



# Urgent Care Assessment and Management of Shoulder Dislocations

**Urgent Message:** The vast majority of shoulder dislocations are anterior, occurring when stress is applied to an externally rotated and abducted shoulder. In most cases, immediate reduction is indicated, and urgent care clinicians should be familiar with situations that call for emergency department referral.

Jennifer Hicks, DO; Matthew B. Baird, MD

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**Editor's Note:** *While the images presented here are authentic, the patient case scenarios are hypothetical.*

## Abstract

The shoulder is the most commonly dislocated joint, and there are 3 main patterns of shoulder dislocations. Anterior shoulder dislocations are by far the most common, accounting for approximately 95% of cases. An anterior shoulder dislocation occurs when stress is applied to an externally rotated and abducted shoulder. Diagnosis is typically made by clinical assessment and shoulder x-ray. In most cases, immediate reduction is indicated, and there are multiple techniques for reduction. Choosing the optimal reduction technique depends on patient factors, dislocation subtype, and resources available. While serious complications are rare, it is important for urgent care clinicians to be familiar with red flags and situations where emergency department (ED) referral is indicated. If successfully reduced, patients can be discharged with orthopedics follow-up.

## Clinical Scenario

A 42-year-old woman presented to urgent care (UC) with right shoulder pain after falling forward and catching herself with her right arm. She reported severe right shoulder pain with minimal movement and

## Questions for the Clinician at the Bedside

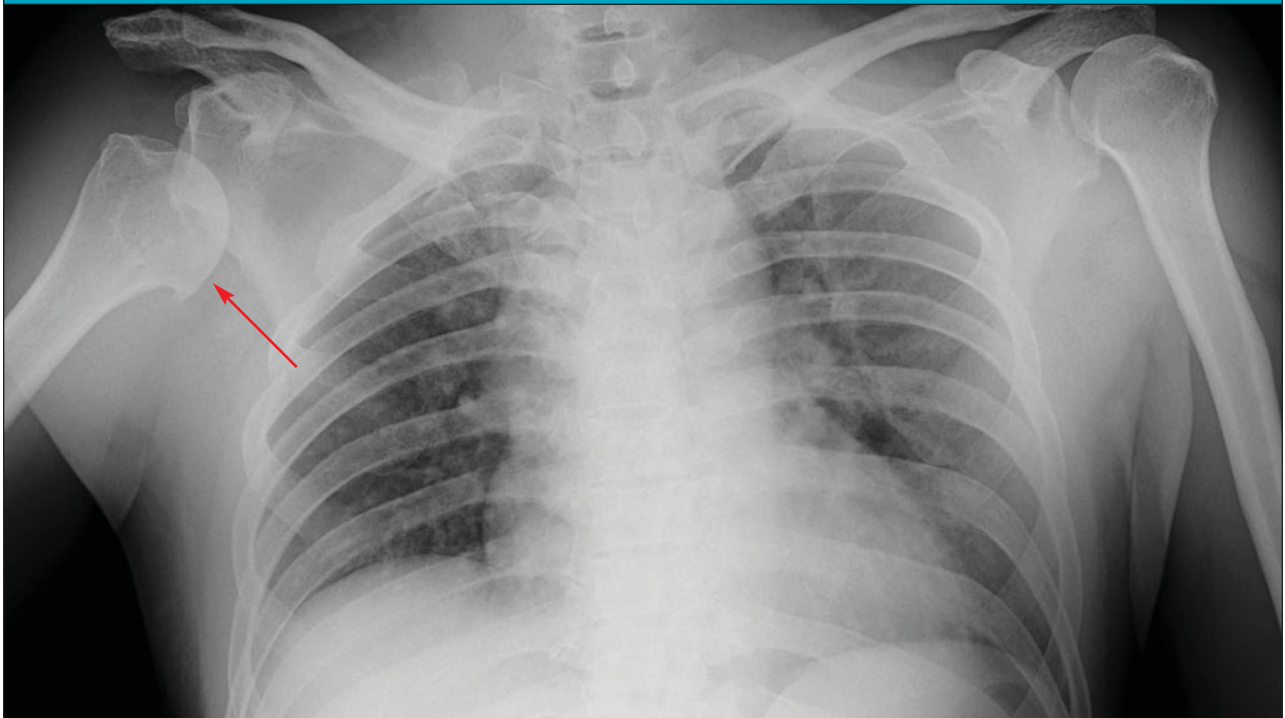
1. When should a shoulder dislocation be suspected?
2. How is shoulder dislocation diagnosed?
3. Which patients with shoulder dislocations should be referred to the emergency department?
4. What are most common and serious complications of shoulder dislocations?

