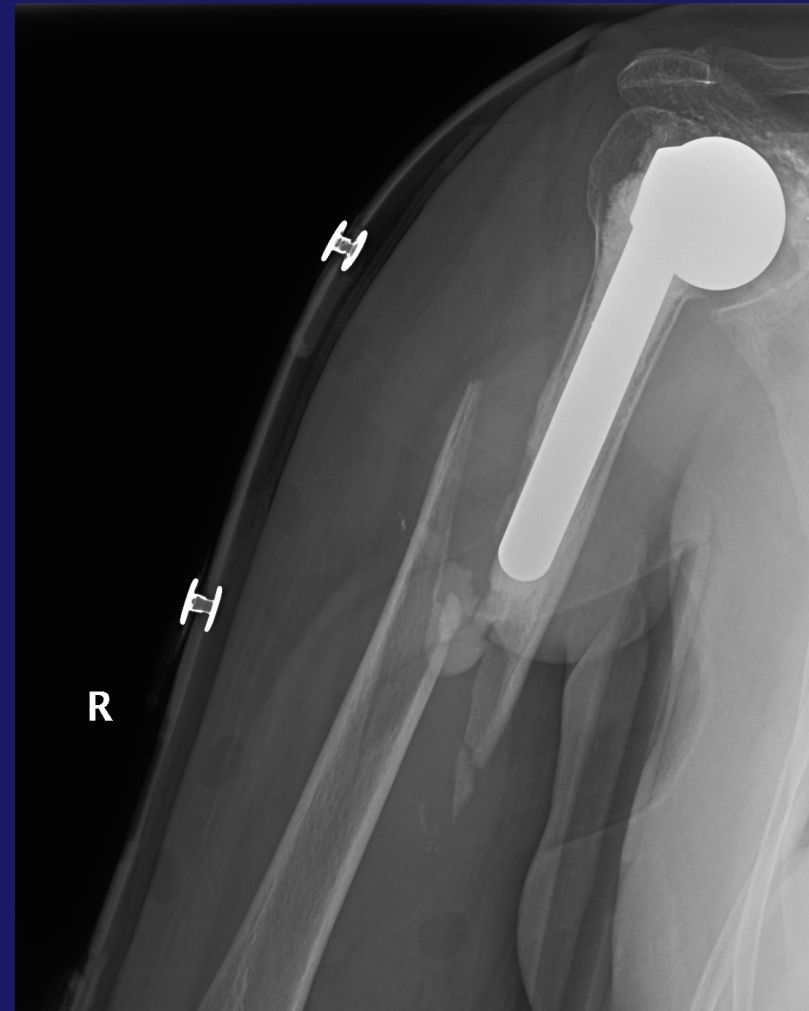


Periprosthetic Humeral Fractures

Michael D. McKee, MD, FRCS(C)

**Professor and Chair,
Department of Orthopaedic Surgery
University of Arizona College of
Medicine -Phoenix,
Phoenix, Arizona**



I (and/or my co-authors) have something to disclose.

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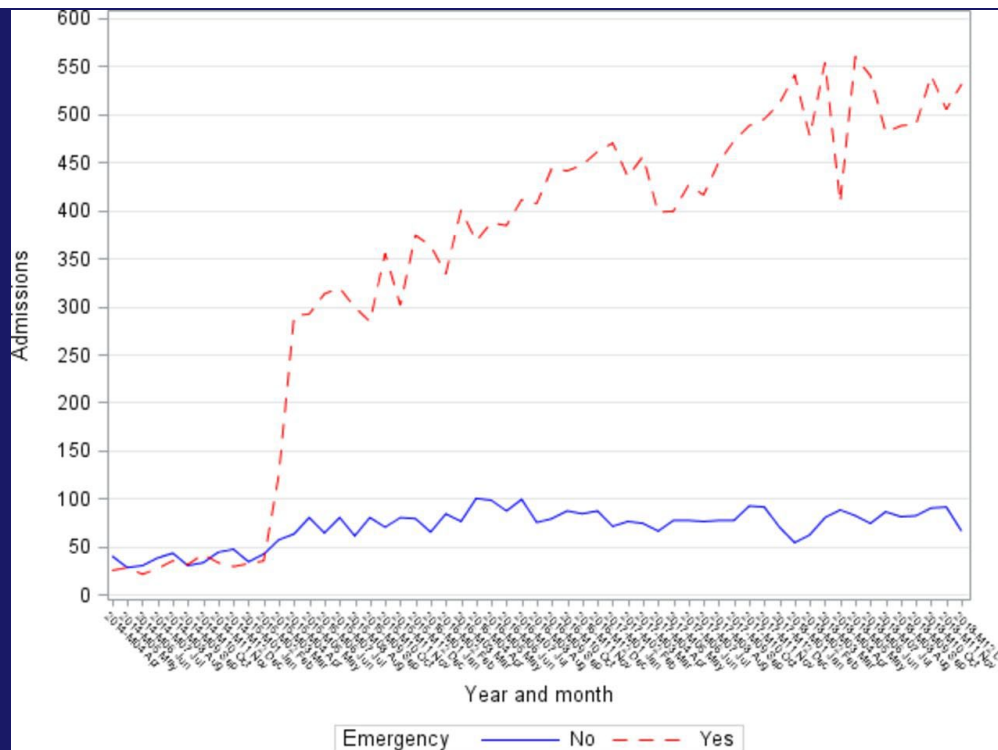
<http://www.aaos.org/disclosure>

Participants All individuals admitted to hospital with periprosthetic fractures between 1 April 2015 and 31 December 2018.

Primary and secondary outcome measures Mortality, length of stay, change in rate of admissions.

Methods We analysed Hospital Episode Statistics data using the International Classification of Diseases 10th Revision code M96.6 (Fracture of bone following insertion of orthopaedic implant, joint prosthesis, or bone plate) to identify periprosthetic fractures recorded between April 2013 and December 2018. We determined the demographics, procedures performed, mortality rates and discharge destinations. Patient characteristics associated with having a procedure during the index admission were estimated using logistic regression. The annual rate of increase in admissions was estimated using Poisson regression.

Results Between 1 April 2015 and 31 December 2018, there were 13 565 patients who had 18 888 admissions (89.5% emergency) with M96.6 in the primary diagnosis field. There was a 13% year-on-year increase in admissions for periprosthetic fracture in England during that period. Older people, people living in deprived areas and those with heart failure or neurological disorders were less likely to receive an operation. 14.4% of patients did not return home after hospital discharge. The overall inpatient mortality was 4.3% and total 30-day mortality was 3.3%.



