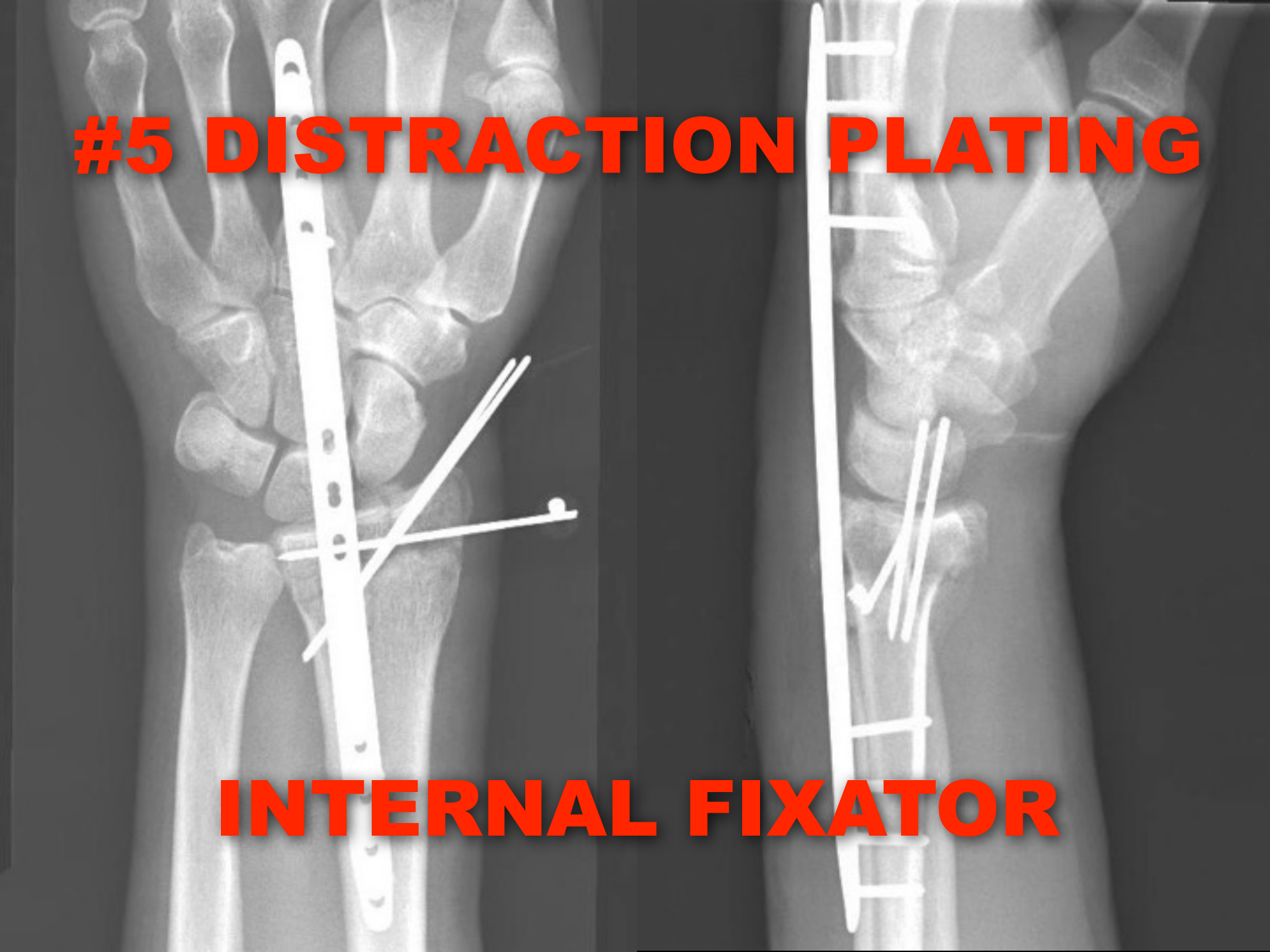
Too comminuted to fix?

- Technically quick and easy
- Preserves ligamentotaxis
- Protects minimal IF
- Allows dressing changes
- Permits wrist extension

ADVANTAGES OF
EXTERNAL FIXATION

#5 DISTRACTION PLATING

INTERNAL FIXATOR



Check forearm rotation



**Make sure that the
finger tips flex easily
into the palm**



Avoid Overdistraction!



EXCELLENT BAILOUT OPTION

IMMEDIATE GOALS

Radial inclination $> 5^\circ$
Palmar tilt neutral
No loss of height
Articular gaps $< 2\text{mm}$
Articular stepoff $< 1\text{mm}$
Stable radius fixation
Stable DRUJ
Early motion

#6 “BEGIN WITH THE END IN MIND”



