Glenohumeral Dislocation with Associated Greater Tuberosity Fracture

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Purpose: A fracture of the tuberosity is associated with 16% of glenohumeral dislocations. Extension of the fracture into the humeral neck can occur during closed manipulation, leading some to suggest that all such injuries should be managed under general anesthesia in the operating theater. The purpose of this study was to establish the safety of reduction of glenohumeral dislocations with tuberosity fractures in the emergency department (ED).

Methods: We reviewed 339 consecutive glenohumeral dislocations with associated tuberosity fractures identified from a prospective orthopaedic trauma database. Patient demographics, injury details, ED management, and complications were recorded. The method of reduction, sedation, grade of clinician, and outcome were documented.

Results: Outcome data were available for 339 patients, with a mean age of 60 years (range, 18-96). The majority of injuries (n = 265, 78%) occurred after a fall from standing height and all were anterior dislocation. Closed reduction under sedation in the ED was successful in 274 cases (81%). Of the remainder, 35 (10%) failed closed reduction under sedation, 7 (2%) were reduced under general anesthetic, and 21 (6%) underwent open reduction in theater. At presentation 78 patients (19%) had a nerve injury, of whom 9 (12%) did not recover. Two iatrogenic fractures occurred during close manipulation, 1 in the ED and the other in the operating theater. Therefore, the risk of iatrogenic propagation of the fracture into the proximal humerus neck was 0.3% if attempt at reduction was performed in the ED, and 0.5% overall.

Conclusion: Closed reduction of glenohumeral dislocations with associated tuberosity fractures in the ED is safe, with a rate of iatrogenic fracture of 0.5%. These injuries should be managed by those with appropriate experience only after 2 adequate radiographic views. In cases where there is ambiguity over the integrity of the humeral neck, reduction should be delayed until multiplanar CT imaging has been obtained.