

# Radial Head Dislocation During Proximal Radial Shaft Osteotomy

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The following case report describes a 48-year-old female patient with a longstanding both-bone forearm malunion, who underwent osteotomies of both the radius and ulna to improve symptoms of pain and lack of rotation at the wrist. The osteotomies were templated preoperatively. During surgery, after performing the planned radial shaft osteotomy, the authors recognized that the radial head was subluxated. The osteotomy was then revised from an opening wedge to a closing wedge with improvement of alignment and rotation. The case report discusses the details of the operation, as well as ways in which to avoid similar shortcomings in the future. (*J Hand Surg Am.* 2014;39(3):589–594. Copyright © 2014 by the American Society for Surgery of the Hand. All rights reserved.)

**Key words** Forearm, malunion, osteotomy, dislocation.

## THE PATIENT

A 47-year-old, right hand–dominant woman presented with painful limitation of rotation of the nondominant left forearm of several years' duration. She had sustained closed midshaft fractures of radius and ulna at age 12 years that were treated with casting. Ten years before presentation, she had undergone surgery for wrist pain at another institution, including a 1-cm ulnar shortening osteotomy and removal of a ganglion cyst with reefing of the dorsal capsule of the distal radioulnar joint. The patient worked in a bakery, and the loss of supination caused discomfort at the level of the wrist when lifting heavy trays.

On examination, the left forearm was 1.5 cm shorter than the right. The patient had 60° supination and 20° pronation of the left forearm, compared with 160° arc of motion of the other side. Elbow range of motion was 0° to 150° and she had 80° of both wrist flexion and extension. She had normal motor strength and no

sensory deficit. Plain radiographs of the left forearm demonstrated loss of the normal curvature of the radius. The ulna demonstrated posterior angulation and retained plate from previous osteotomy (Fig. 1).

## THE COMPLICATION

Given the patient's pain and functional limitation, surgical treatment was considered and we obtained computerized tomography (CT) scans of both forearms with 3-dimensional reconstruction. The CT scans showed that the left ulna was short and subluxed volar to the distal radius compared with the right wrist, where the ulna was located within the sigmoid notch of the radius (Fig. 2). In addition, the left radius had lost the dorsal angulation in the sagittal plane and lateral angulation in the coronal plane. With use of 3-dimensional modeling, an opening wedge osteotomy was planned for the radius at the site of maximum angulation close to the junction of the proximal and middle thirds of the shaft (Fig. 3). Implant removal and extension closing wedge osteotomy were also planned for the ulna at the same level as the radius. Radius fixation was planned with an anatomical plate to facilitate restoration of the angulation of the radius in the coronal plane. Ulna fixation was planned with a longer plate to span the extent of the previous implant and include previous screw holes. In addition to the preexisting complication of malalignment from the original surgery,

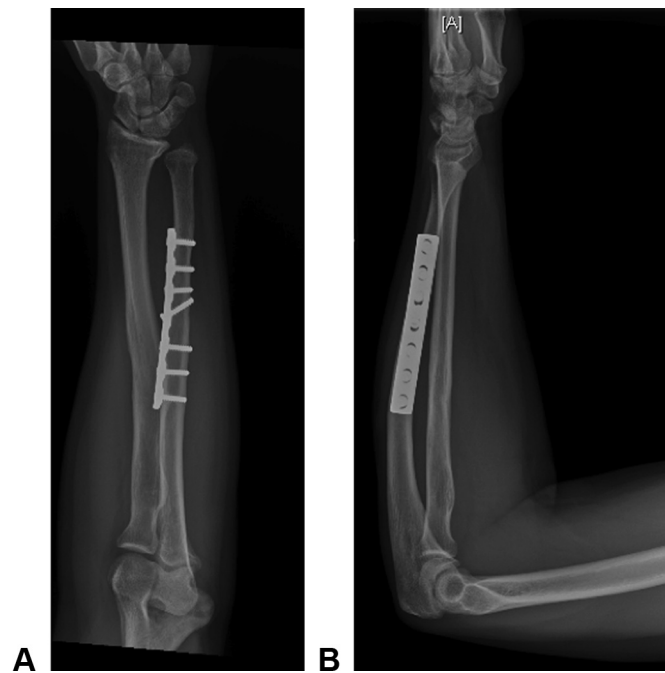
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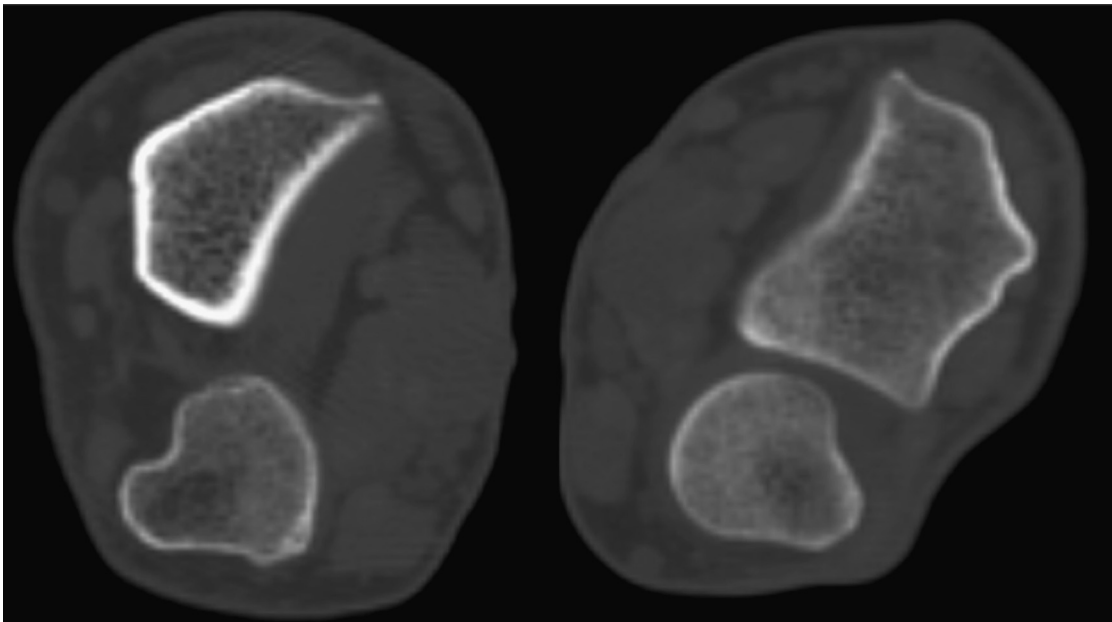
No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

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**FIGURE 1:** **A** AP and **B** lateral radiographs of the forearm with hardware in place from the previous ulnar shortening osteotomy. There was loss of the normal curvature of the radius seen on the AP view while there was posterior angulation present in the ulna best seen on the lateral image.



**FIGURE 2:** The CT scans demonstrated that the left ulna was short and subluxed volar to the distal radius compared with the right wrist, where the ulna was located within the sigmoid notch of the radius.

we encountered a complication of radiocapitellar dislocation at the elbow and ulnar head dislocation at the wrist while performing forearm osteotomy.

#### ADVERSE EFFECTS

The original injury had resulted in the loss of curvature of the radius. This subsequently left the patient

with less forearm rotation. The ulnar shortening osteotomy that she had received did not address this problem, and so rotation did not improve. Hence, the goal of our surgery was to try to restore the normal relationship between the radius and ulna with restoration of the radial bow. However, our osteotomies had resulted in malalignment at the elbow and wrist.

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