VOLAR PLATES

#7 Be Prepared



Extra-articular

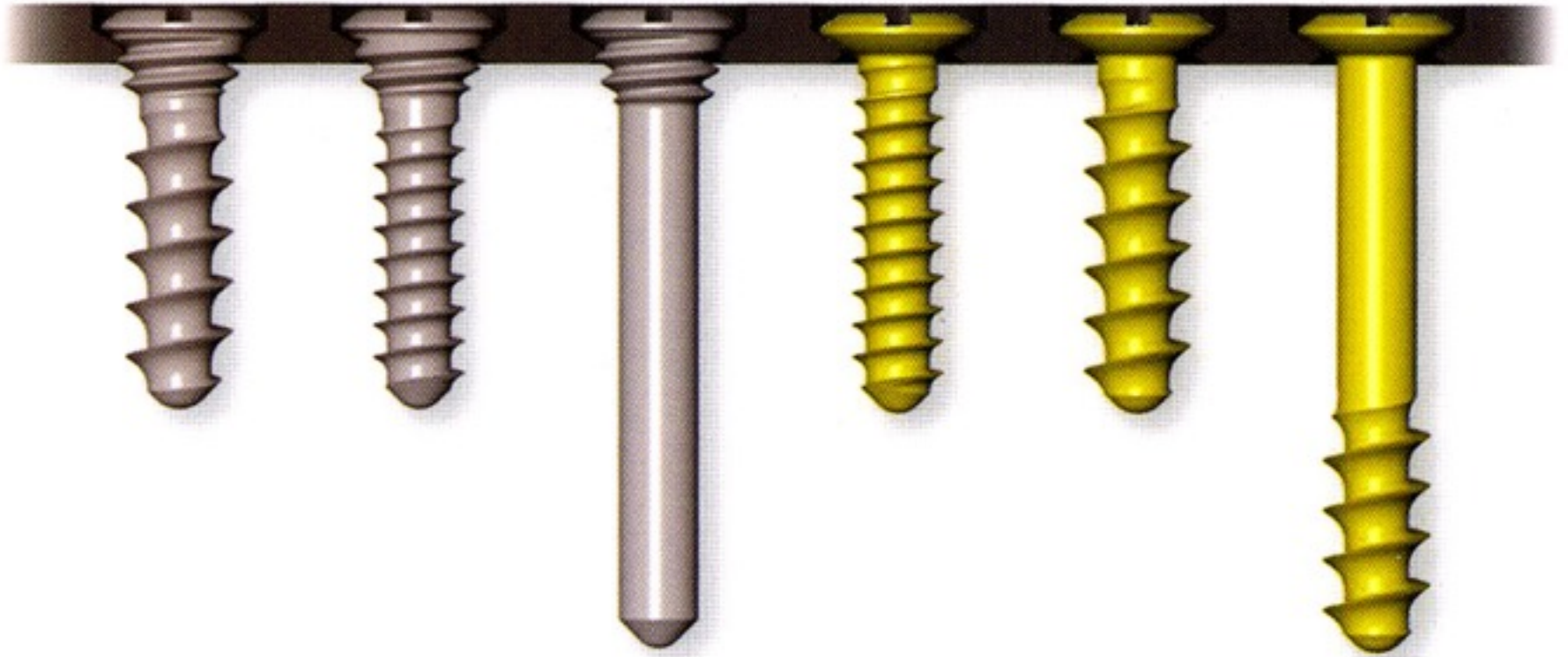


Juxta-articular



Fragment Specific

Intra-articular



**#8 Locking vs Nonlocking
Threaded vs Unthreaded**

VARIABLE ANGLE LOCKING PLATES



Expensive, take longer, tricky insertion

**#9 Place pegs/screws 2-3mm
from articular surface**

Temporary K-wire fixation

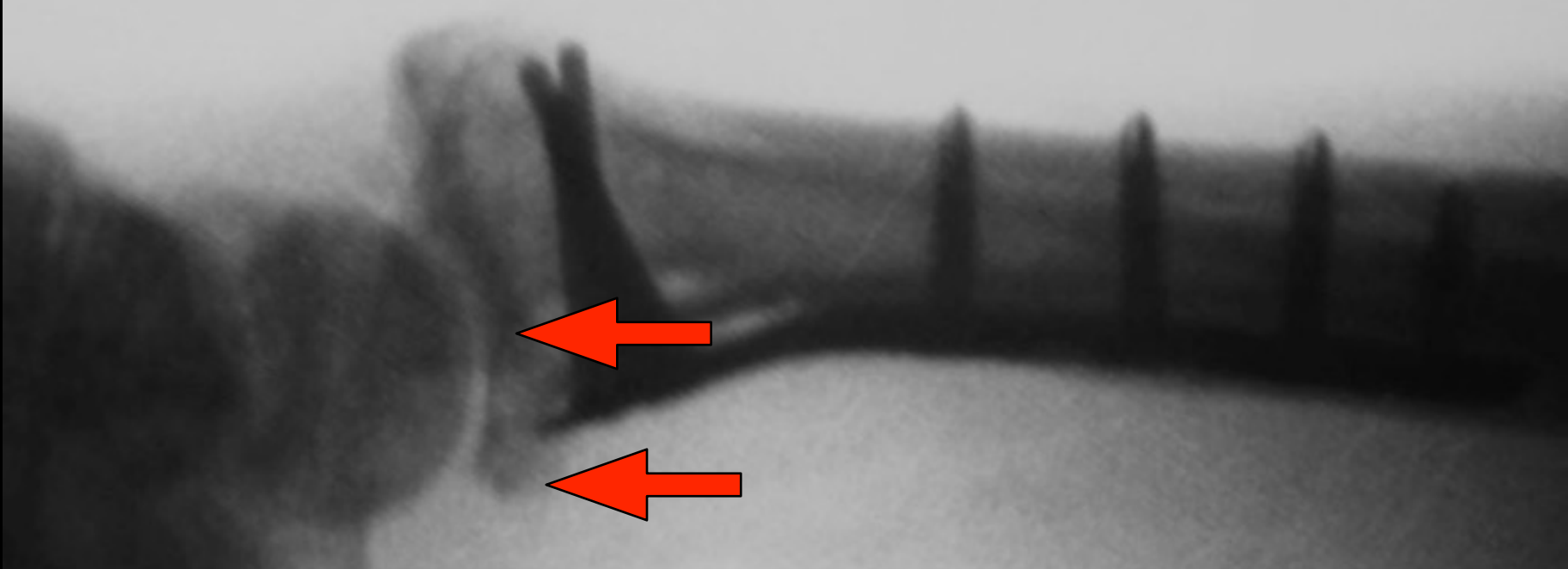
#9 Stay out of the joint!



