

# Madelung's Deformity

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**Figure.** Posteroanterior radiograph of the right wrist shows severe bowing of the distal radius, with ulnar deviation of its distal end. There is increased slope of the distal radius between the radial styloid and the ulnar side of the radius. The ulna is long. The proximal carpal bones articulate with the deformed radius and ulna, and because of this unusual articulation, has a decreased carpal angle of 92°.

## PRESENTATION

A 16-year-old girl had long-standing deformities of both wrists. She had previously undergone surgery of the left wrist.

## COMMENTS

Madelung's deformity refers to a condition of the wrist where there is increased slope of the distal articular surface of the radius, with associated bowing of the distal radius shaft. The curvature and growth disturbance of the radius causes the ulna to be relatively longer than the radius. There are several causes of Madelung's deformity, including: dyschondrosteosis (Leri Weil disease), diaphyseal aclasis, Turner's syndrome, and posttraumatic,

postinfective, and isolated forms. Madelung's deformity is more commonly bilateral than unilateral and occurs more frequently in women. Affected patients present in their teens with a wrist deformity, pain, and limited range of motion. Complications such as carpal tunnel syndrome and tendon rupture may occur.

Radiographically, the distal end of the radius has a volar and ulnar deviation. The radial length is decreased, with increased slope of the distal end of the radius due to premature fusion of the ulnar portion of the distal radial epiphysis. The carpal angle, which is formed by intersections of the line tangential to the proximal surfaces of the scaphoid and lunate and the line tangential to the proximal surfaces of the triquetrum and lunate, is decreased. The normal carpal angle is 130°. The

ulna is relatively long compared with the radius and is dorsally subluxed with widening of the distal radioulnar joint. The distal end of the ulna may also be deformed. The carpal bones fit or are wedged between the deformed distal radius and the abnormally shaped ulna, and the lunate is located at the junction of the radius and ulna. Surgery is rarely required, but may be necessary if the deformity is painful. Affected patients usually adapt to this deformity and are relatively asymptomatic.

## BIBLIOGRAPHY

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