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Visual Case Discussion

Bilateral shoulder dislocation: A rare complication of convulsive seizures

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A 22-year-old male with no past medical history presents with bilateral shoulder pain. He states he was walking home when he suddenly lost consciousness. He woke up on the ground and was told by bystanders that an ambulance had been called because he just had a seizure. Physical exam demonstrated shoulder tenderness bilaterally with deformity and loss of normal anterior contour. Range of motion of the shoulders is limited by pain bilaterally. Radiographs of both shoulders were obtained (see Figs. 1 and 2). After review of the images, subsequent CT was obtained for further evaluation (see Fig. 3).

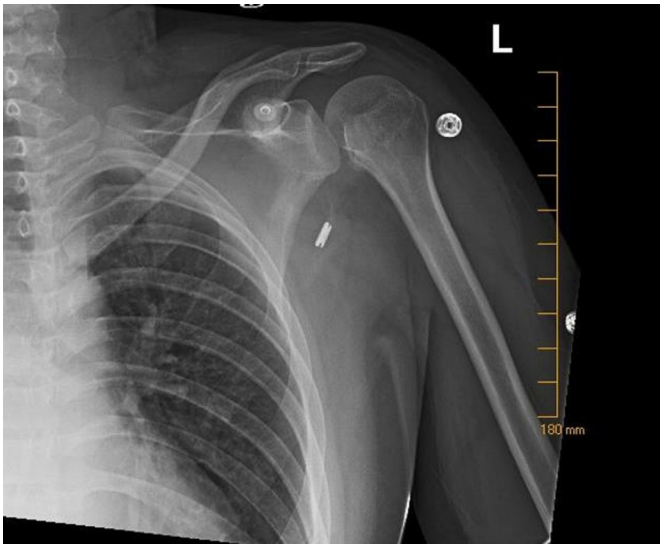

Fig. 1. Radiograph of left shoulder showing posterior shoulder dislocation.

Non-contrast CT showing bilateral posterior shoulder dislocations with bilateral reverse Hill-Sachs fractures.

The glenohumeral joint has the greatest range of motion of any joint in the body and subsequently is also the most commonly dislocated joint in the body. However, posterior dislocation is uncommon due to

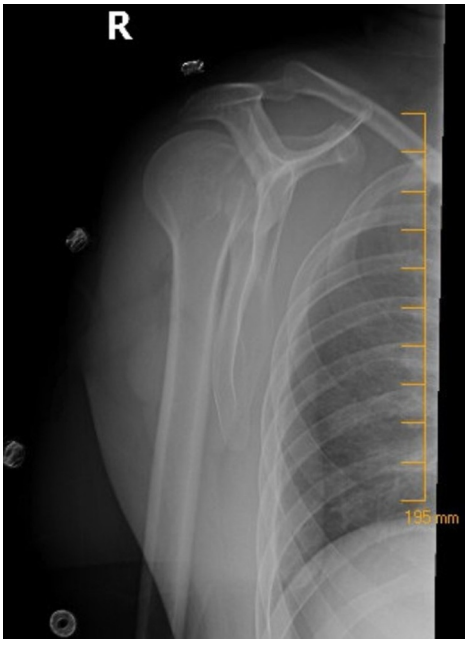

Fig. 2. Y-view radiograph of right shoulder showing posterior shoulder dislocation.

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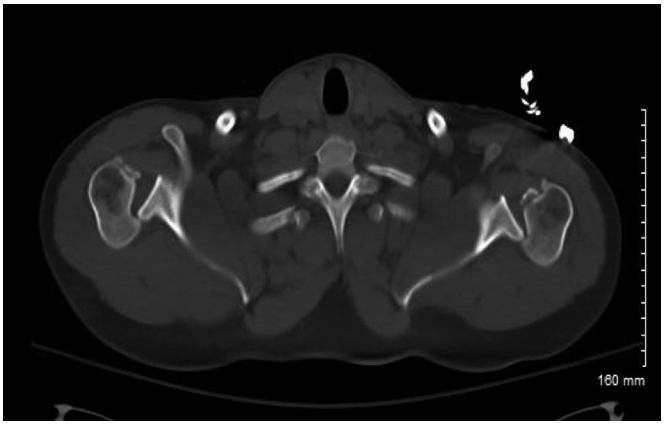

Fig. 3. Non-contrast CT showing bilateral posterior shoulder dislocations with bilateral reverse Hill-Sachs fractures.