a new sensation of numbness over the right lateral upper arm. She denied any other injuries.

On physical exam, the right shoulder appeared “squared off” with a deformity. The acromion appeared more prominent, and there was a depression where the humeral head would be expected instead of a normal rounded contour. The patient was able to only minimally abduct or externally rotate the right arm. Sensation was slightly reduced in the distribution of the axillary nerve over the lateral deltoid. Her radial pulses were 2+ bilaterally. The patient experienced no pain with palpation of the clavicle, shoulder, elbow, wrist, or hand, and no other areas of swelling or deformity were noted.

A shoulder x-ray series was obtained (**Image 1**) and revealed an anterior shoulder dislocation with an associated Hill-Sachs deformity (example in **Image 2**).

**Author Affiliations:** Jennifer Hicks, DO, Family Medicine, Adena Regional Medical Center. Matthew B. Baird, MD, Prisma Health, Greenville, South Carolina. Authors have no relevant financial relationships with any ineligible companies.

**Image 1. Right Anterior Shoulder Dislocation**

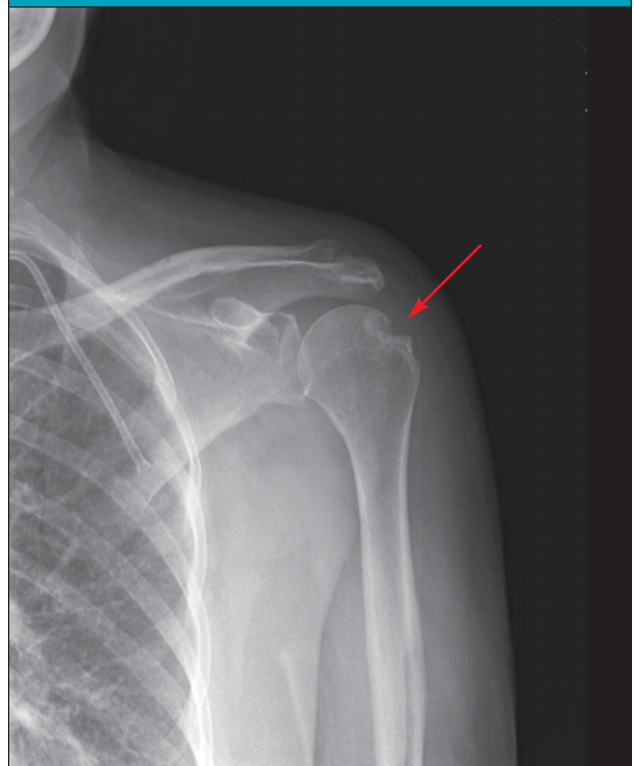
Note the humeral head is displaced anteriorly and inferiorly within the glenoid fossa (arrow).

