

**CASE REPORT**

# Small Finger Metacarpal Shaft Wedged between Ring and Small Metacarpal Bases: a Report of 2 Cases

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*Research performed at Massachusetts General Hospital, Boston, MA USA**Received: 15 June 2014**Accepted: 25 September 2014***Abstract**

We present two patients with a displaced fracture of the small finger metacarpal base, where the shaft of the small finger metacarpal was wedged between the bases of the ring and small finger metacarpals. The striking appearance on radiographs led to initial recommendations for surgery, but both patients preferred non-operative treatment and did well in the short term without surgery.

**Key words:** Fracture, Metacarpal base, Non-operative treatment, Small finger

**Introduction**

Fractures of the fifth metacarpal typically result from a punch or a fall (1, 2). Deformity is generally well tolerated in the small finger metacarpal, particularly angular deformity at the neck of the metacarpal (3, 4). There is a general consensus for operative treatment for open, unstable, or axially displaced metacarpal fractures (4, 5).

We present two patients with a displaced fracture of the small finger metacarpal base, in whom the shaft of the small finger metacarpal was wedged between the bases of the ring and small finger metacarpals. This is an unusual deformity that looks unsettling. Both patients were advised to have surgery, but preferred non-operative treatment.

**Patient 1**

A 21-year-old woman presented to our institution two weeks after an injury to the left hand in a motor vehicle collision. On physical examination she was tender at the base of the small finger metacarpal with moderate ecchymosis and edema. There was a palpable defect at the small finger metacarpal. The finger range of motion was limited by pain and nerve function was normal.

Radiographs showed an extra-articular, comminuted short oblique fracture through the base of the small finger metacarpal [Figure 1a, b]. The shaft of the small finger metacarpal was volarly displaced by half a shaft width and was wedged between the bases of the ring and small finger metacarpals. There was no angular or rotational deformity of the small finger.

Another hand surgeon recommended surgery, but she preferred non-operative treatment and sought a

second opinion to be sure that surgery was necessary. Both operative and non-operative treatment options were considered and the patient chose non-operative treatment as she was beginning to function well and was not bothered by the potential for slight deformity.

The patient wore a wrist splint for two more weeks while she worked on regaining finger motion. Radiographs obtained eight weeks after injury showed early healing of the metacarpal fracture [Figure 1c, d]. Radiographic alignment remained unchanged and there was no appreciable malrotation or shortening on examination. She had full motion of the hand and wrist and no pain. There was a slight palpable, but no visible deformity.

**Patient 2**

An 18-year-old woman presented to the office three weeks after fracturing the base of the small finger metacarpal in a boxing class at college in another state. The radiographs were identical to those in Patient 1. She was advised to have surgery by a surgeon in the city where she attends college. She came home and presented with her mother for another opinion to see if surgery was necessary. On examination she had slight residual swelling, full finger range of motion, and no rotational or angular deformity. There was a palpable defect at the base of the small finger. The patient and her mother favored non-operative treatment and she declined further splint wear.

Six weeks after injury she had full motion and minimal pain. Radiographs showed early healing of the metacarpal fracture and unchanged alignment. There was a minor palpable, but no visible deformity.

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Figure 1. Anteroposterior (a) and lateral (b) radiographs of the small finger metacarpal shaft wedged between the ring and small finger metacarpal bases, two weeks after injury.

### Discussion

We thought these two fractures were interesting because their striking appearance on radiographs led to recommendations for surgery, but both patients preferred non-operative treatment and did very well in the short term. In 1970, Hunter et al. (3) reviewed 45 fifth metacarpal base fractures and reported that those without articular involvement tend to heal rapidly with an average period of disability of less than a month. While we have no long-term follow-up, no form of deterioration is anticipated with a healed extra-articular fracture. It's important to confirm that the fractures are not rotated substantially.

The typical deformity of small finger metacarpal fractures is apex dorsal, creating a "sunken knuckle" or "lump in palm" deformity (6). With small finger metacarpal base fractures, the usual concern relates to articular involvement (1). In our two patients, the small finger metacarpal shaft was in a stable position between the bases of the ring and small finger metacarpals,

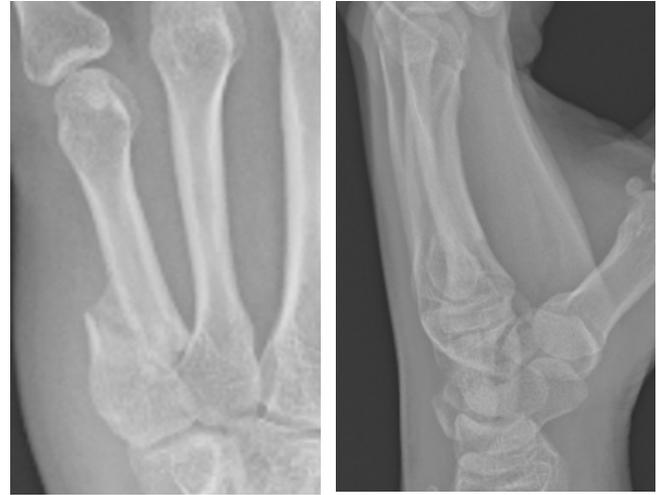


Figure 1. Anteroposterior (c) and lateral (d) radiographs eight weeks after injury demonstrate healing.

resulting in no rotation, and minimal shortening or angular deformity of the distal metacarpal fragment. As long as the fracture is stable, splinting of the hand in a functional position followed by mobilization and early use of the hand has been shown to lead to early return to active duty with a fully functional hand (3-5).

For other patients and surgeons making management decisions, we felt it would be helpful to have similar fractures to read about with the lesson that as striking as the radiographs may appear, non-operative treatment is an option.

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