Arizona Experience

- **Seventy-six patients, short stem (n=18) standard stem (n=58)**
- **Patients with a short stem were significantly more likely to have a loose prosthesis after fracture (66.7% versus 32.8%, p=0.01)**
- **Patients in the short stem group required more surgery and more revisions compared to standard stem**

Periprosthetic Humeral Shaft Fractures



Decision - making

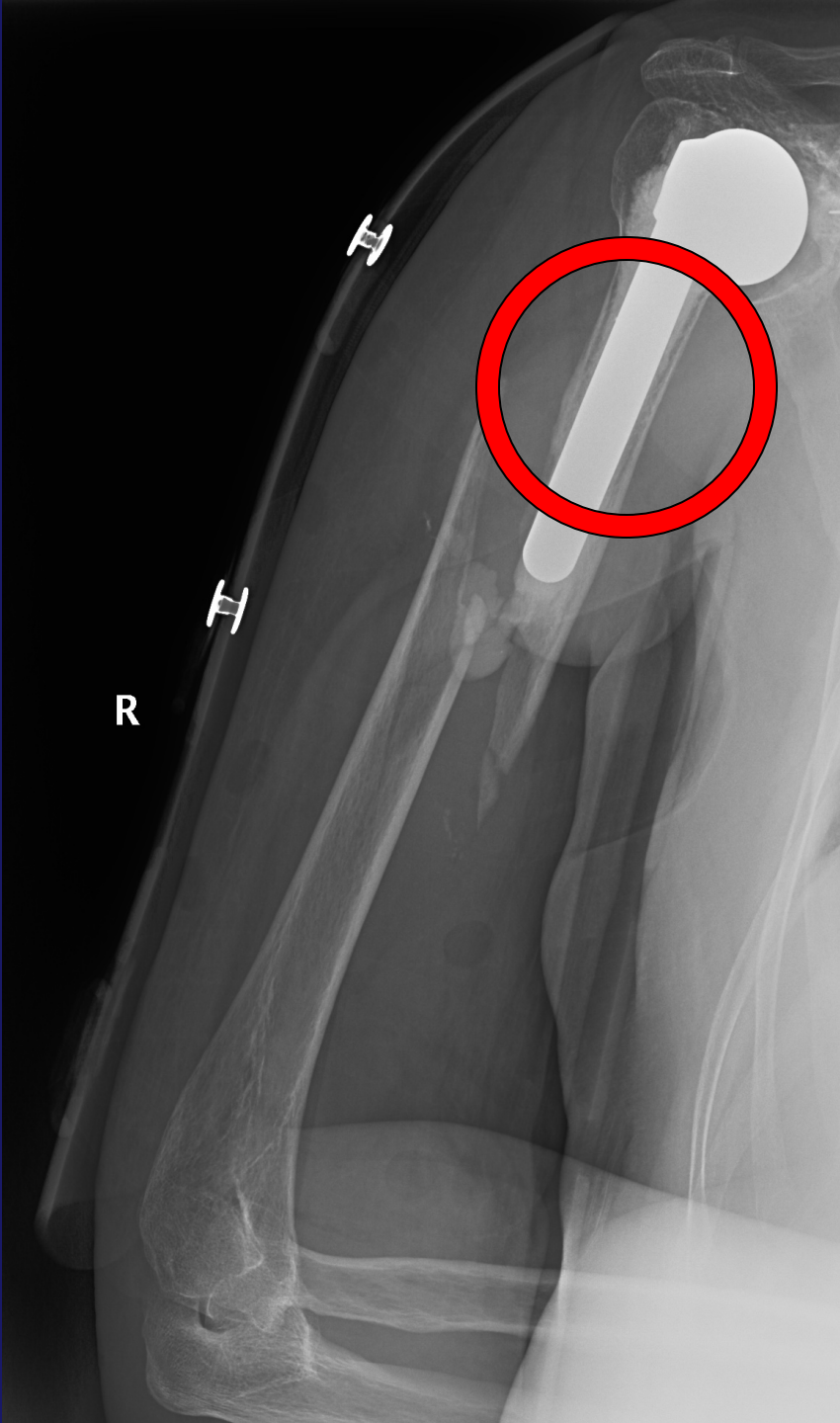
- **Was the prosthesis functioning well?**
- **Is the humeral stem solid?**
- **Where is the fracture? Alignment?**
- **Healing potential (local / systemic) ?**
- **What is the bone stock like?**



Decision - making

- **Shoulder functioning well**
- **Stem solid**
- **Type C fracture, well aligned**
- **Good biology**
- **Bone stock reasonable**