Want pegs 2-3mm below subchondral bone

Elevated Lateral

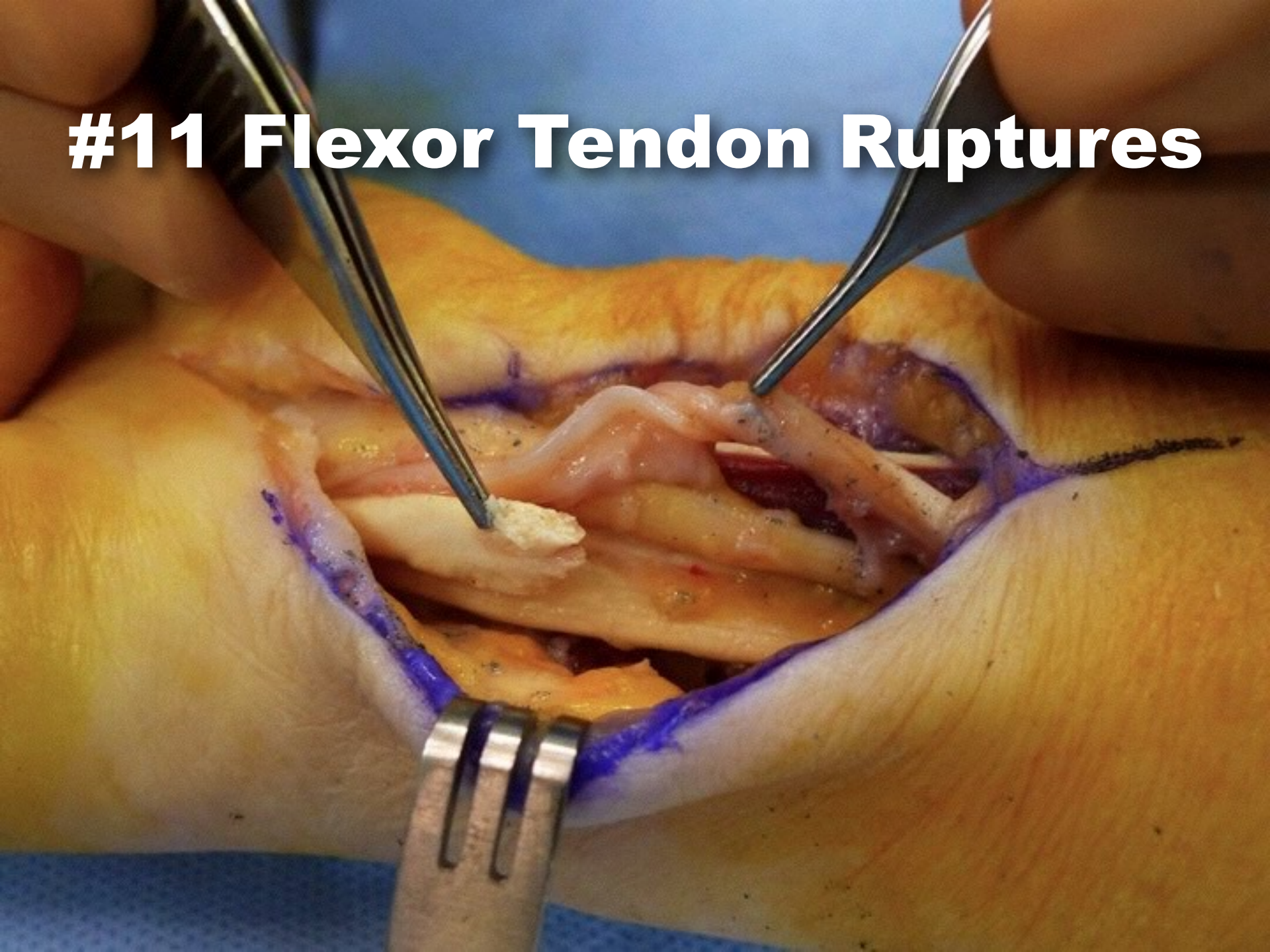


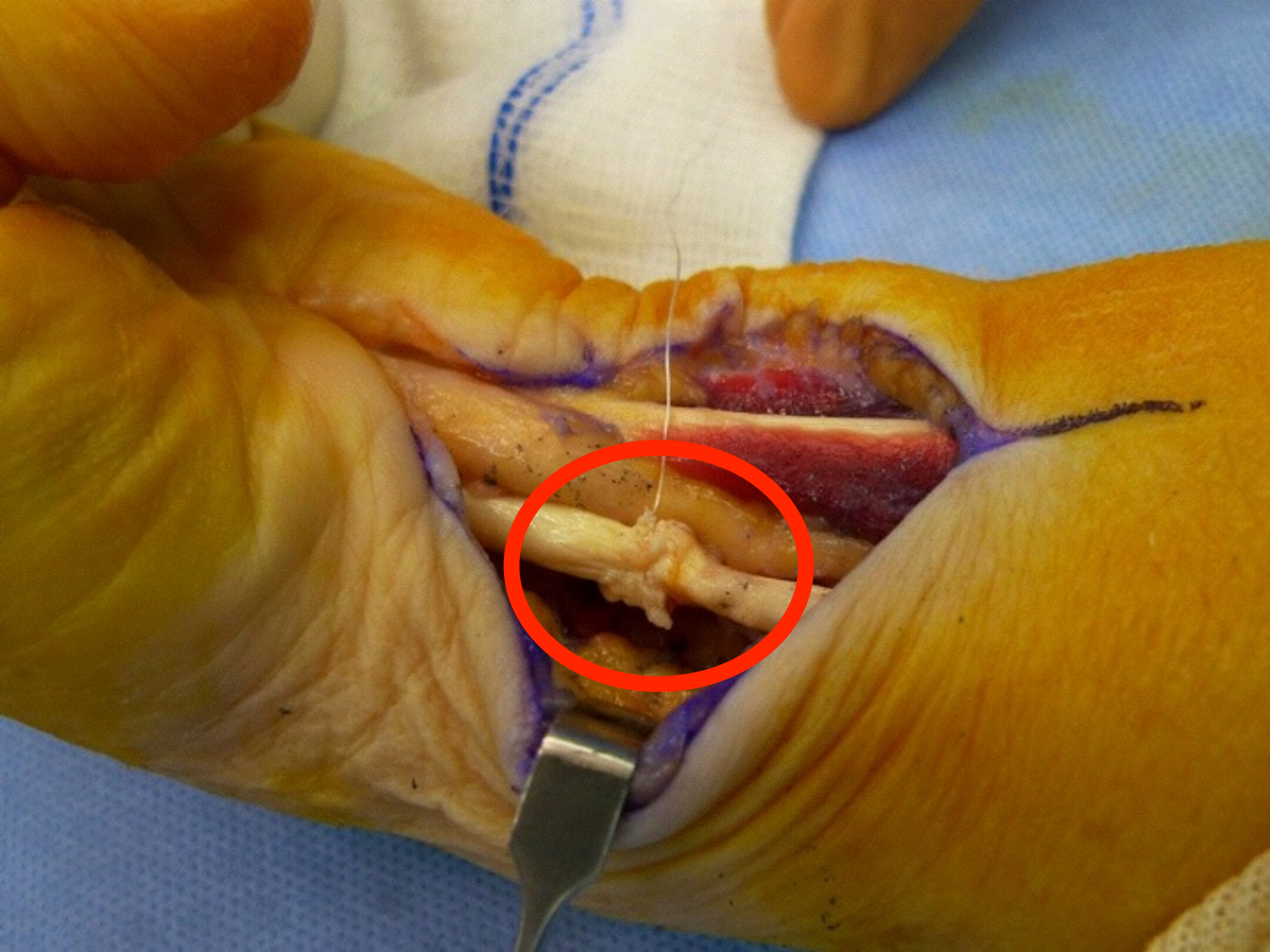


#10 JUXTA-ARTICULAR PLATE



#11 Flexor Tendon Ruptures





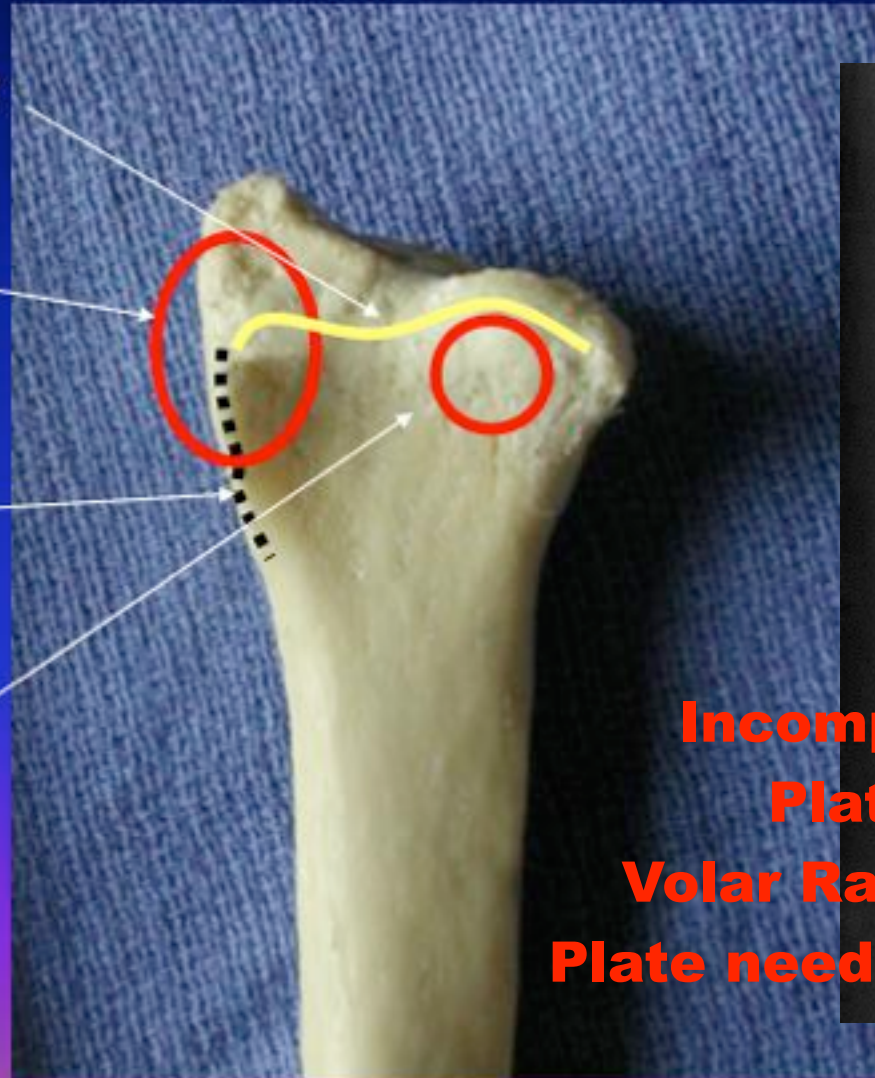
Anatomy of the Volar Radius

