J Shoulder Elbow Surg (2016) 25, e61–e64

ELSEVIER

Journal of Shoulder and Elbow Surgery

www.elsevier.com/locate/ymse

Axillary artery compression as a complication of a shoulder dislocation

Jonathan M. Karnes, MD*, Daniel A. Bravin, MD, David F. Hubbard, MD

Department of Orthopaedics, West Virginia University, Morgantown, WV, USA

Keywords: anterior-inferior glenohumeral dislocation; axillary artery injury; ischemic limb; shoulder dislocation; complications of shoulder dislocation; management of shoulder dislocation

Previous reports have described axillary artery lacerations and pseudoaneurysms after anterior-inferior shoulder dislocations. An 86-year-old man with temporary upper extremity ischemia from axillary artery compression by the humeral head after an anterior-inferior glenohumeral dislocation was recently treated at our institution. This episode illustrates the value of having a high index of suspicion for arterial compromise in the context of an elderly patient presenting with this pattern of shoulder dislocation. Definitive treatment of axillary artery injuries ranges from simple shoulder reduction to open vascular graft placement. Decreasing the time to limb reperfusion reduces the risk of future disability and associated complications.

Case report

An 86-year-old right hand–dominant man presented to our academic emergency department after sustaining an isolated right upper extremity injury as a restrained passenger in a rollover motor vehicle crash. Physical examination demonstrated that the patient had a laceration over the medial aspect of his right arm with fat extrusion as well as an obvious deformity to the upper extremity at the level of the laceration.

His arm and forearm compartments were firm, but compressible, and he had intact wrist extension, intact sensation to light touch over the median, radial, ulnar, and axillary nerve distributions, and intact motor function of the anterior interosseous nerve, posterior interosseous nerve, and ulnar nerve. The vascular examination of the affected extremity was within normal limits, with a 2+ radial pulse and capillary refill that was less than 3 seconds over the digits of the affected extremity.

Radiographs taken in the emergency department demonstrated a right transverse midshaft humeral fracture and

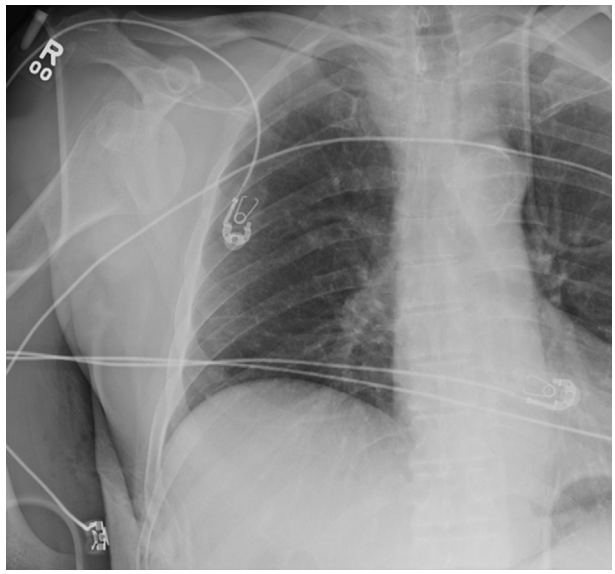

Figure 1 Chest radiograph from the trauma bay is consistent with a shoulder dislocation of the glenohumeral joint.

*Reprint requests: Jonathan M. Karnes, MD, Department of Orthopaedics, West Virginia University, P.O. Box 9196, Morgantown, WV 26506-9196, USA.

E-mail address: jmkarnes@hsc.wvu.edu (J.M. Karnes).

1058-2746/$ - see front matter
http://dx.doi.org/10.1016/j.jse.2015.11.005

Figure 2 Radiograph demonstrates a midshaft humeral fracture with subcutaneous air over the medial border of the arm.

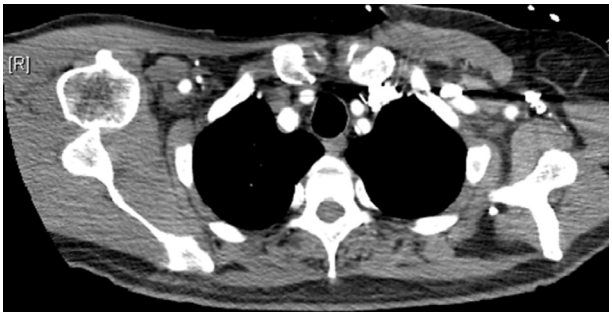

Figure 3 Computed tomography imaging demonstrates an anterior dislocation of the glenohumeral joint.

a glenohumeral dislocation (Figs. 1 and 2). Computed tomography (CT) imaging demonstrated that the right humeral head was located inferior and anterior to the glenoid and appeared to be compressing the axillary artery (Figs. 3–5).

The patient was given cefazolin (2 g) and a tetanus vaccination booster in the emergency department. He consented to an urgent irrigation and débridement with open reduction with internal fixation of the humeral fracture as well as closed reduction of the glenohumeral dislocation under general anesthesia. While the patient was being positioned for surgery, his arm and forearm compartments became progressively firmer to palpation, and his right hand became cool to touch, dusky in color, and the radial and ulnar pulses became unpalpable.

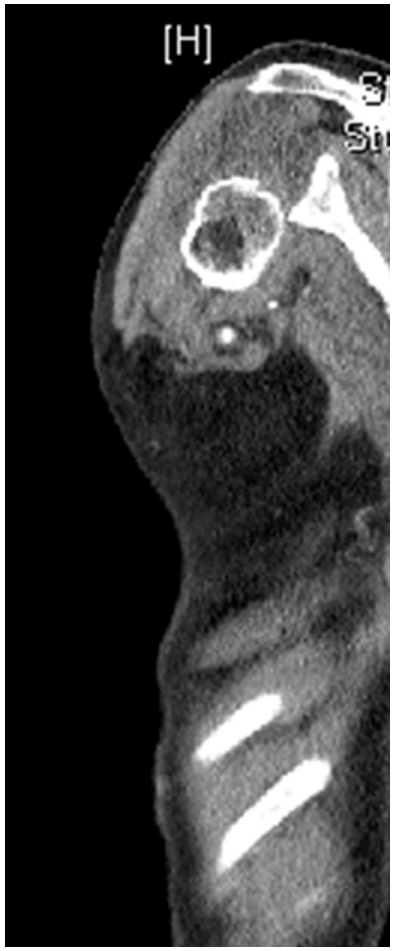

Figure 4 Computed tomography imaging demonstrates an inferior dislocation of the glenohumeral joint.

As soon as the patient was under general anesthesia, a closed shoulder reduction was promptly performed by applying a laterally directed force over the proximal segment of the fractured humerus. Afterward, the patient had bounding radial and ulnar pulses, a return of color and warmth to his right hand, and his arm and forearm compartments became less firm to palpation. Because the patient's vascular examination showed immediate improvement and continued to be within normal limits after a brief observation period, intraoperative angiography was not conducted.

The subsequent irrigation and débridement with open reduction with internal fixation of the patient's ipsilateral humeral fracture was completed without complication, and postoperative imaging demonstrated preserved reduction of his glenohumeral joint (Figs. 6 and 7). The postoperative physical examination demonstrated preserved vascular status with a 2+ right radial pulse and intact wrist extension, and