All Things Proximal Humerus: Case Presentations

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Understanding proximal humerus fractures: Image analysis, classification, and treatment

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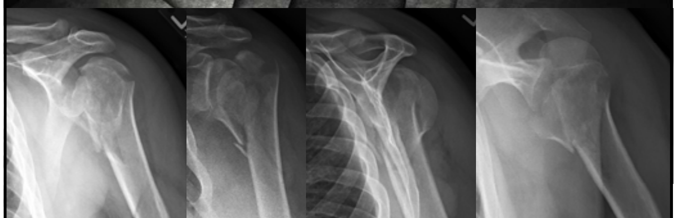
1. The classification system is "head-centered"
2. Visualization of the fracture lines is often difficult.
3. In some cases, displacement can be borderline.
4. The fracture does not observe segmental description in all cases; for example, one half of the lesser or GT may remain with the head fragment.
5. The relationship between the shaft and the remaining fragments may change with arm movement between radiographs.
6. Head-shaft comminution may be difficult to differentiate from a tuberosity fracture.
7. Humeral head-shaft shortening is usually not considered displacement.
8. Consider head-splitting or impaction only if >20% of the articular surface is affected.
9. When there is a dislocation, a post-reduction radiograph is needed before classifying displacement.
10. Consider patient's age and comorbidities when planning treatment.

Case Example #1

- 54 year old male, who works as a US Treasury Agent.
- Left shoulder pain sustained from a bicycle accident 2 weeks ago.
- History significant for hypertension, hyperlipidemia, & claustrophobia.
- Radiographs reveal a comminuted humeral head fracture.

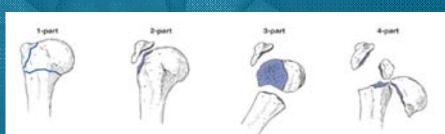
Case Example #1 Pre-Op Radiographs



Question #1

- Based on the Neer Classification system, how would you classify this fracture?

A. Non-displaced
B. 2-Part
C. 3-Part
D. 4-Part

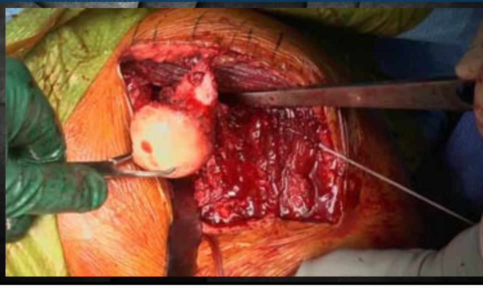


Question #2

- How would you treat this patient?

A. Non-operatively
B. ORIF
C. Hemiarthroplasty
D. Reverse shoulder Arthroplasty

IntraOp



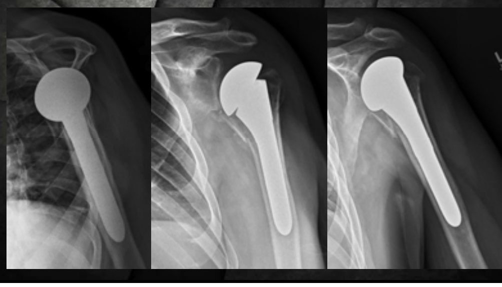
Case Example #1: Immediate Post-Op Radiographs

Question #3

- What is the reason the humeral head is not well-seated in the glenoid?

A. Improper implant height
B. Rotator cuff failure
C. Deltoid dysfunction
D. Axillary nerve injury

Case Example #1: Most Recent Post-Op Radiographs



Case Example #2

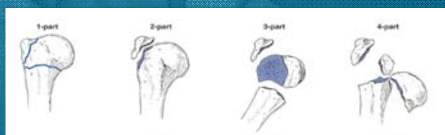
- 71 year old female, who is retired
- Presents with left shoulder pain sustained from an accident 3 days ago.
- She is a carrier of the hemochromatosis gene.
- Radiographs reveal a proximal humeral head fracture.

Case Example #2 Pre-Op Radiographs

Question #1

- Based on the Neer Classification system, how would you classify this fracture?

A. Non-displaced
B. 2-Part
C. 3-Part
D. 4-Part



Question #2

- How would you treat this patient?