Watershed line

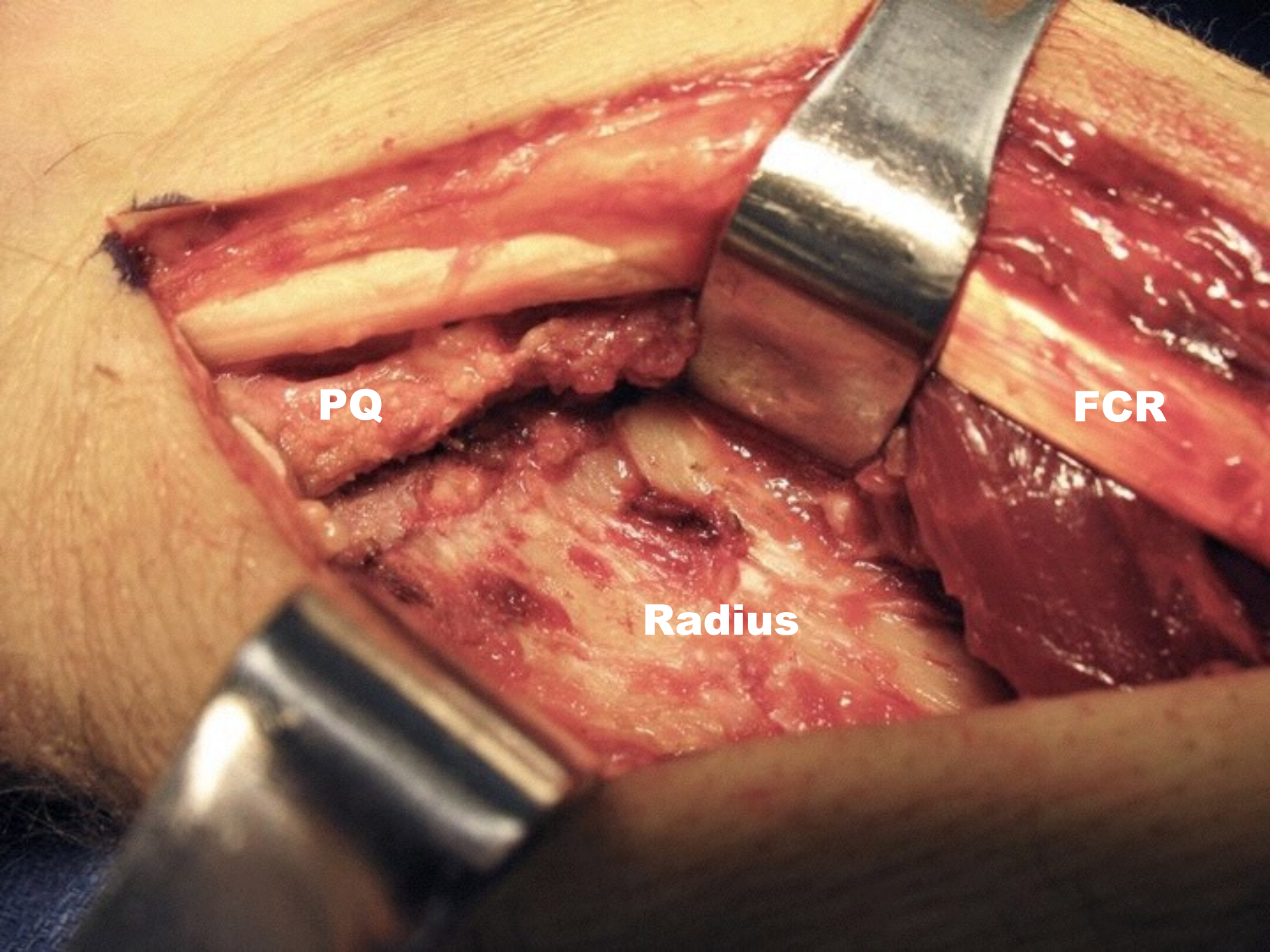
Volar Radial
Tuberosity

Volar Radial
Ridge

Lunate facet
buttress



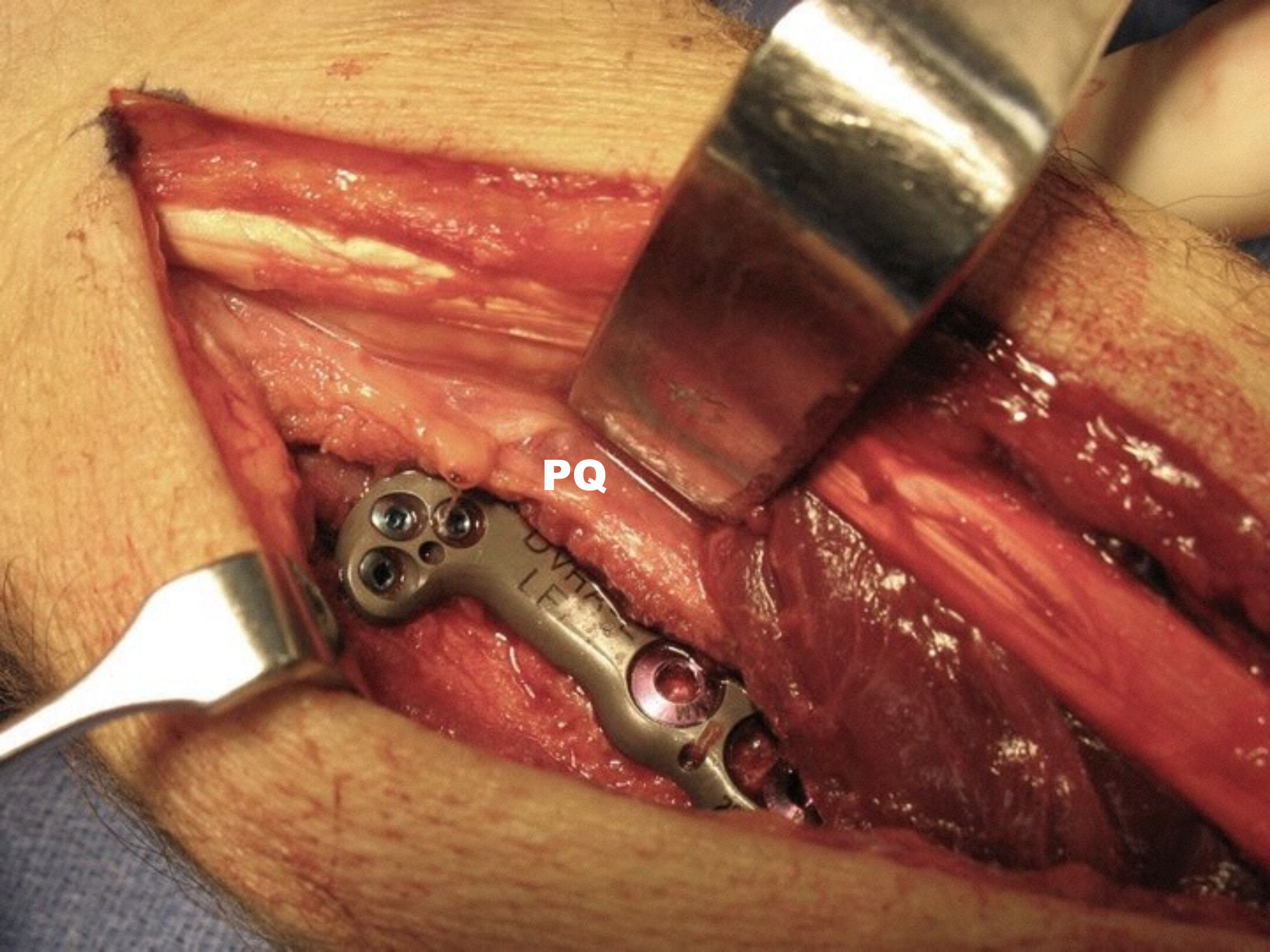
Incomplete reduction
Plate too far distal
Volar Radial Tuberosity
Plate needs straightening