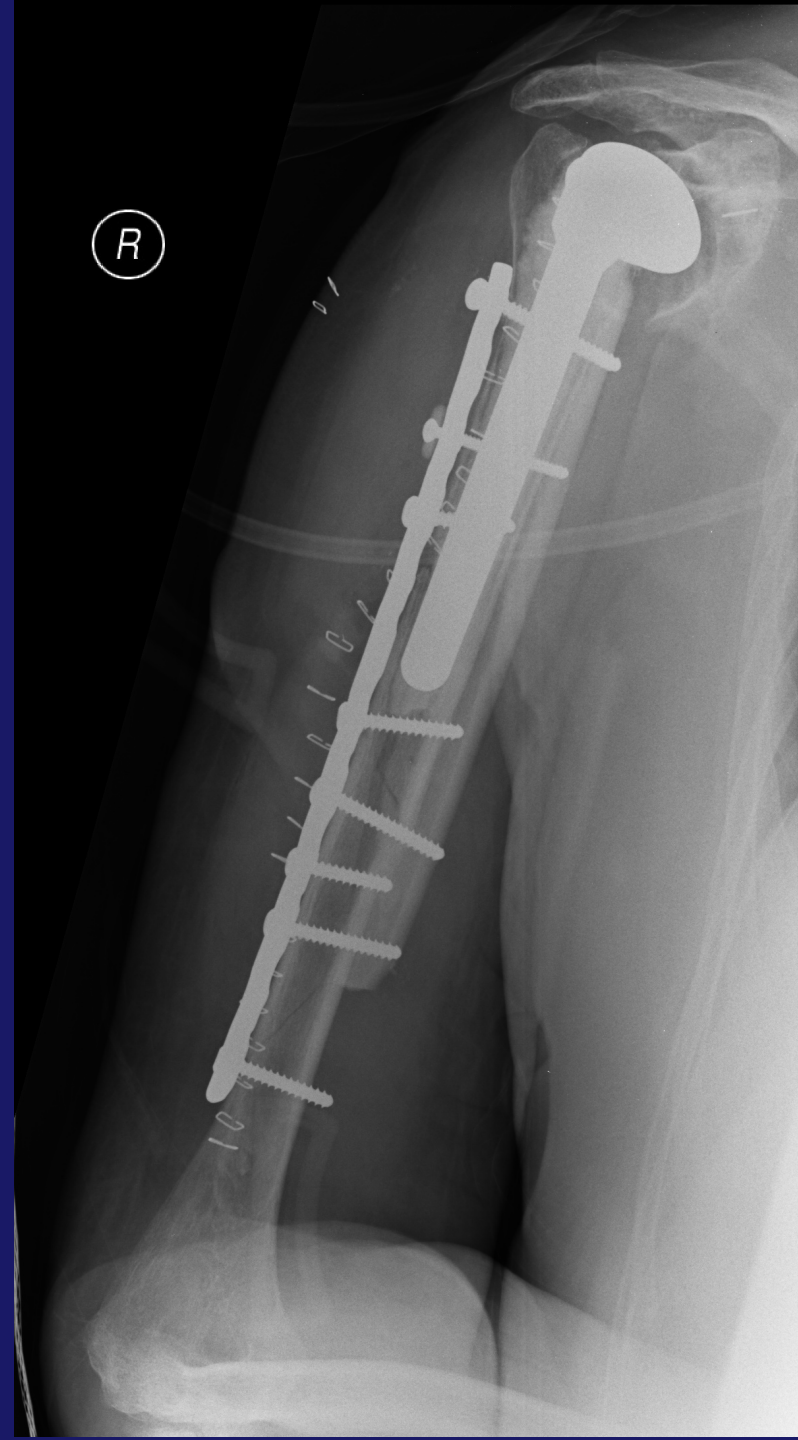


Decision - making

- **Shoulder functioning well**
- **Stem solid**
- **Type B fracture**
- **Poor biology**
- **Bone stock poor**

Stem left intact

ORIF with screws into
strut allograft





1a



Peri-prosthetic fracture

- 72 yr old female
- 3 months post reverse TSA for cuff arthropathy
- Successful, no complications
- MVA - # R humerus, # L talus, # ribs, # facial



Indications for ORIF

- **Displaced “B2” fracture**
- **Unacceptable alignment**
- **Polytrauma with multiple fractures**
- **Enhance shoulder rehabilitation**

**ORIF with
plate,
lag screws,
transcortical
screws,
cerclage
wire**



Preop Imaging

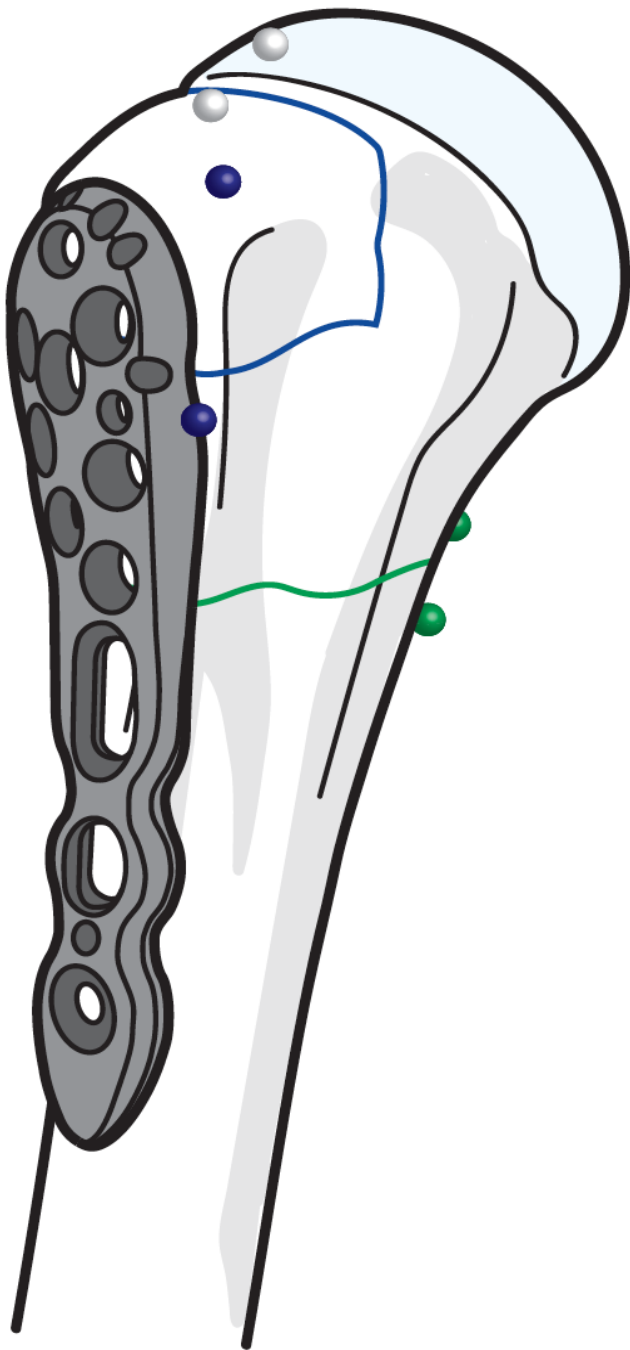
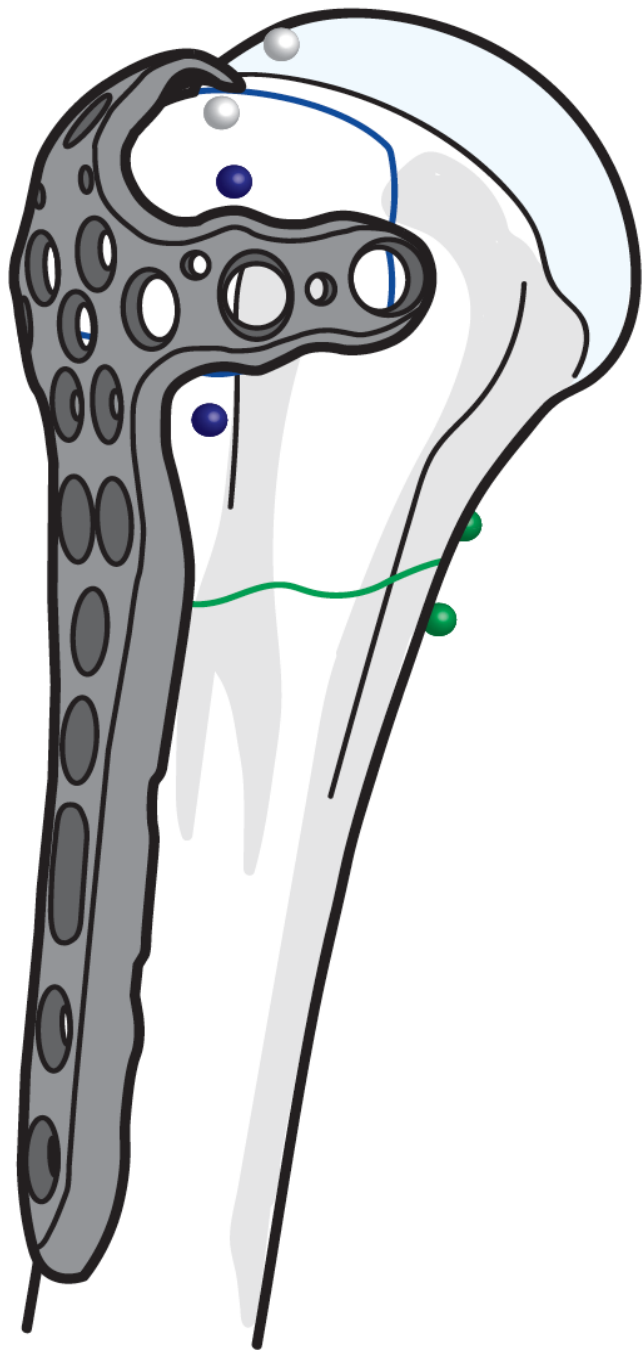




