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PERI-LOC[®]
Periarticular
Locked Plating System

Proximal Humerus Fracture with Shaft Extension Case Study

Proximal Humerus / Humeral Shaft Fracture Case Study

Patient information

61-year-old male
Left Hand Dominant
Past medical history:
Metastatic Prostate Cancer,
Diabetes, Hypertension
No previous shoulder surgery
Fall from 20 feet

Implants used

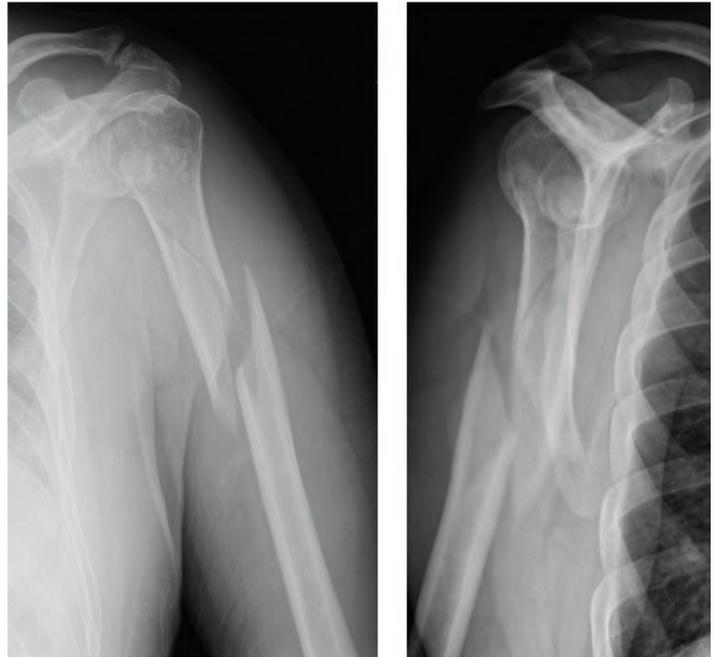
PERI-LOC® Left 13-hole Proximal
Humerus Plate
PERI-LOC Cortex Screws
PERI-LOC 3.5mm Locking Screws
PERI-LOC 2.7mm Cortex Screws

Procedure

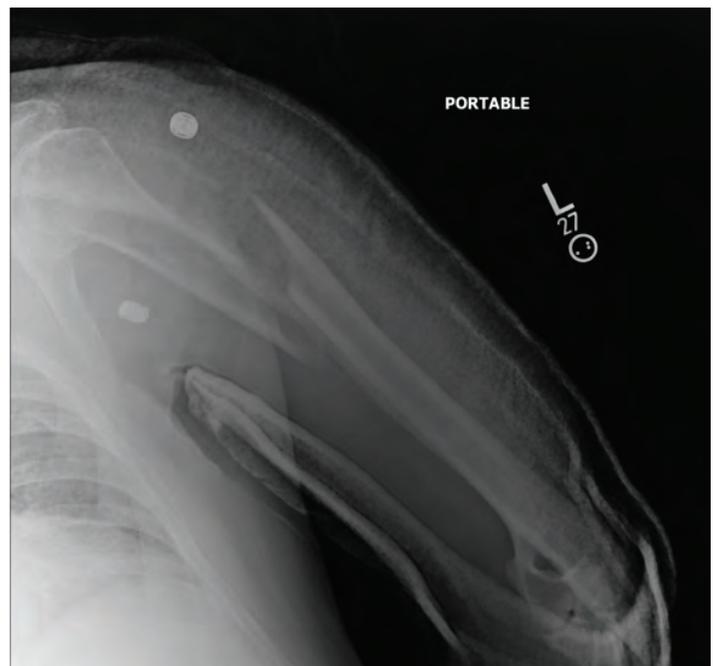
Open Reduction and Internal Fixation
Left Proximal Humerus and Humeral Shaft
Biopsy Left Humeral Shaft

Case background information

61-year-old left-hand dominant male who had a fall at work resulting in a left proximal humerus fracture with extension into the humeral shaft (Figure 1). The patient also had a history of metastatic prostate cancer. The patient was evaluated in the resuscitation bay and found to be neurologically intact. Radiographs were concerning for possible metastatic lesions in the humeral head. However, the patient had no pain in the arm prior to the fall, lessening the risk that this was a pathologic fracture, but rather a traumatic injury. A closed reduction was performed with persistent deformity (Figure 2).



(Figure 1)



(Figure 2)

Procedural notes

The patient was placed supine in a beach-chair position. A single deltopectoral incision was made extending from coracoid process to the distal third of the humeral shaft. The cephalic vein was isolated laterally. The fracture was identified in the shaft region first due to the soft-tissue stripping. A biopsy of the fracture was sent to the pathology lab. The proximal extent of the fracture was identified. The intact periosteum proximally was not disturbed. The fracture site was thoroughly débrided. Multiple point-to-point reduction clamps were applied to reduce the fracture under direct visualization.

With the fracture reduced, three 2.7mm cortex screws were placed in lag fashion (lag by technique) perpendicular to the fracture line. At this point, a 13-hole PERI-LOC[®] Proximal Humerus Plate was applied to the humerus (Figure 3). Due to the contour of the plate, the deltoid did not have to be detached from its insertion on the humeral shaft to apply the plate. The plate was held proximally with Kirschner wires through the small holes in the plate. A tower was inserted in the most distal hole and wire placed through that as well (Figure 4). Plate balance was achieved making sure that no part of the proximal or distal portion of the plate was off bone. By provisionally maintaining the position of the plate on the bone at the most proximal and distal sites, adequate plate balance was achieved.

Fluoroscopic imaging also confirmed plate position, particularly with respect to plate height so that it would not impinge with shoulder abduction.

A bicortical 3.5mm cortex screw was placed proximally and distally to secure the plate to bone. Multiple 3.5mm locking screws were placed in the humeral head and three additional cortex screws were placed in the humeral shaft neutralizing the lag screws and providing absolute stability for fracture healing (Figure 5).



(Figure 3)



(Figure 4)



(Figure 5)

Results

Several months after his procedure, the patient has a near full range of motion, has healed his fracture, and has returned to work in a modified duty format (Figure 6). He does not complain of pain at his fracture site or over the hardware in his arm.

Surgeon quote

"The PERI-LOC® Proximal Humerus plate is particularly useful in proximal humerus fractures with shaft extension due to its unique contour such that it curves anterior as it goes distal. This keeps me from having to strip the soft tissue from the lateral humerus and does not jeopardize the radial nerve."



Samir Mehta, MD
Chief, Orthopaedic Trauma and Fracture Service
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(Figure 6)

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