PQ

FCR

Radius

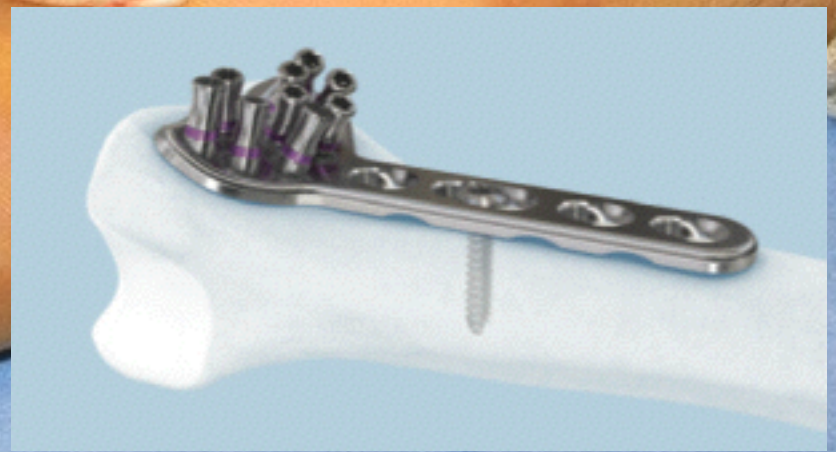


PQ

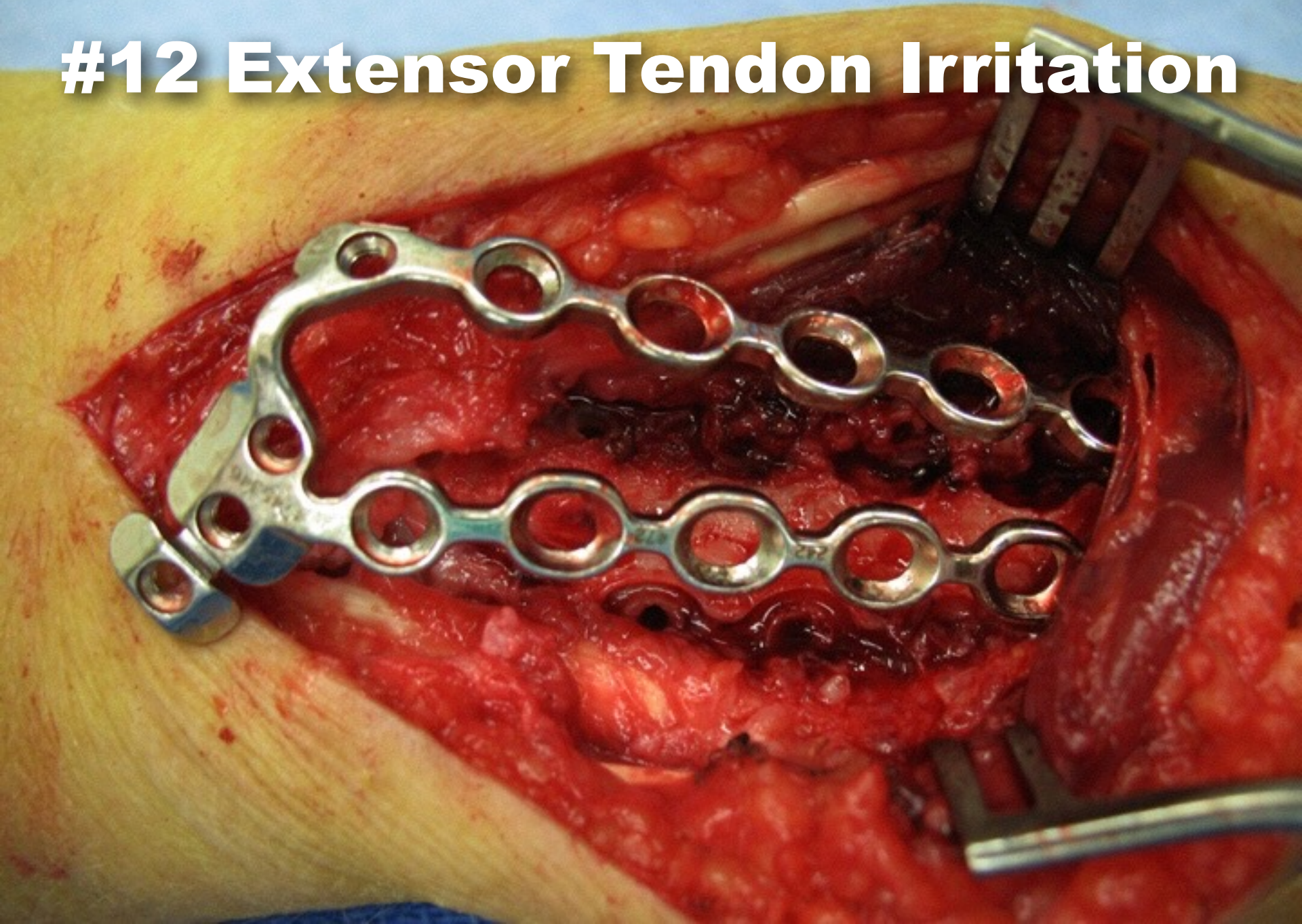


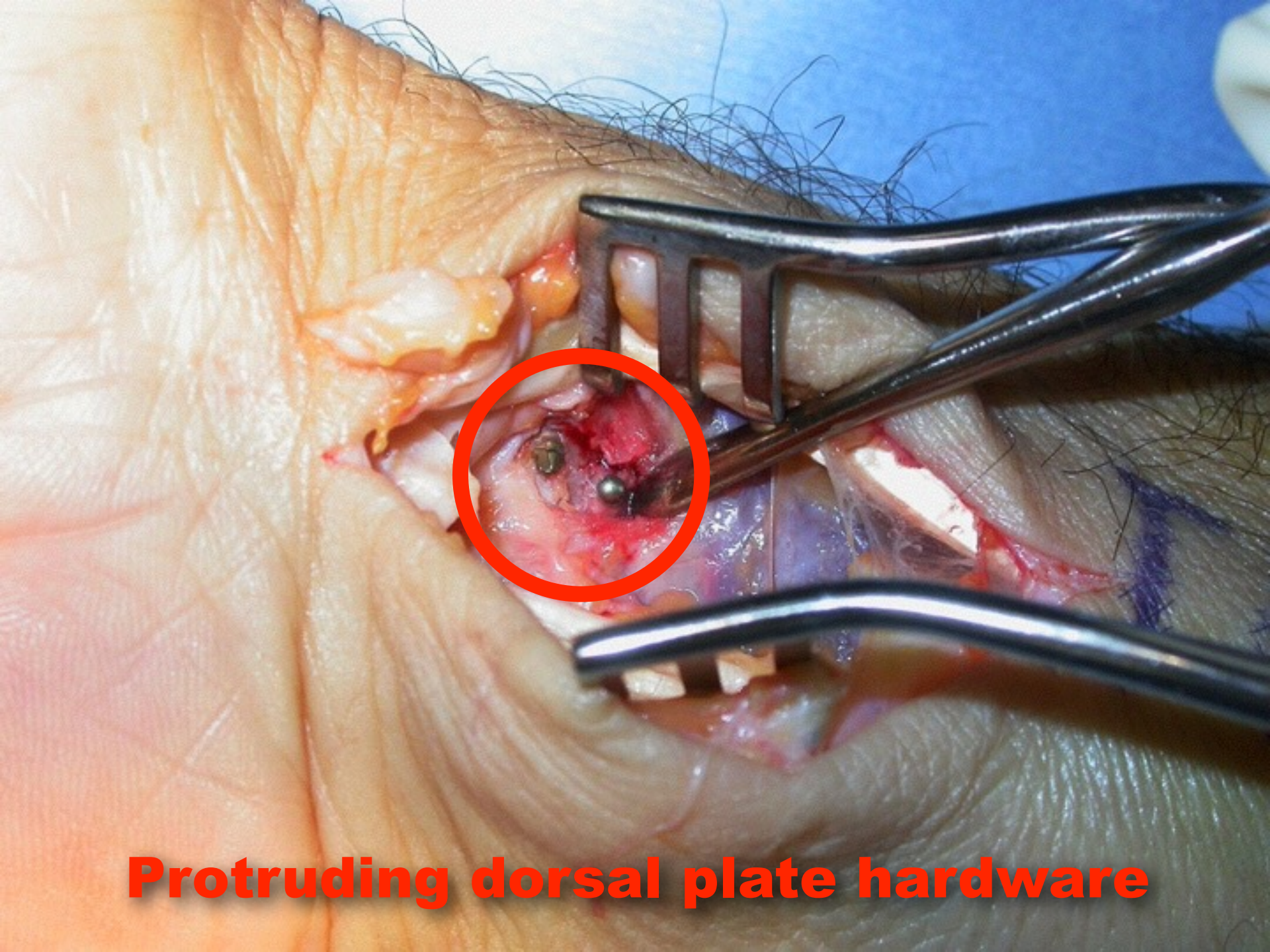
PQ

Avoid prominent screw/peg heads

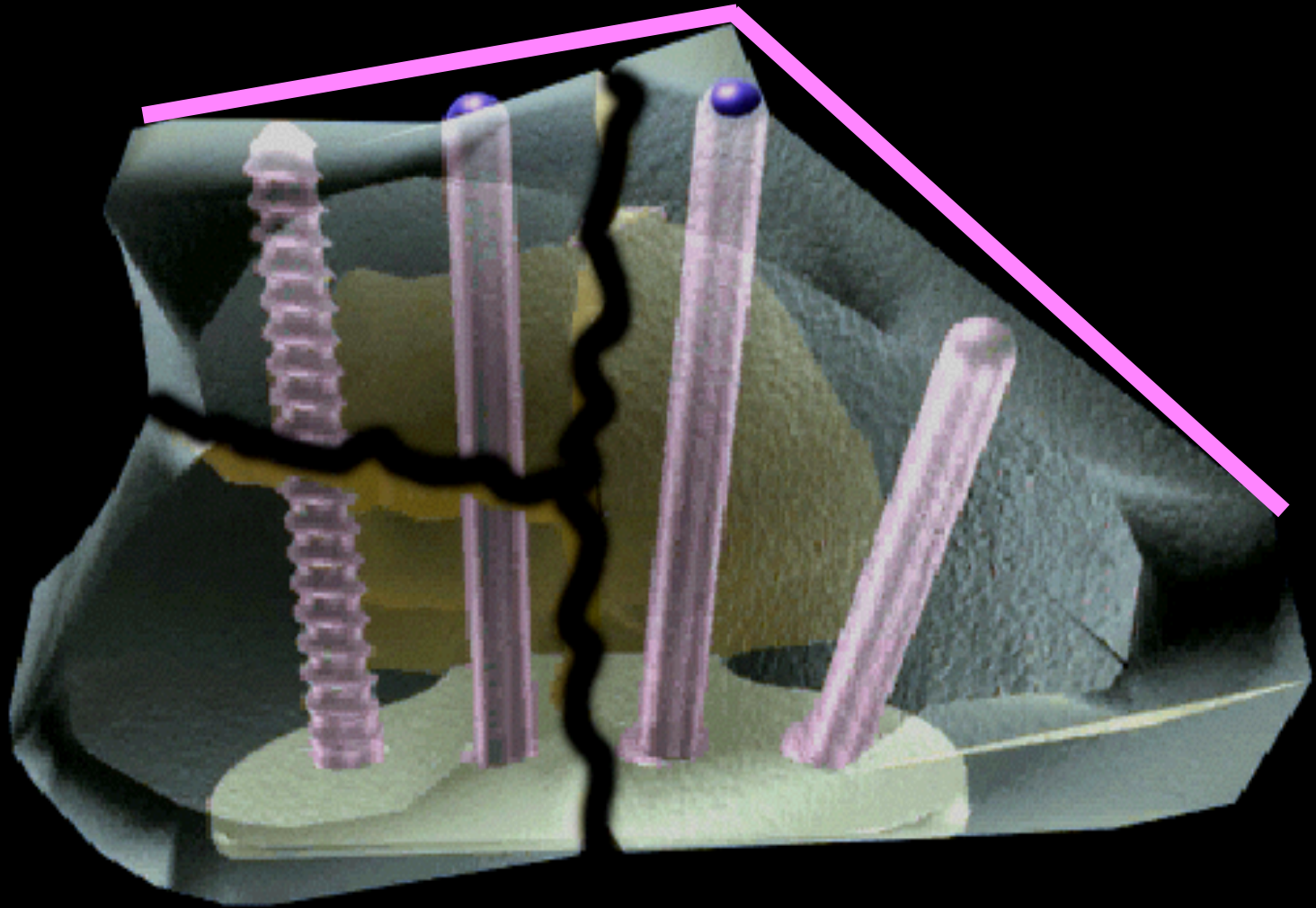


#12 Extensor Tendon Irritation