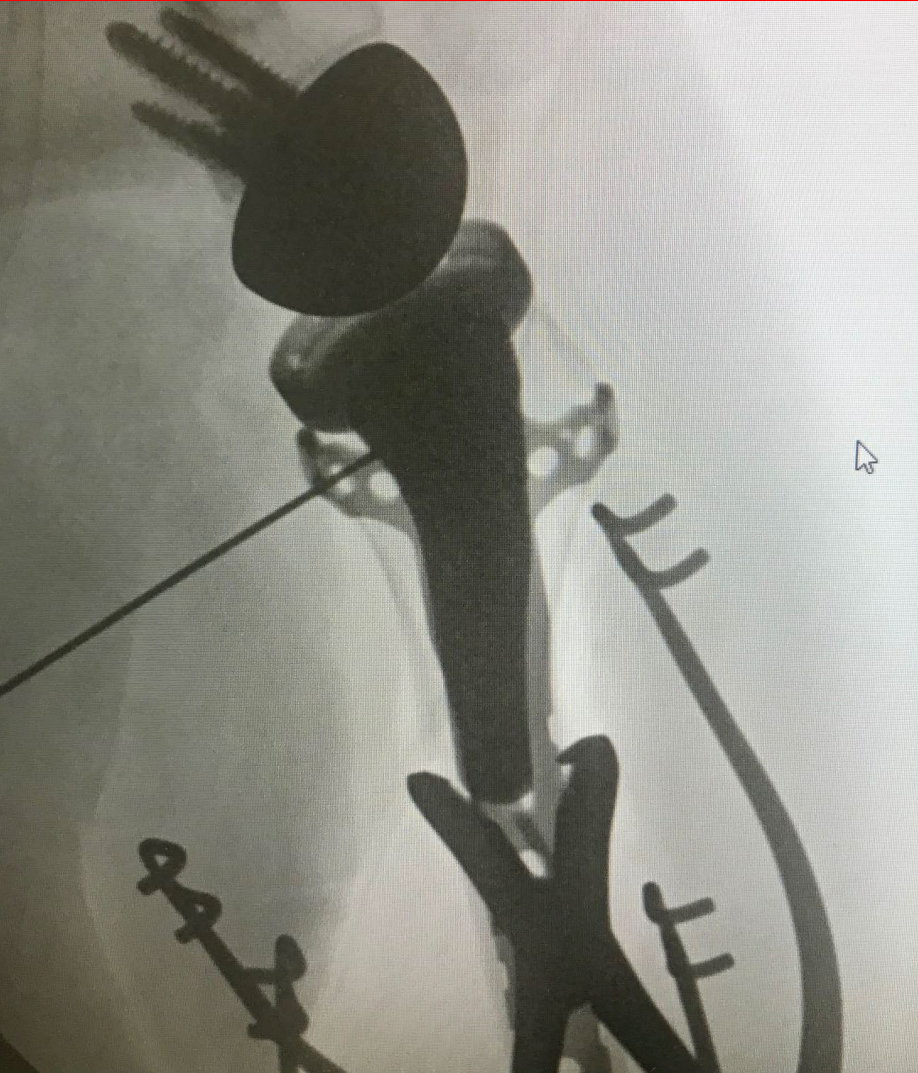
Decision making

- **Shoulder function good**
- **Humeral stem solid**
- **Type B fracture**
- **Limited proximal bone**
- **Biology good**