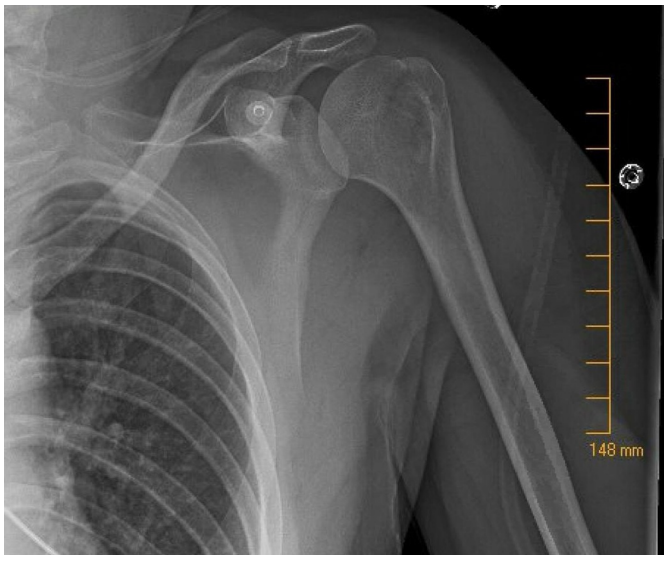

Fig. 4. Radiograph of left shoulder post-reduction showing return of humeral head into the glenoid fossa.

the anatomic support of the scapula and the thick muscular support in this area. Only 4% of shoulder dislocations are posterior and the rest are anterior. Classic causes of posterior dislocation include convulsive seizures, electric shock, and falls on outstretched and internally rotated arms. For bilateral shoulder dislocations approximately 50% are caused by seizure with this number climbing to 90% if the dislocations are associated with fractures. In all, bilateral posterior dislocations represent less than 5% of all posterior dislocations.[1]

The bilateral shoulders were subsequently reduced using conscious sedation. Immediate post-reduction radiographs were obtained (see Fig. 4). He was then placed in bilateral abduction pillows with slings in a neutral position and instructed to maintain mild external rotation. He had close follow-up and has recovered without complications or the need for surgery. Below is the same shoulder following reduction.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100586.

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Questions

1. During clinical assessment of a dislocated shoulder, which of the following are signs of a posterior dislocation?
   a. An arm held with abduction and external rotation
   b. Prominent coracoid process
   c. Attempts at adduction or internal rotation result in extreme pain
   d. Normal anterior contour of the shoulder
   e. Only imaging can determine a posterior dislocation

2. Although rare, which of the following nerves is most likely to be damaged during shoulder dislocation?
   a. Axillary nerve
   b. Median nerve
   c. Radial nerve
   d. Thoracodorsal nerve
   e. Ulnar nerve

3. What is a Hill-Sachs lesion?
   a. A depression fracture of the humeral head that occurs secondary to posterior dislocation
   b. A depression fracture of the glenoid fossa that occurs secondary to anterior dislocation
   c. A depression fracture of the humeral head that occurs secondary to anterior dislocation
   d. A depression fracture of the glenoid fossa that occurs secondary to posterior dislocation
   e. A bony fracture of the glenoid rim after any dislocation

Answers

1. Prominent coracoid process. Explanation: Prominent coracoid process is correct and can be seen above in Fig. 1. Answer A is incorrect: posterior dislocations cause the patient to hold their arm in the "sling position" with adduction and internal rotation. Anterior dislocations cause a patient to hold their arm in abduction and external rotation. C is incorrect: attempts at abduction or external rotation will result in extreme pain. D is incorrect: there will be a loss of the normal anterior contour of the shoulder. E is incorrect: multiple physical exam findings are indicative of posterior dislocation.[2]

2. Axillary nerve. Explanation: The most likely damaged nerve is the axillary nerve. This nerve is more commonly damaged during anterior dislocation. Damage to the axillary nerve will result in loss of sensation over the lateral aspect of the upper arm directly over the deltoid muscle. Although often hard to assess due to pain, the patient will also have decreased or absent motor function of the deltoid.

3. A depression fracture of the humeral head that occurs secondary to anterior dislocation. Explanation: A Hill-Sachs lesion is an indentation on the posterolateral surface of the humeral head caused by the glenoid rim. This occurs secondary to an anterior dislocation. A reverse Hill-Sachs lesion is what occurred in the patient in this case and is the opposite. It is an indentation on the anteromedial aspect of the humeral head and it occurs secondary to a posterior dislocation. Bony fracture of the glenoid rim is known as a Bankart fracture.