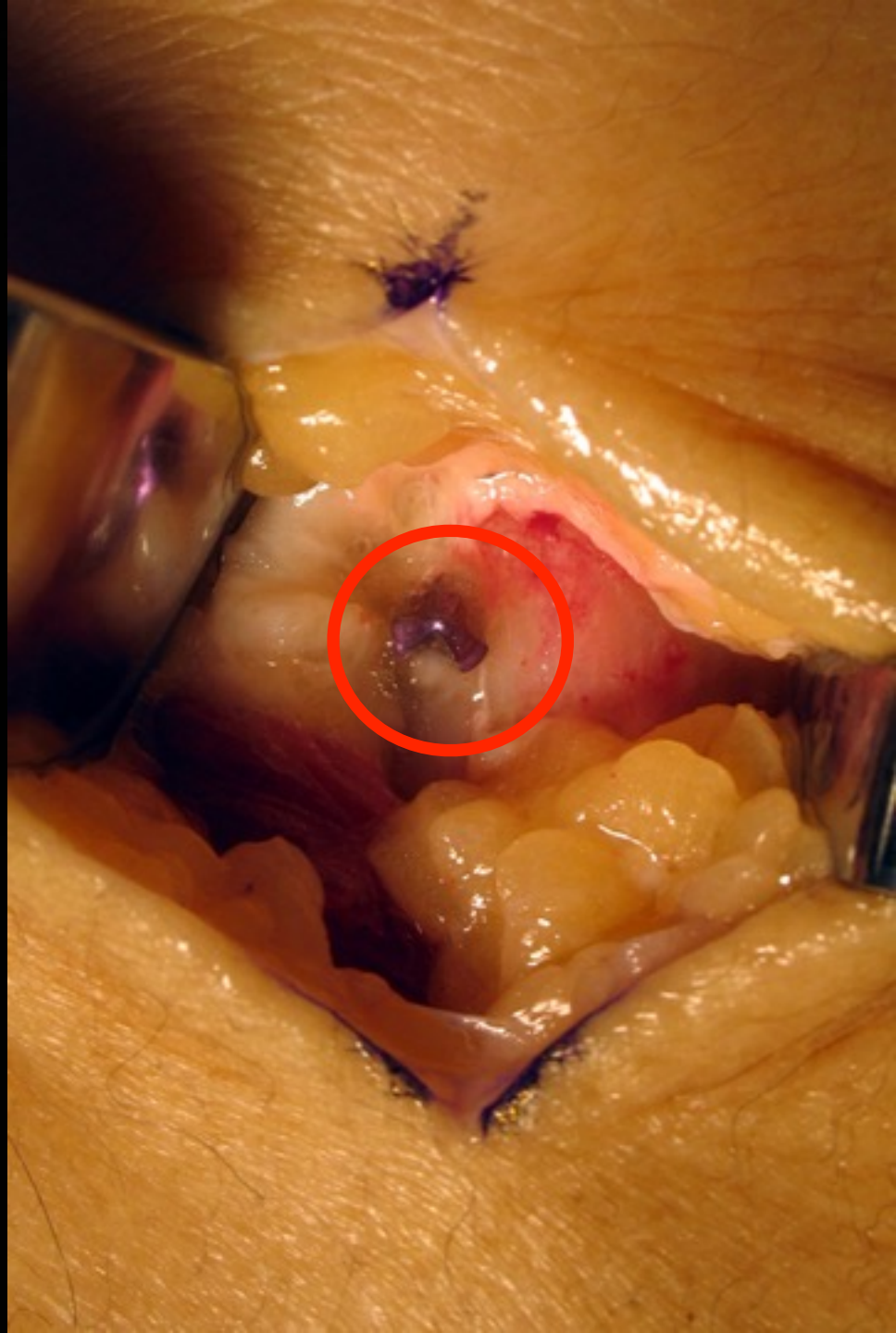




Protruding dorsal plate hardware



Dorsal surface of distal radius triangular



A V O I D I N G Extensor Ruptures

Depth gauge inaccurate due to comminution

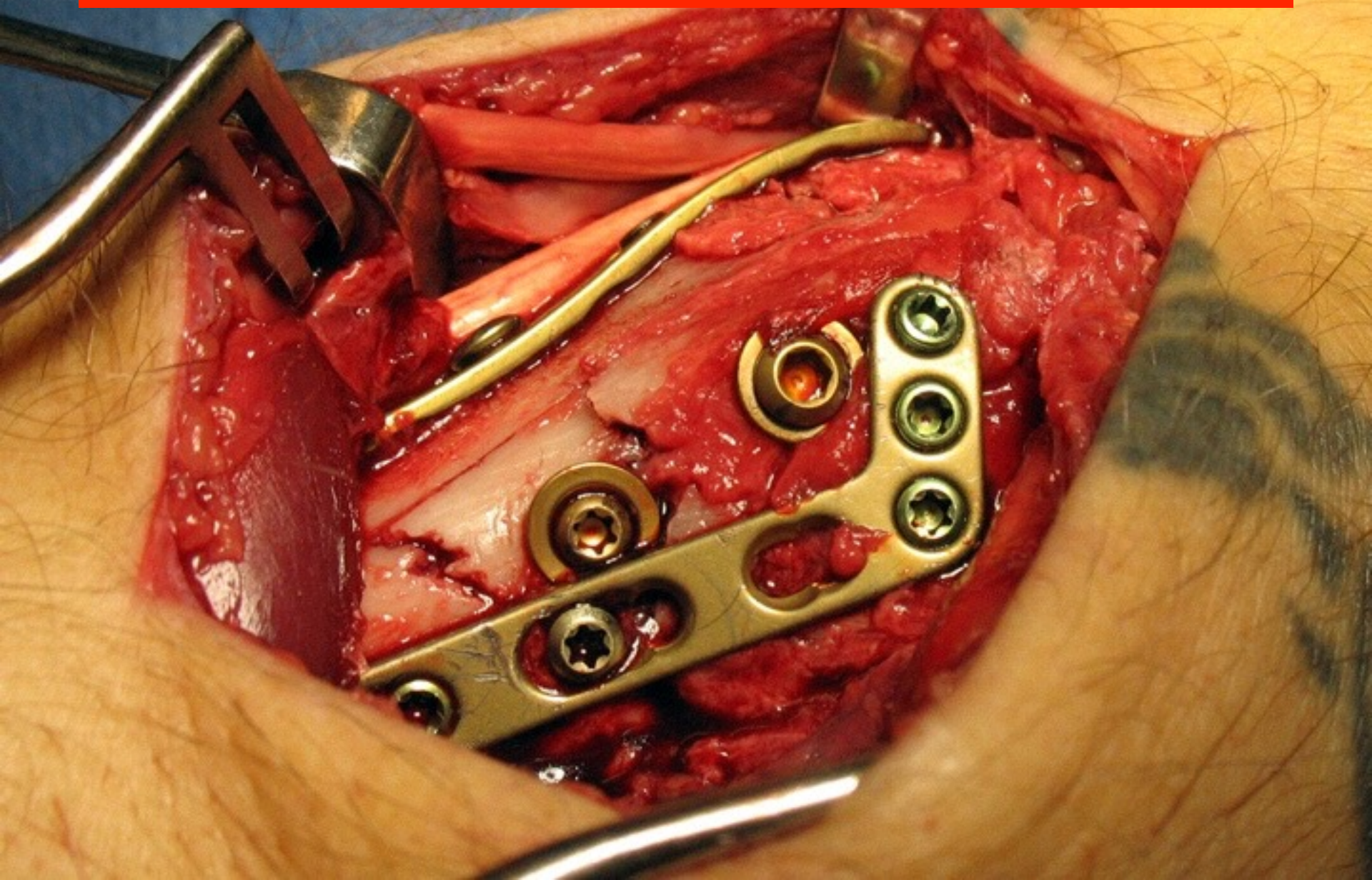