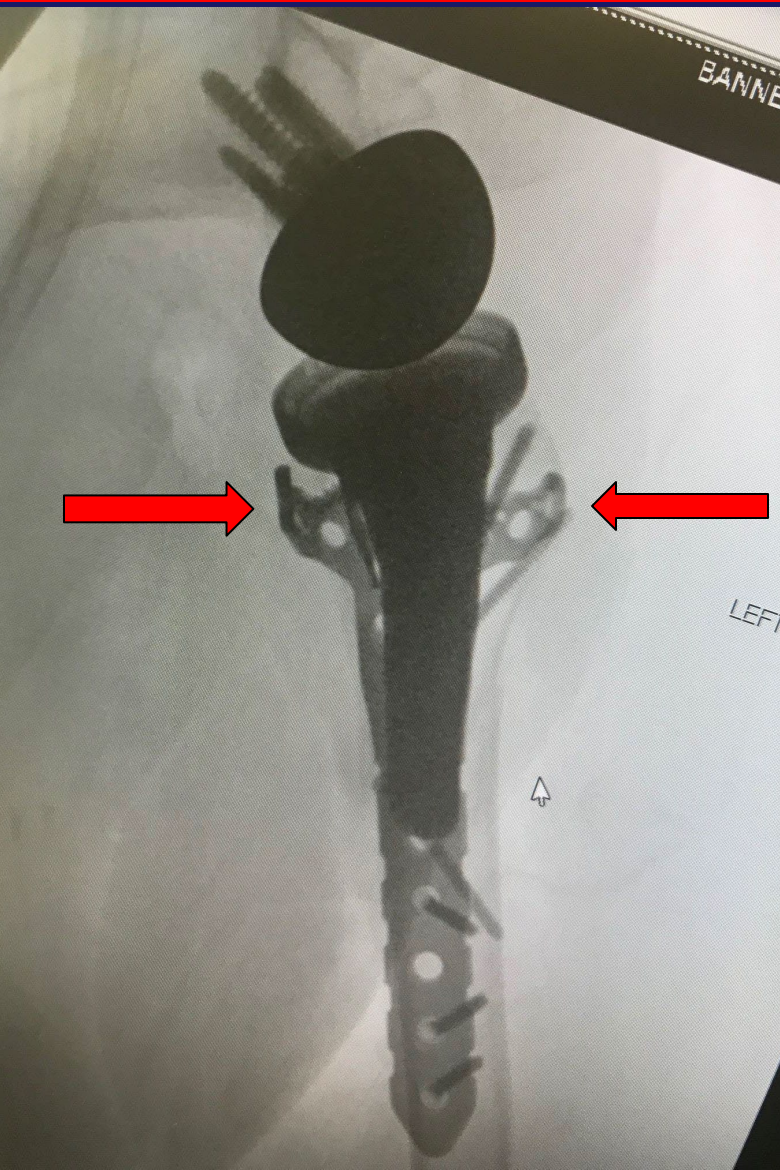


Intra-op radiographs

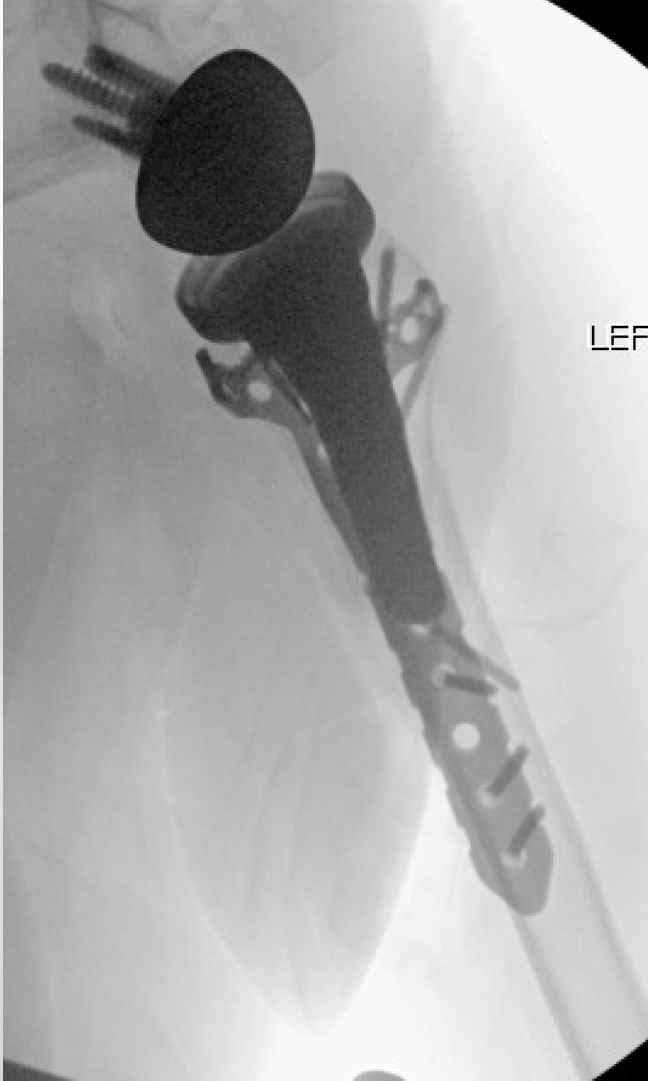


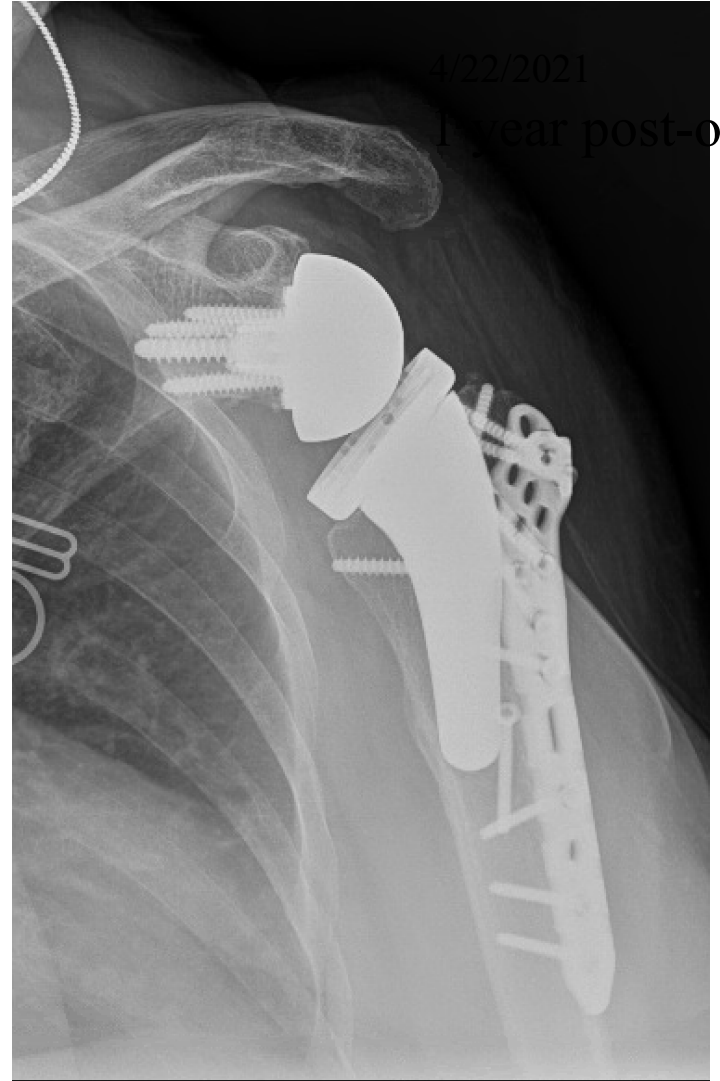
- Deltpectoral approach
- No sign of infection
- Stem solid
- Fracture reduced
- Provisional pinning
- Plate application

Intra-op radiographs



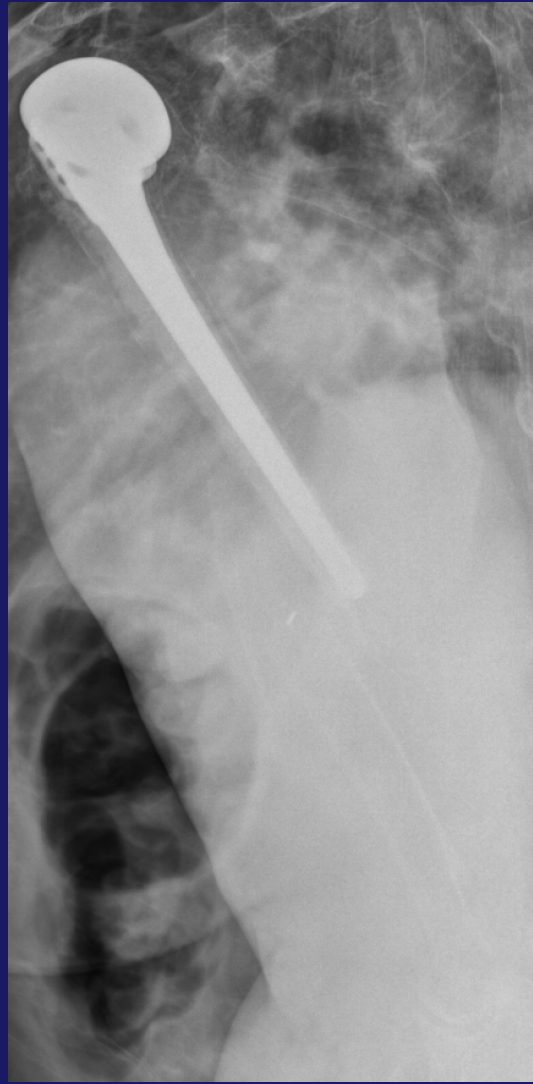
- Intra-operative contour of flanges to bone “embraces” proximal fragment
- Stabilizes proximal fragment where fixation is often limited