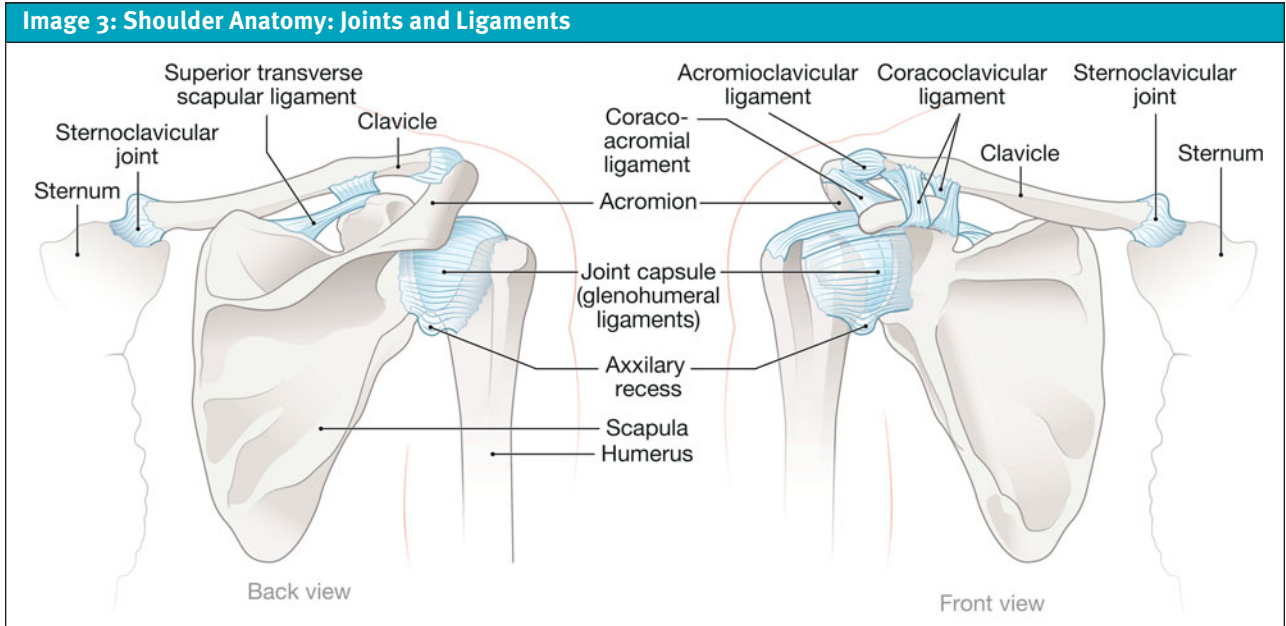
### Introduction

The shoulder (ie, glenohumeral joint) is the most commonly dislocated joint; the incidence is highest in adolescent young men and usually occurs as the result of trauma.<sup>1,2</sup> There are 3 types of shoulder dislocations: anterior, posterior, and inferior (also known as *luxatio erecta*). Anterior shoulder dislocations are by far the most common, however, occurring in approximately 95% of cases.<sup>1,2</sup> An anterior shoulder dislocation classically occurs when stress is applied to an externally rotated and abducted shoulder. Recurrent dislocations are a common complication after initial dislocation due to disruption of the joint's stabilizing structures. Approximately 20% of all cases of shoulder dislocation are recurrent, and occur more commonly in younger males and those with concurrent injuries (eg, Bankhart lesion, axillary nerve injury).<sup>3,4,5</sup> The highest rate of recurrence—close to 80%—involves men under 20 years of age.<sup>6</sup>

### Relevant Anatomy

The glenohumeral joint is a dynamic structure; it has a high degree of mobility compared with most other joints, and is therefore intrinsically unstable.<sup>7</sup> The structures surrounding the humeral head are the glenoid cavity (of the scapula) and labrum medially and the ac-

**Image 2: Hill Sachs Deformity**



romion and distal clavicle superiorly. Multiple muscles attach to the humeral head and play a role in maintaining the articulation of the humerus with the glenoid cavity. These include the rotator cuff musculature (teres minor, infraspinatus, supraspinatus, and subscapularis) as well as pectoralis minor, biceps, and latissimus dorsi. Additionally, the inferior glenohumeral ligament and labrum play a significant role in preventing anterior translation of the humeral head.<sup>7,8</sup> These structures are typically injured with an anterior dislocation resulting in an avulsion fracture of the anterior aspect of the glenoid (ie, Bankart lesion).<sup>9</sup>