Subtract at least 2mm from measurement

Drill to but not through the dorsal cortex

Avoid bicortical screw placement

Thorough intraop fluoroscopic exam

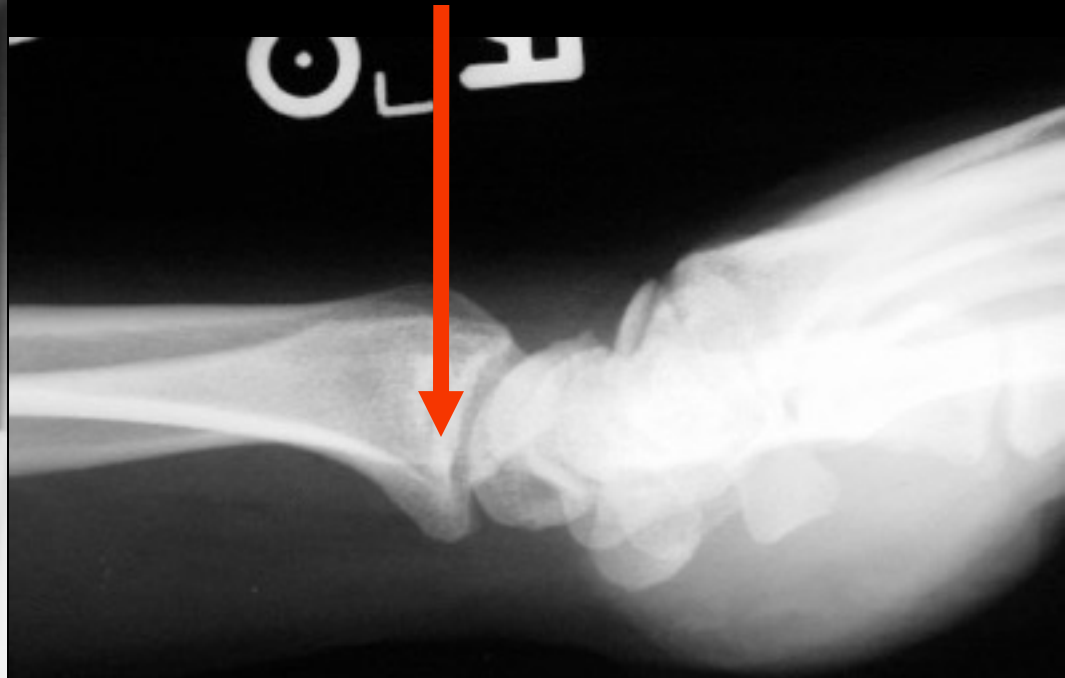
#13 Watch Out For Dorsal Lunate Facet



Volar rim (normally)



