

## CLINICAL IMAGE

# Rolando fracture

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**Abstract**

Rolando fractures are associated with poor prognosis and when they occur on the dominant hand potential for disability is even greater. Timely imaging, placement into a thumb spica splint, and orthopedic surgery evaluation are integral to ensuring the best possible outcome for the patient.

**KEYWORDS**

rolando fracture, plain films, hand trauma, Bennett fracture, axial load injury

An intoxicated man presented to the emergency department with pain, swelling, and ecchymosis at the base of the first digit of his dominant hand. X-rays revealed an impressive comminuted, multifragmented Rolando fracture.

An intoxicated 28-year-old man was brought to the emergency department by his significant other, complaining of right hand pain and swelling after an assault. Neither was able



**FIGURE 1** Lateral view X-ray showing a comminuted fracture at the base of the first metacarpal with intra-articular extension, compatible with Rolando-type fracture



**FIGURE 2** PA Oblique view X-ray showing a comminuted fracture at the base of the first metacarpal with intra-articular extension, compatible with Rolando-type fracture

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**FIGURE 3** PA view X-ray showing a comminuted fracture at the base of the first metacarpal with intra-articular extension, compatible with Rolando-type fracture

to provide any details on the mechanism of injury. Severe pain, swelling, and ecchymosis were noted at the base of the first digit of the patient's dominant hand. X-rays revealed a comminuted, intra-articular fracture at the base of the first metacarpal (Figures 1, 2, and 3). The orthopedic surgery team was consulted, and surgical repair via open reduction and internal fixation (ORIF) was planned.

A Rolando fracture is a comminuted, multifragmented, complete intra-articular fracture at the base of the first metacarpal, with fracture lines in a Y- or T-shaped pattern, as

opposed to a Bennett fracture which occurs on the ulnar side of the metacarpal base and is not multifragmented.<sup>1</sup> Such fractures are unstable and associated with a poor prognosis. Mechanism of injury is typically from an axial load to a partially flexed metacarpal, secondary to a fall or a punching injury. Nonoperative treatment is rarely an option with most requiring surgical ORIF or external fixation.<sup>2</sup> The injury should be supported in a thumb spica splint while awaiting operative evaluation.

#### CONFLICT OF INTERESTS

The authors have no financial interests associated with this publication.

#### AUTHORS' CONTRIBUTIONS

TAW: analyzed the case, coconducted the literature review, and cowrote the paper. ACR: co-wrote the paper and coordinated and corrected the paper. KMB: treated the patient, coconducted the literature review, and cowrote the paper.

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#### REFERENCES

1. Carlsen BT, Moran SL. Thumb trauma: Bennett fractures, Rolando fractures, and ulnar collateral ligament injuries. *J Hand Surg.* 2009;34(5):945-952.
2. Mahoney M, Marsland D, Garagnani L, Sauve P. Rolando and his fracture. *Trauma.* 2015;17(1):24-28.

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