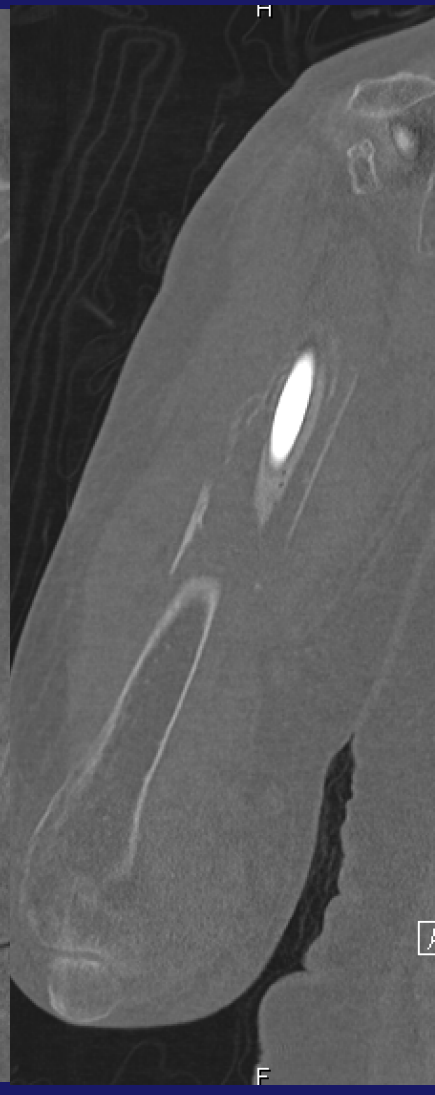
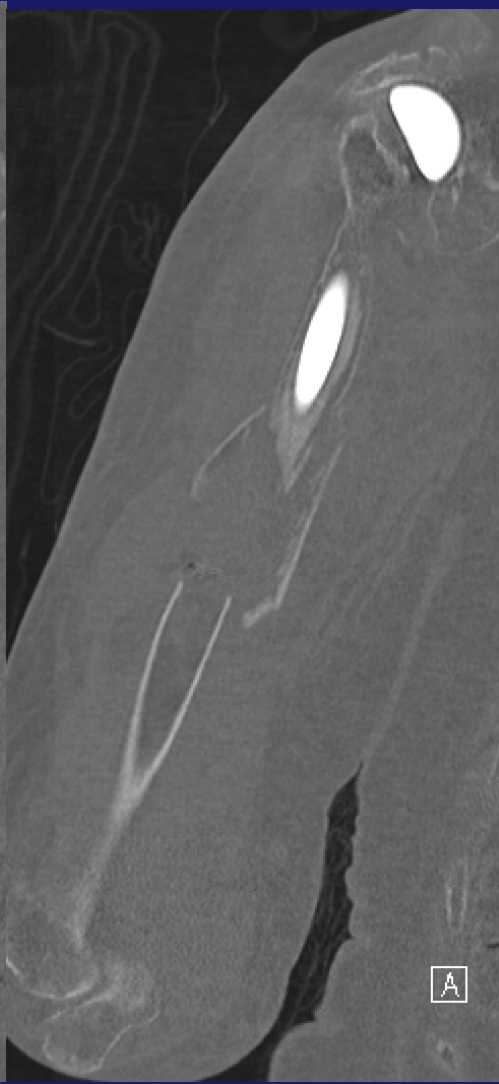
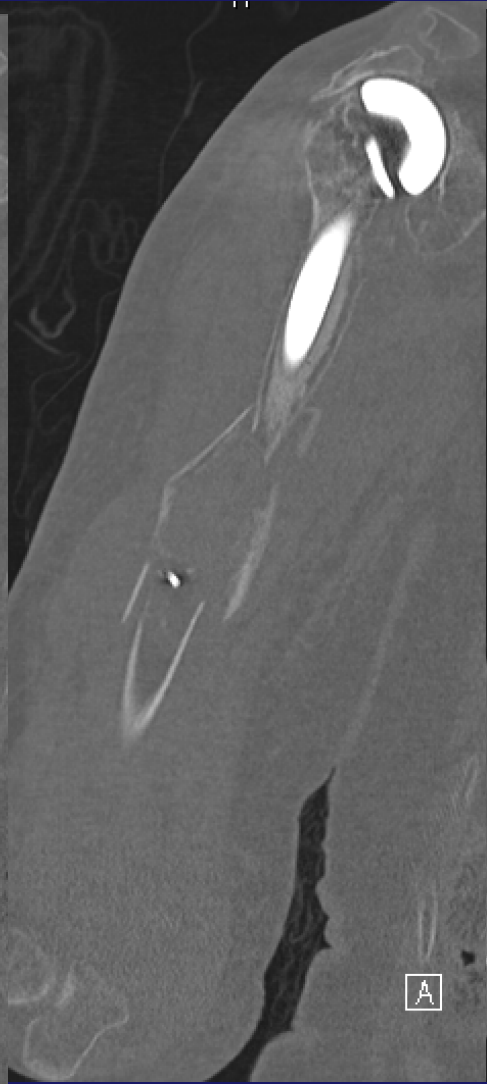
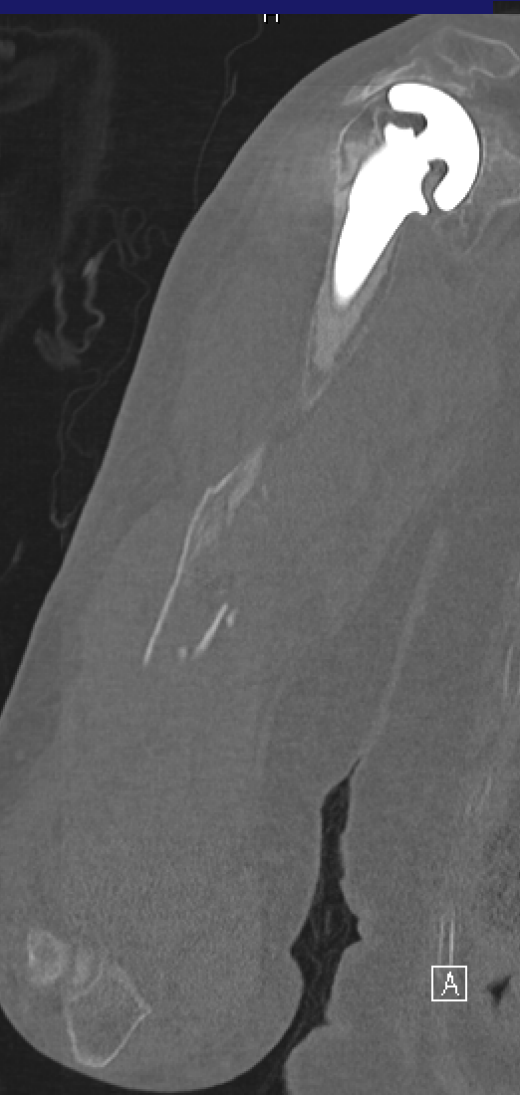