A. Non-operatively
B. ORIF
C. Hemiarthroplasty
D. Reverse shoulder Arthroplasty

Case Example #2: 6 Weeks Post-Op Radiographs

Case Example #2: 1 Year Post-Op Radiographs

Case Example #3

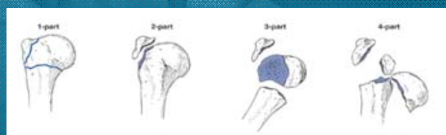
- 69 year old retired female
- Right shoulder pain from a fall while walking her dog.
- No significant history.
- Radiographs reveal a proximal humeral fracture with humeral head split.

Case Example #3 Pre-Op Radiographs

Question #1

- Based on the Neer Classification system, how would you classify this fracture?

A. Non-displaced
B. 2-Part
C. 3-Part
D. 4-Part

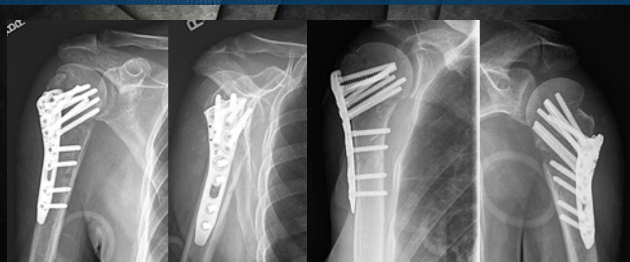


Question #2

- How would you treat this patient?

A. Non-operatively
B. ORIF
C. Hemiarthroplasty
D. Reverse shoulder Arthroplasty

Case Example #3: 2 Weeks Post-Op Radiographs

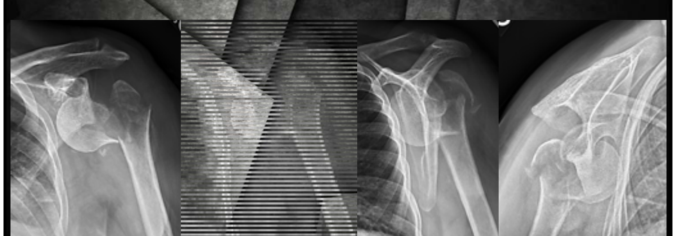


Case Example #3: 1 Year Post-Op Radiographs

Case Example #4

- 64 year old retired female
- Left shoulder pain after having a seizure a 3 weeks ago.
- History significant for: Grand mal seizures, hypertension, anxiety, & hemophilia with low factor A
- Takes no medications other than hydrocodone for pain.
- Radiographs reveal a proximal humerus fracture dislocation.

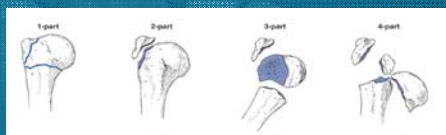
Case Example #4 Pre-Op Radiographs



Question #1

- Based on the Neer Classification system, how would you classify this fracture?

A. Non-displaced
B. 2-Part
C. 3-Part
D. 4-Part

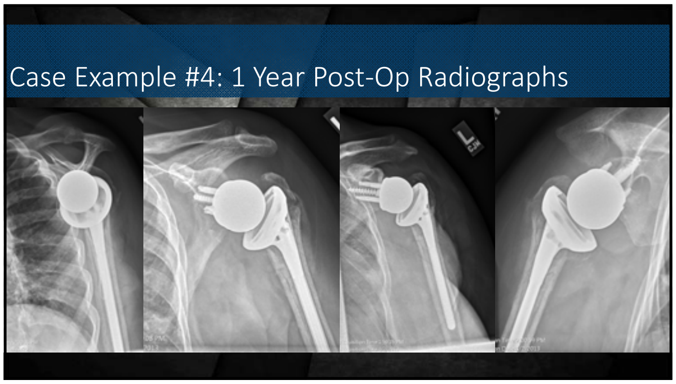


Question #2

- How would you treat this patient?

A. Non-operatively
B. ORIF
C. Hemiarthroplasty
D. Reverse shoulder Arthroplasty

Case Example #4: 8 Days Post-Op Radiographs


Case Example #4: 1 Year Post-Op Radiographs