

RADIOLOGY QUIZ

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PROBLEM



➤ An 18-year-old male presents to your urgent care center 4 days after falling directly on his right hand. Since the incident, he has had pain and swelling in his right hand. Your exam reveals a severely swollen right hand with decreased range of motion in all digits. Radiographs of the hand are obtained.

What is your diagnosis?

Turn page for answer ➤

ANSWER



➤ The images reveal fractures of the third, fourth, and fifth metacarpals with 45 degrees of volar angulation (apex dorsal) of the third metacarpal head, a midshaft fracture with ulnar displacement and 40 degrees of volar angulation of the distal fragment of the fourth metacarpal, and a minimally displaced fracture of the base of the fifth metacarpal.

Minimally displaced isolated fractures of the third or fourth metacarpal can usually be managed conservatively with a short arm cast and dynamic splinting of the affected digit with the adjacent digit. The interosseous muscles between the metacarpals in the middle of the hand will continue to apply equal tension on the fragments, maintaining their alignment. However, when multiple metacarpals are fractured at the same time, the splinting effect of the intact adjacent metacarpals is forfeited.¹

ANSWER

Due to the angulation and number of metacarpals fractured in the hand, the patient was referred to orthopedic surgery. A volar splint with elastic bandage was placed, and he was advised to rest, ice, and elevate the right hand, start pain medications, and seek consultation for percutaneous pinning of the third and fourth metacarpals.

REFERENCE

1. Bednar MS, Light TR. Hand surgery: fractures and dislocations of the hand. In: Skinner H, ed. *Current Diagnosis & Treatment in Orthopedics*. 4th ed. New York, NY: McGraw-Hill; 2006:570-580.

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