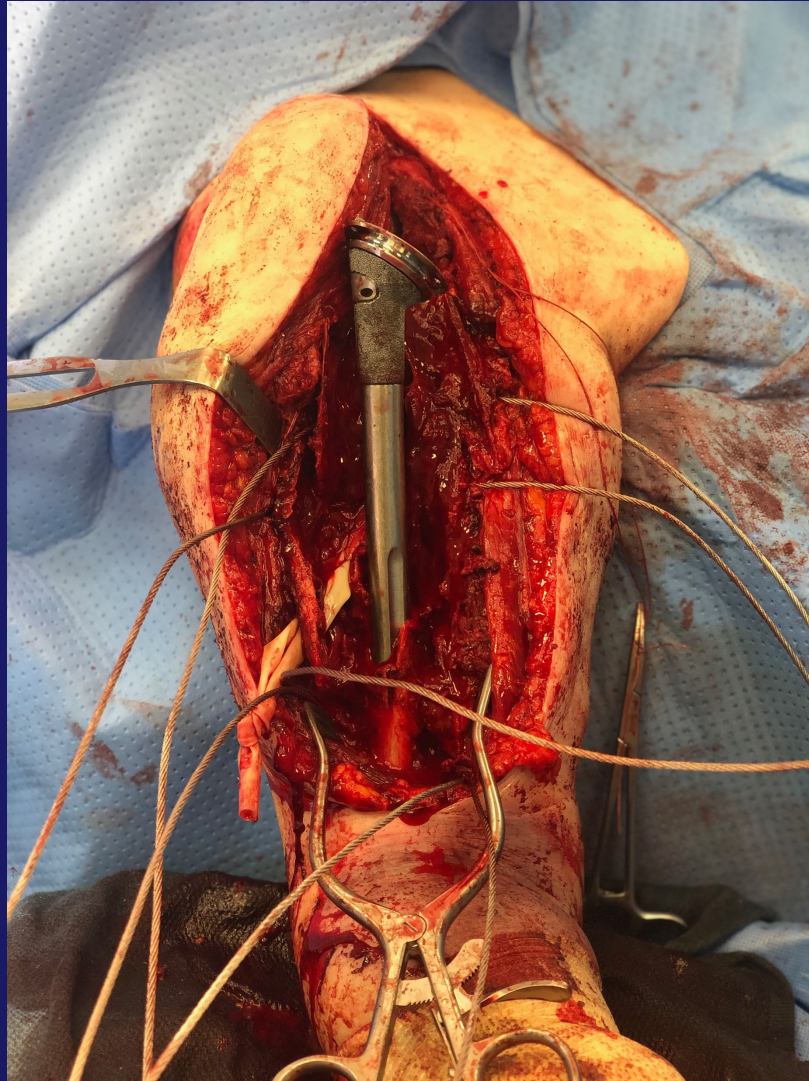


Case 6

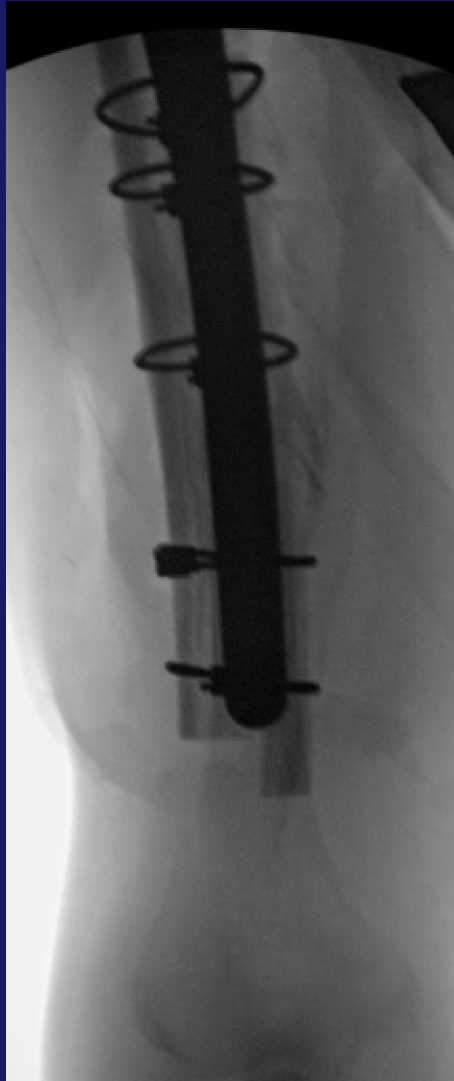
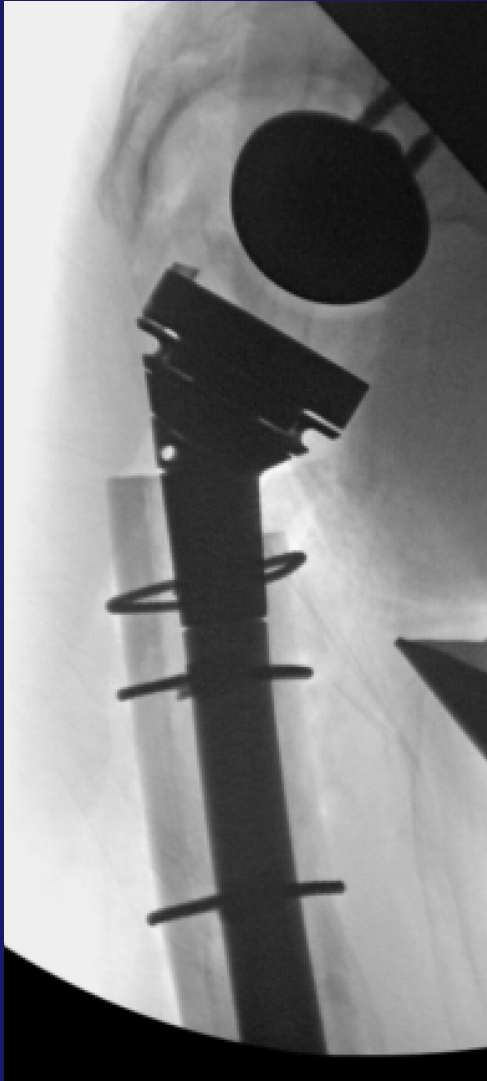
- **83 F**
- **Ground level fall**
- **Right hemi arthroplasty many years ago**
- **Poor function at baseline**