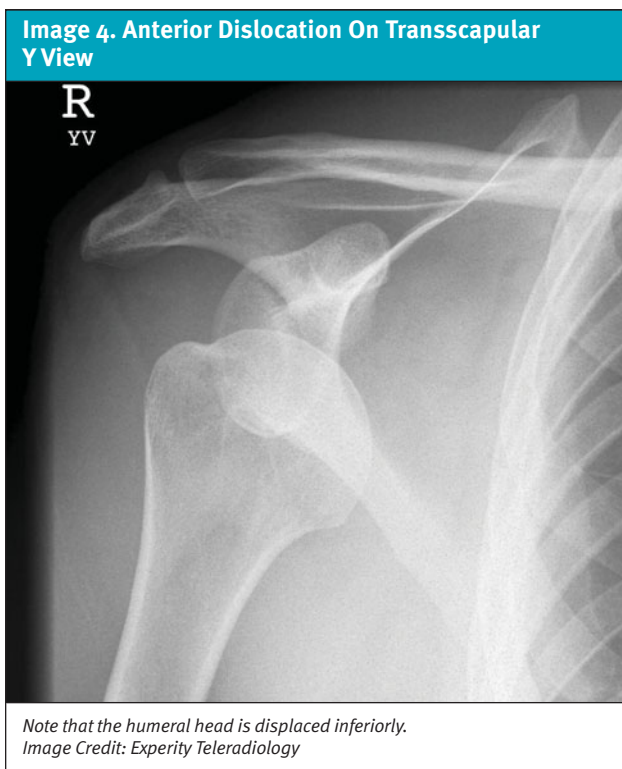
Another common fracture that can occur with shoulder dislocation is a Hills-Sachs deformity.<sup>10</sup> A Hills-Sachs deformity is an impaction fracture of the posterior aspect of the humeral head that may occur during dislocation due to forceful compression of the humeral head against the anterior glenoid rim. The presence of a Hills-Sachs deformity with primary shoulder dislocation has been shown to increase risk of recurrence.<sup>10</sup> Adjacent neurovascular structures can also be injured during dislocation. The axillary nerve courses around the humeral head and provides innervation to the teres minor, deltoid, and skin over the lateral shoulder. It is the most common nerve injured with anterior dislocation.<sup>11</sup> The axillary artery courses through the axilla and has the potential for injury. However, this is a rare complication and most commonly occurs in elderly patients with underlying atherosclerosis.<sup>12</sup>

### Clinical History

When evaluating a patient with a possible shoulder dislocation, inquire about the timing and mechanism of injury and history of previous dislocations. It is important to confirm dislocations are acute, as situations where there has been significant delay in care after glenohumeral dislocation have additional considerations. Clarify the area of greatest pain as well as alleviating and exacerbating factors. Patients with dislocations will generally have severe pain with motion. If the patient is not having pain with motion at the shoulder joint, referred pain from non-orthopedic causes should be considered.

Anterior shoulder dislocations typically occur after a traumatic event that forces the shoulder into abduction and external rotation.<sup>7</sup> If the injury was related to a fall, distinguish whether the fall was due to an event such as syncope or seizure. Posterior shoulder dislocations, especially if bilateral, should raise concern for underlying seizure disorder if another clear mechanism is not reported.<sup>13</sup> The uncommon inferior shoulder dislocation is typically a result of forced hyperabduction. This can occur from a fall onto an outstretched, hyperabducted arm, or when a person grabs onto something to break a fall, forcing their arm into hyperabduction. It is important to inquire about additional injuries or areas of pain, such as the head, neck, elbow, and wrist, which may suggest other associated traumatic injuries.