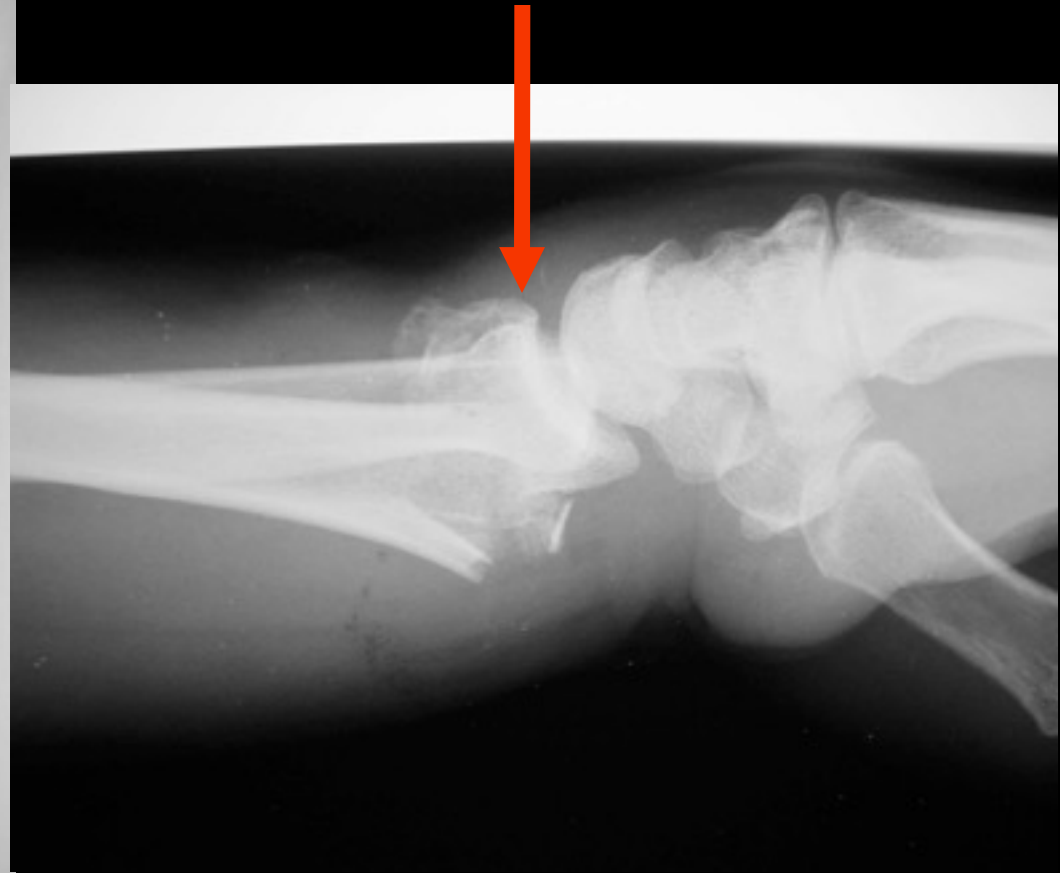
X-ray beam



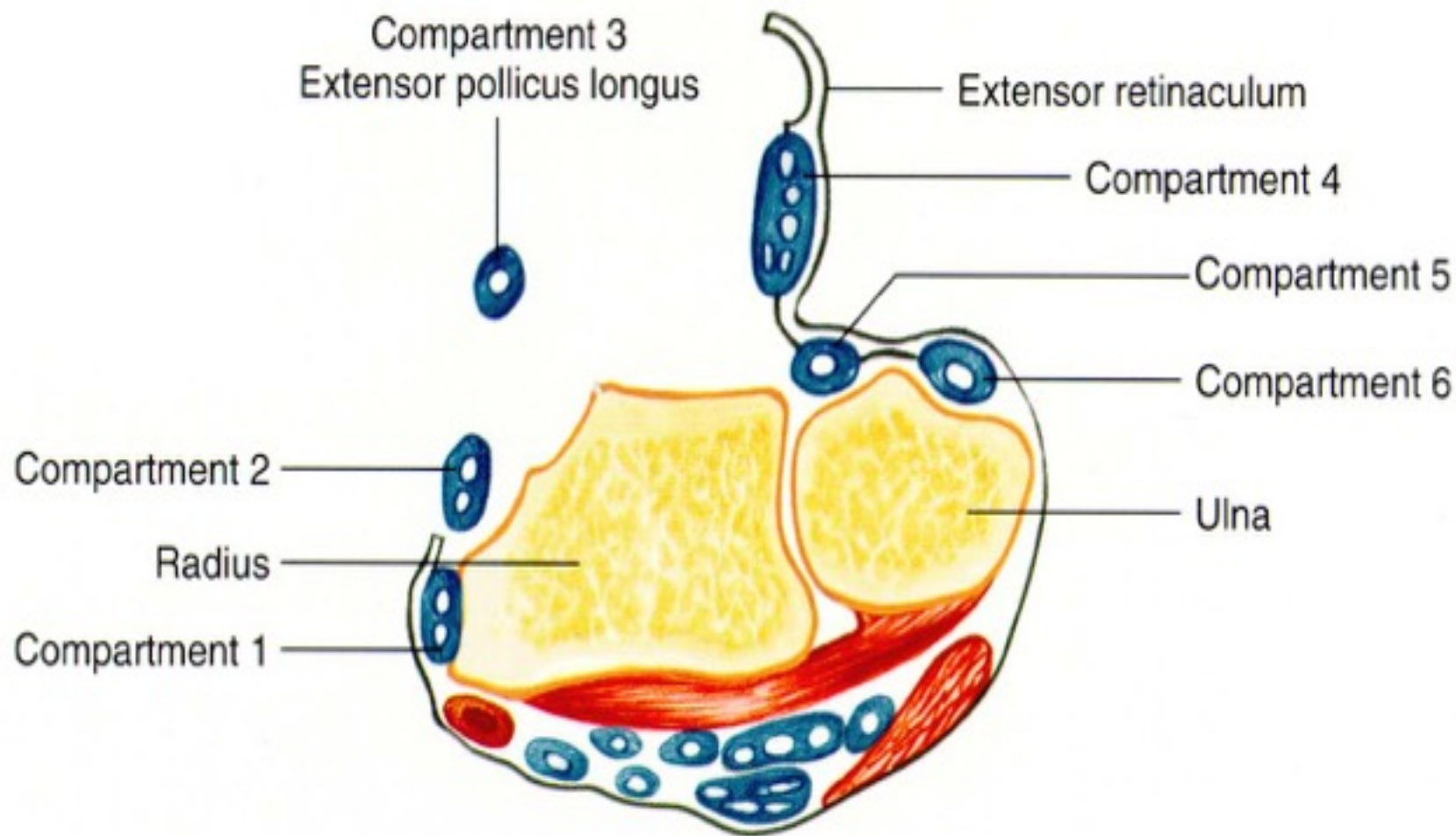
Dorsal rim



X-ray beam



Identify the dorsal rim



Approach for dorsal lunate facet fracture

#14 Posterior Interosseous Neurectomy



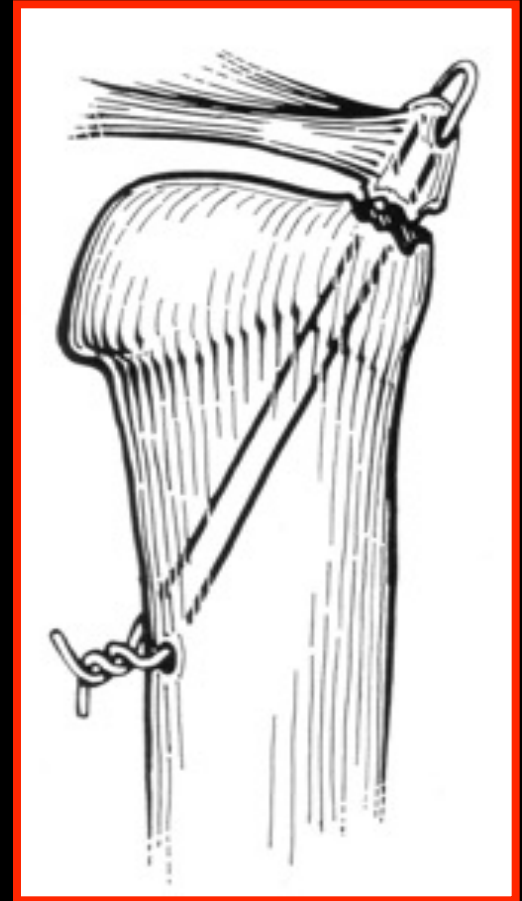
#15 BONE GRAFTING

- Blood supply good in osteopenic wrists so bone healing rarely a problem
- Primary indication to facilitate reduction
- ↑ Morbidity & cost with iliac crest bonegraft
- Allograft best option
- Croutons best combo of cost and structural support?



#16 ULNAR STYLOID FX

- Fractures are common, instability is rare
- Pseudarthrosis is well tolerated
- Complete ligament avulsion may occur without styloid fx
- Styloid fixation alone may not restore DRUJ stability
- Fracture fixation and/or TFCC repair will fail in the presence of acute radial shortening



Guidelines unable to recommend fixation

Should an Ulnar Styloid Fracture Be Fixed Following Volar Plate Fixation of a Distal Radial Fracture?

JBJS, January, 2010

By Jae Kwang Kim, MD, PhD, Young-Do Koh, MD, PhD, and Nam-Hoon Do, MD

Investigation performed at the Department of Orthopedic Surgery, Ewha Medical Research Institute, School of Medicine, Ewha Womans University, Seoul, South Korea

Background: Ulnar styloid fractures often occur in association with distal radial fractures. The purpose of this study was to determine whether an associated ulnar styloid fracture following stable fixation of a distal radial fracture has any effect on wrist function or on the development of chronic distal radioulnar joint instability.

Methods: One hundred and thirty-eight consecutive patients who underwent surgical treatment of an unstable distal radial fracture were included in this study. During surgery, none of the accompanying ulnar styloid fractures were internally fixed. Patients were divided into nonfracture, nonbase fracture, and base fracture groups, on the basis of the location of the ulnar styloid fracture, and into nonfracture, minimally displaced (≤ 2 mm), and considerably displaced (>2 mm) groups, according to the amount of ulnar styloid fracture displacement at the time of injury. Postoperative evaluation included measurement of grip strength and wrist range of motion; calculation of the modified Mayo wrist score and Disabilities of the Arm, Shoulder and Hand score; as well as testing for instability of the distal radioulnar joint at a mean of nineteen months postoperatively.

Results: Ulnar styloid fractures were present in seventy-six (55%) of the 138 patients. Forty-seven (62%) involved the nonbase portion of the ulnar styloid and twenty-nine (38%) involved the base of the ulnar styloid. Thirty-four (45%) were minimally displaced, and forty-two (55%) were considerably (>2 mm) displaced. We did not find a significant relationship between wrist functional outcomes and ulnar styloid fracture level or the amount of displacement. Chronic instability of the distal radioulnar joint occurred in two wrists (1.4%).

Conclusions: An accompanying ulnar styloid fracture in patients with stable fixation of a distal radial fracture has no apparent adverse effect on wrist function or stability of the distal radioulnar joint.

ASSESSING DRUJ INSTABILITY



#17 ACUTE CARPAL TUNNEL RELEASE



AAOS CLINICAL PRACTICE GUIDELINES

Unable to recommend for or against when nerve dysfunction persists after reduction. Suggest adjuvant treatment with vitamin C for the prevention of disproportionate pain

#18 ASSOCIATED CARPAL SOFT TISSUE INJURY

- **3 Arthroscopic studies**
 - **Hanker AANA '93**
 - **Geissler JBJS '96**
 - **Lindau JHS-B '97**
- **TFCC tear 50-75%**
- **SL tear 33-50%**
- **LT tear 15%**
- **Chondral defect 30%**





**#19 Lack of supination
MC functional complaint**



“I wake up every morning thinking about ways that I can keep myself out of trouble”