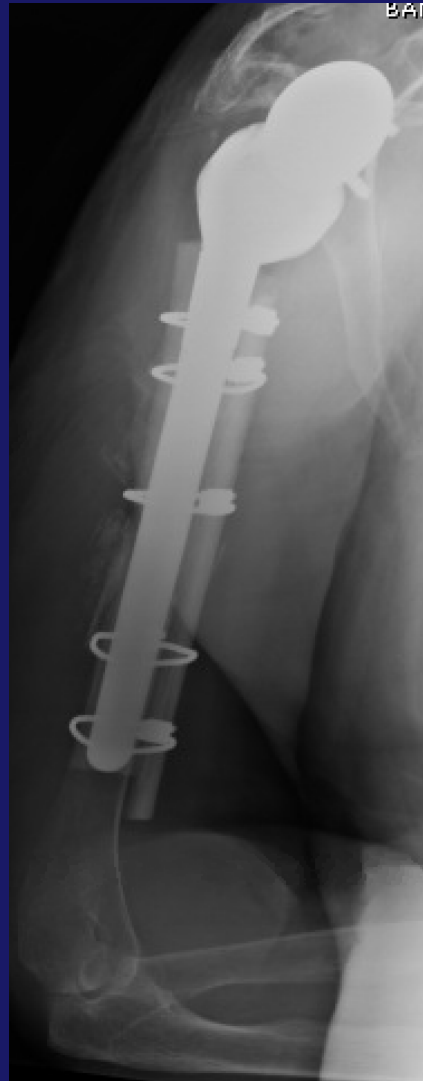
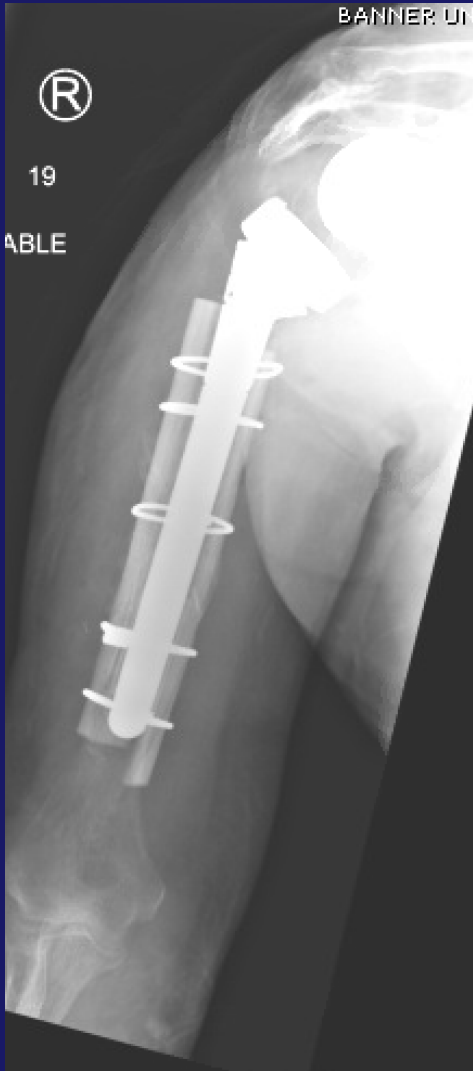






3/31/2020

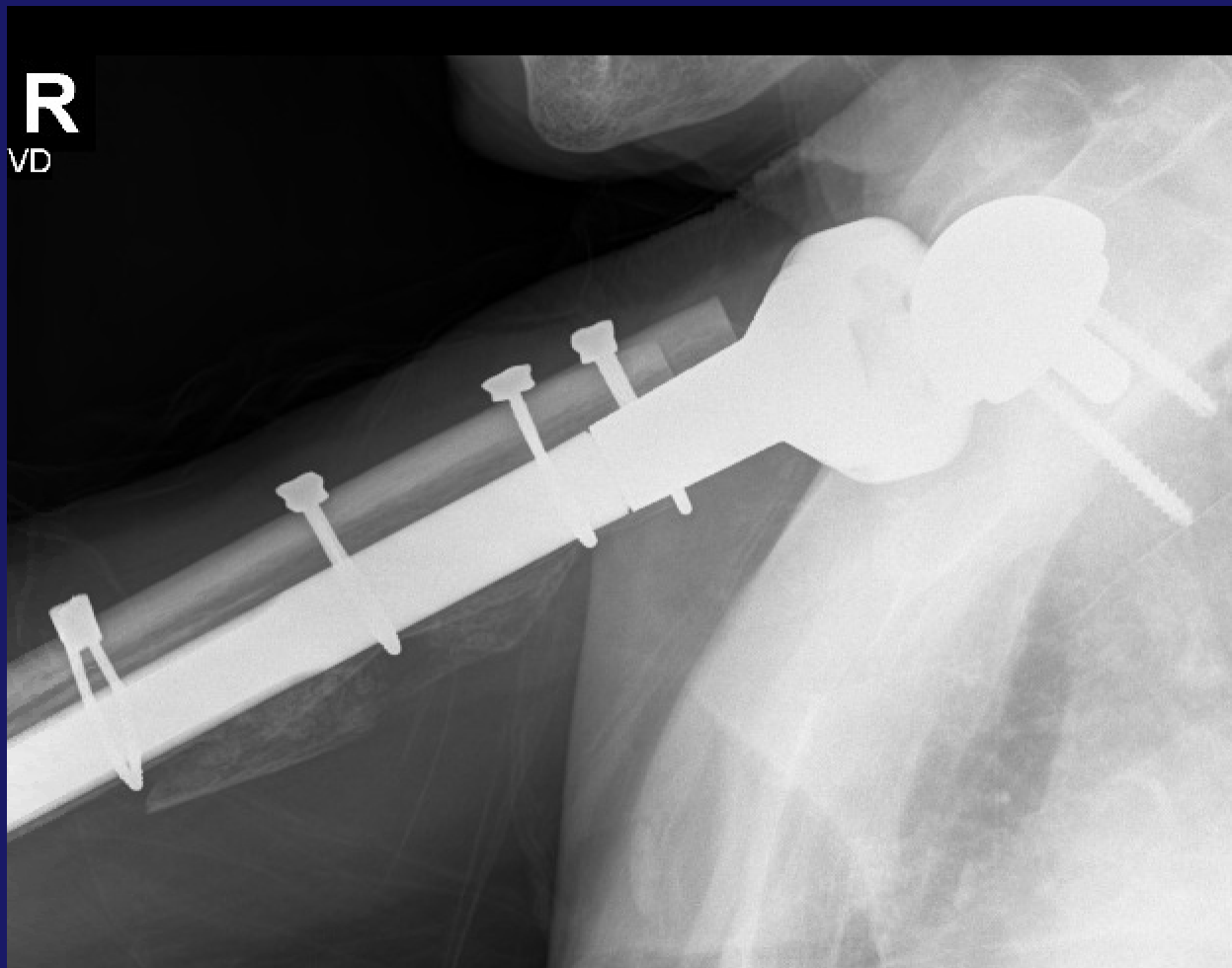




3/31/2020



5/21/2020



Summary

- **If stem is stable --> fix the fracture**
 - **Fix it well**
 - **4.5 compression plate**
 - **Good proximal fixation**
 - **Cortical strut graft if needed**
- **If the stem is loose --> revise it**
- **Early motion and WBAT**
- **Bone health referral**