Determining specific movements that exacerbate pain can also provide useful information. For example, pa-



tients with anterior dislocations typically report worse pain with external rotation and abduction; whereas posterior dislocations are worse with internal rotation, flexion and adduction.<sup>14</sup> Clinicians should also inquire about symptoms of neurovascular compromise including paresthesias, weakness or disproportionate pain.

### Physical Examination

The physical exam should focus on inspection of the overall appearance and position of the shoulder, palpation for deformity, tenderness, and crepitus, as well as gentle range of motion (ROM) and neurovascular assessment.

To assess the shoulder's general appearance, expose both shoulders and compare the affected side to contralateral side. Look for any obvious deformities or external signs of trauma, such as lacerations or hematomas. Shoulder dislocations typically result in loss of the normal rounded contour of the shoulder and a prominent acromion with an inferior depression called a "sulcus sign." For anterior dislocations, the affected arm is typically held in external rotation and slight abduction. The humeral head will be displaced anteriorly, medially, and inferiorly in the joint space.<sup>15</sup> Alternatively, the arm is typically held in adduction and internal rotation for posterior dislocations, and abduction and elbow

flexion for inferior dislocations.<sup>14</sup> Clinicians should palpate the rest of the shoulder beginning at sternoclavicular (SC) joint medially to the acromioclavicular (AC) joint and the attachment of the biceps tendon.

In traumatic dislocations, ROM will be significantly limited by pain. Therefore, tolerable active ROM should be assessed gently, including internal rotation, external rotation, abduction, and adduction. Neurovascular assessment should assess motor functions (elbow, wrist, and hand ROM and strength), sensation, and pulses. If pulses are diminished distally at the wrist or there is evidence of hematoma axillary artery injury should be suspected.<sup>16</sup> Axillary nerve injury occurs more commonly than arterial injury and presents most often with decreased sensation over the lateral deltoid. Weakness in shoulder abduction due to denervation of the deltoid may also be detected, and weakness in adduction and external rotation can occur due to denervation of the teres minor.<sup>17</sup> Weakness may be harder to evaluate given expected restrictions in ROM expected due to pain.

### Diagnostic Testing

If shoulder injury is suspected, plain radiographs (XR) of the shoulder are the initial test of choice. Point-of-care ultrasound has been shown to be 99% sensitive and specific for diagnosis of shoulder dislocation in the hands of experienced operators and can be used to complement XR (or in settings where XR is not available).<sup>18</sup> XR has high sensitivity for both shoulder dislocation and proximal humerus fracture, which can be difficult to distinguish clinically.<sup>19</sup> The XR series should include at least 3 views: anterior posterior (AP), scapular-Y (lateral), and axillary views. The axillary view offers the best view for assessment for glenoid lesions (ie, Bankhart fractures) and assessment of the direction of dislocation.<sup>20</sup> The axillary view may not be included in certain shoulder XR protocols, but it often proves most illustrative in cases of diagnostic uncertainty. For anterior dislocations, the scapular-Y/lateral view will show the humeral head displaced towards the ribs (**Image 4**). In posterior dislocations, the humeral head will often appear similar to a lightbulb on the AP view (**Image 5**). Referred to as the "lightbulb sign," this occurs because the internal rotation of the humeral head causes the silhouette of the greater trochanter to be lost, making the humeral head seem symmetrically round and the glenohumeral space widened.<sup>21</sup> In cases of uncertainty regarding the presence of dislocation or underlying fracture (ie, fracture-dislocation), a computed tomography (CT) scan and/or immediate orthopedics consultation (when available) are both reasonable strategies. While



shoulder magnetic resonance imaging (MRI) is often utilized to assist with definitive treatment, such as surgical planning, it is not generally indicated in the acute setting.<sup>22</sup>

