

## X-ray quiz

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### Case history

A 46-year-old man quarreled with his relative and hit his left clenched fist against the wall. He had pain and swelling of his left hand after the incident and attended our department for treatment. On arrival,



Figure 1a.

his vital signs were stable. He was noticed to have swelling in dorso-medial side of the proximal part of his left hand. The knuckle of the little finger was lost and the movement of that finger was limited. There was no sensation loss and the circulation to the finger was maintained.

X-ray of left hand was ordered and the traditional AP and oblique views were taken. (Figures 1a and 1b)

### Question

- (1) What is the X-ray diagnosis?
- (2) What additional view may help to delineate the lesion?



Figure 1b.

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## Discussion

Carpometacarpal suluxation of the left fifth metacarpal.

A lateral view of the left hand showed dorsal tilt of the base of fifth metacarpal with some degree of contact with hamate suggesting this diagnosis. (Figure 2)

Isolated carpometacarpal dislocation or subluxation of the fifth metacarpal is a rare injury.<sup>1</sup> It is supported by the strong dorsal and palmar metacarpal ligaments,



**Figure 2.** The lateral view of right hand revealed dorsal subluxation of base of the fifth metacarpal (Arrow).

the piso-metacarpal ligament and the intermetacarpal ligament. But some degree of movement was allowed in flexion/extension and abduction/adduction.<sup>2</sup> It is usually caused by a direct blow to a clenched fist with the force exerted onto the head of the metacarpal and along its long axis. The injury is commonly missed especially when the lesion is obscured by swelling. A review showed that less than 30% of cases could be diagnosed at the first presentation.<sup>3</sup>

The standard AP and oblique views of the hand may not identify the injury. However, any overlapping of bone at carpometacarpal joint or loss of parallelism of the joint lines may suggest subluxation or dislocation.<sup>3,4</sup> An oblique metacarpal line may be drawn tangentially across the distal end of the heads of the third, fourth and fifth metacarpal. Any shortening may be revealed if one of the metacarpal heads fails to fall on the line.<sup>3</sup> A lateral view is usually required to show the lesion. Parkinson et al also suggested to measure the carpometacarpal angle (the angle between the long axis of the second and fifth metacarpal in lateral view).<sup>5</sup> The normal angle is between 7° to 11°. Any angle greater than 20° may suggest dislocation but smaller angle may be seen in subluxation. In our case, the angle measured was 16° which further substantiated the diagnosis of carpometacarpal subluxation.

## References

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