

The Rheumatoid Metacarpophalangeal Joint

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KEYWORDS

- Rheumatoid arthritis • Metacarpophalangeal joint
- Arthroplasty • Arthrodesis

The need for surgical intervention in rheumatoid hand deformities has been, to an extent, modified in recent years. This is in response to improved medical management involving the use of powerful new therapeutic agents. Progression of disease may be halted or slowed and the foreshortened fingers arising from premature epiphyseal closure in Still disease (juvenile idiopathic arthritis) is now a rarity. Nevertheless, conservative management will not control some cases and metacarpophalangeal (MP) joint reconstruction is still required for these patients.

THE CAUSES OF RHEUMATOID METACARPOPHALANGEAL DEFORMITIES

Twenty years ago, I treated a patient with rheumatoid arthritis with hand deformities. In her late teens, she sustained injuries riding a motorcycle. There was substantial bone loss at the right elbow; the wounds healed, leaving a flail right elbow and, somewhat unusually, no associated distal neurologic deficit. Five years later, she developed rheumatoid arthritis and was referred to me 5 years after that diagnosis had been confirmed. She presented with rheumatoid hand deformities. The flail right upper limb was worn in a silk scarf sling and its use was limited to feeding objects into the hand from the left hand. Use for the activities of daily living was minimal, with the left hand taking on almost all the functions of both upper limbs. There were severe rheumatoid deformities to the left upper limb in contrast to the right, which had no deformities. The patient offered a very obvious indication of the role of the activities of daily living in the development of rheumatoid hand deformities.

VOLAR SUBLUXATION OF THE PROXIMAL PHALANX BASE

Flatt and Ellison¹ described the force vectors arising when an object is held between the thumb and index fingertips (**Fig. 1**): 1 kg force applied to the object gives rise to 6 kg in the line of the long digital flexors with a 3-kg volar vector applied across the MP joint. This persistent force on use attenuates the incompetent rheumatoid soft tissue restraints to the MP joint, creating progressive volar subluxation to the base of the proximal phalanx (**Fig. 2**) with respect to the metacarpal head. Total dislocation may occur and the base of the proximal phalanx will then drift proximally, creating shortening to the digits and making reconstructive procedures more difficult (**Fig. 3**).

Ulnar Drift

Many distal rheumatoid hand deformities can be explained by more proximal joint malalignment. Synovitis of the wrist and attenuation of the ligaments may lead to the patient with rheumatoid arthritis maintaining the wrist in radial deviation. Radial tilt at the carpus creates a significant ulnar deviating force to the MP joints. This is evidenced by the effect of surgery to correct ulnar drift of the fingers in cases where a fusion of the wrist has been performed in the past and bone union has occurred in radial deviation of the carpus. The benefits of ulnar drift correction are likely to be short lived in these cases if the position of the wrist is left unchanged.

Pinch and chuck grip create ulnar deviating forces to the digits during activities of daily living.

The author has nothing to disclose.

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Hand Clin 27 (2011) 79–86

doi:10.1016/j.hcl.2010.09.005

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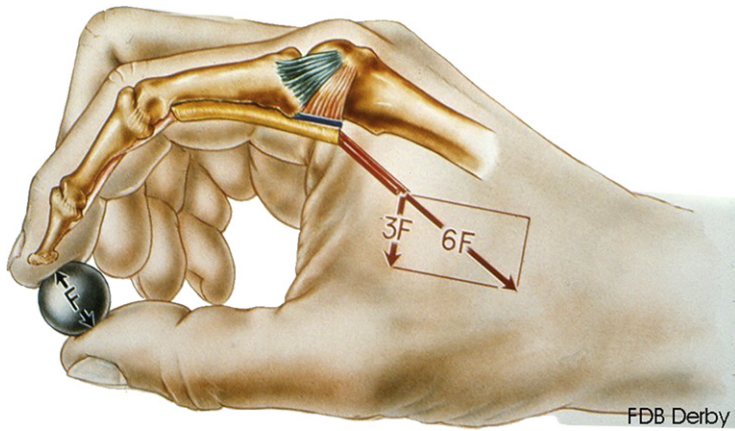


Fig. 1. The biomechanics of thumb index pinch. (Reprinted from Flatt AE. The care of the rheumatoid hand kinesiography. St Louis (MO): C V Mosby Company; 1974. p. 29; with permission.)

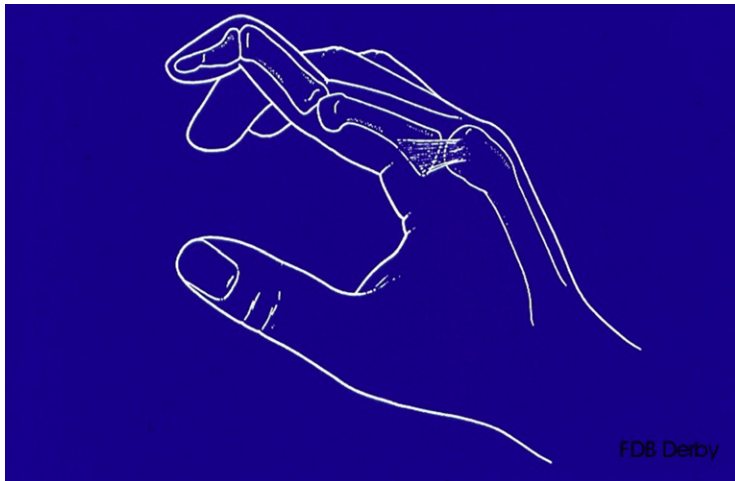


Fig. 2. Volar subluxation of the proximal phalanx. (Reprinted from Flatt AE. The care of the rheumatoid hand kinesiography. St Louis (MO): C V Mosby Company; 1974. p. 29; with permission.)



Fig. 3. Volar dislocation of the metacarpophalangeal joint.

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