### Urgent Care Management

While it has not been specifically studied in the UC setting, given resource limitations, it is likely that most patients diagnosed with shoulder dislocations in UC will require ED referral to achieve timely reduction. However, in patients who do not have intractable pain and are able to tolerate joint manipulation, it is reasonable to attempt reduction maneuvers in the UC setting. If attempting reduction, administering whatever analgesics are available and clinically appropriate, either oral or parenteral, can facilitate reduction and improve patient comfort. For clinicians with appropriate training and procedural comfort, intra-articular injection of 10-20 mL of 1% lidocaine into the glenohumeral space has been shown to facilitate successful reduction with low rates of complications.<sup>23</sup>

Over 20 different reduction techniques for anterior shoulder dislocations have been described. This list includes the FARES (FAst, RELiable, and Safe) method, scapular manipulation, external rotation and the Milch and Stimson techniques. Studies comparing the effectiveness of the various techniques suggest that scapular manipulation and the FARES techniques are the most successful.<sup>24,25,26</sup>

### Reduction Techniques

Scapular manipulation is performed by the clinician rotating the inferior lateral edge of the scapula medially and superiorly. This technique can be performed with the patient seated or prone.<sup>24</sup> To perform the FARES method, longitudinal traction is applied with gentle oscillating movements superiorly and inferiorly as the arm is taken into abduction slowly with the patient lying supine.<sup>27</sup>

If the FARES and scapular rotation are poorly tolerated, it is helpful to have familiarity with several additional techniques. The external rotation technique has relatively high success rates and is perhaps the simplest technique. To perform external rotation, the arm is held in adduction and the elbow flexed to 90 degrees. The clinician then gently and slowly begins to externally rotate the humerus while applying gentle downward traction.<sup>28</sup> If reduction is not achieved with external rotation, the Milch technique could be attempted immediately by taking the externally rotated arm into abduction.<sup>29</sup>

Image 5. "Lightbulb Sign"



Note the abnormal rounded appearance of the humeral head seen with posterior shoulder dislocations which is referred to as the "lightbulb sign" (arrow)  
Image Credit: Experity Teleradiology

The Stimson approach is a passive maneuver where the patient is placed in a prone position. Approximately 10-15 pounds of weight are attached to the wrist and allowed to hang from the affected arm which dangles off the table or gurney. The weight, with gentle traction over a period of about 15 minutes, can fatigue spasmed muscles and allow the humeral head to ease into its native position.<sup>30</sup>

Other techniques such as the Hippocratic technique (also known commonly as traction-countertraction) and Kocher's method are typically avoided, especially in settings where procedural sedation is unavailable, due higher reports of pain and lower rates of success compared to the other methods discussed previously.<sup>27</sup> Whichever technique is chosen, the most important factor affecting success is the patient's ability to relax the muscles of the shoulder girdle. For this reason, pain control, patience, gentleness, and appropriate patient coaching are critical parts of a successful reduction.<sup>31</sup>

For posterior dislocations, reduction is typically achieved by placing the arm in adduction and internal rotation with the elbow flexed and applying gentle traction. The FARES method can also be used to reduce posterior dislocations.<sup>32</sup> Inferior dislocations are reduced by placing the arm in abduction, applying gentle traction and bringing the arm gently through adduction.<sup>33</sup>

### Post-Reduction Assessment and Care

After reduction is achieved, a repeat neurovascular exam should be performed and documented. While the existing evidence does not support the utility of post-reduction XRs, they are commonly obtained in practice and do offer confirmation of restoration of anatomic alignment if there is uncertainty based on clinical assessment alone. XR can also assess for post-reduction fracture.<sup>34</sup>

After a successful reduction the patient should be immobilized in a simple sling.<sup>7</sup> There has been some controversy on whether positioning in internal or external rotation is more beneficial.<sup>35</sup> Small studies suggest that use of an abduction pillow with a sling decreases risk of recurrent dislocation. However, the practicality of abduction pillows and compliance with their use are of some concern, leading many providers to favor a simple sling in a position of comfort. The sling can be removed for bathing and gentle ROM exercises (pendulum exercises), but the patient should be instructed to avoid abduction, external rotation, or other uncomfortable positions. Initial treatment should focus on rest, pain control, and gentle range of motion as tolerated or physical therapy to help rehabilitate ROM.<sup>7</sup> Rapid orthopedic or sports medicine follow-up should be arranged within 1-2 weeks.<sup>36,26</sup> Patients should be informed that surgery may be recommended, but shoulder dislocation is not universally a surgical injury. There are multiple indications for surgery, including younger age, participation in contact sport, and concomitant rotator cuff tear. Surgical decisions are individualized, and UC clinicians should defer any discussions regarding the likelihood of surgical intervention to the specialist who sees the patient for follow-up.

### Next-Level Urgent Care Pearls

- When obtaining a history, inquire about the mechanism of injury and history of previous dislocations. Patients with frequent dislocations may experience a dislocation with little or no trauma.
- Assess for associated injuries such as clavicle fracture, AC separation, and humeral or scapular fractures.
- Evaluate the axillary and scapular Y-view x-rays to determine if the dislocation is anterior, posterior, or inferior.
- Post-reduction XRs are not required to confirm successful reduction but can be obtained in the setting of uncertainty.<sup>34</sup> Performing and documenting a post-reduction neurovascular assessment, however, is recommended in all cases.

### Red Flags and Pitfalls

- Document neurovascular status to demonstrate assessment for injury to the axillary nerve and artery before and after reduction. If axillary nerve injury is suspected, proceed with reduction, and discuss the case with orthopedics to assure prompt follow-up.
- Shoulder dislocations should be reduced within 24 hours. Patients presenting with dislocations of greater duration are at risk of unsuccessful reduction attempts and complications.<sup>37</sup> Ensure history includes a clear understanding of when the dislocation occurred.
- Posterior shoulder dislocations are missed in approximately 60% of cases. Have a high index of suspicion in patients who fall onto a flexed, adducted arm, patients with seizures, or victims of a severe electrocution injury with shoulder pain.<sup>13</sup>
- In patients with shoulder pain not reproducible with movement, consider referred pain from sources such as acute coronary syndrome (ACS), pneumothorax, pulmonary embolism, aortic dissection, gallstone disease, or diaphragmatic irritation related to free air or fluid in the abdomen.

### Clinical Scenario Conclusion

A right shoulder XR series obtained in UC revealed an anterior shoulder dislocation. The patient was relatively comfortable and wished to avoid going to the ED. The UC clinician provided oral acetaminophen and ibuprofen and injected 10 ml of 1% lidocaine into the intra-articular glenohumeral space before attempting reduction. Twenty minutes later, the patient appeared more comfortable, and the shoulder dislocation was reduced successfully by placing the arm in adduction with the elbow flexed to 90 degrees. When the arm was gently externally rotated, a palpable clunk was felt by the patient and the shoulder deformity appeared to resolve. The patient was placed in a sling and referred to orthopedics for follow-up in 1 week.

### Takeaway Points

- The vast majority of shoulder dislocations are anterior. Physical exam will typically reveal a “sulcus sign” deformity. This can be appreciated best if both shoulders are visualized to compare the contours.
- In addition to diagnosis of the shoulder dislocation, it is important to also evaluate for complications of shoulder dislocation including injuries to the axillary nerve or axillary artery and fractures (Hills-Sachs or Bankhart, proximal humerus).
- Glenohumeral dislocation is best visualized on XR in the trans-scapular Y-view.

- While many patients will require ED referral for reduction, when an experienced clinician is caring for a cooperative patient, attempting reduction in UC is reasonable and appropriate. Sterile injection of lidocaine intra-articularly into the glenohumeral space can offer significant pain relief and greatly facilitate reduction attempts.
- While a post-reduction XR is not required, it is critical to perform and document a post-reduction neurovascular assessment.
- After reduction, patients can be treated with a simple sling and outpatient orthopedic follow-up. Patients should be counseled that this can recur and it is possible that the specialist may recommend surgery. ■

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