

Simultaneous Bennett's and distal radius fractures treated with external fixation

A case report

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Colles' fracture is rarely associated with a carpal or metacarpal fracture. We report a case of ipsilateral, simultaneous Bennett's and distal radius fracture after moderate trauma. Closed reduction and external fixation led to uneventful healing and no residual symptoms.

Case report

While cautiously trying a motorcycle for the first time, a 45-year-old woman mixed up the gas and brake handles while attempting to stop the machine at low speed—she lost control and ended up in a ditch. She sustained moderately dislocated intra-articular fractures of the left distal radius (Frykman Type IV) and of the left first metacarpal base (Bennett type). The Bennett fracture was first overlooked by both the radiologist and the resident specialist on call, although it was clearly visible on the standard wrist radiograph (Figure 1). It was revealed by pain in the thumb region at the attempted reduction of the radius fracture under local anesthesia.

Operative technique. Both fractures were reduced under intravenous regional anesthesia. An AO Small External Fixator was applied with the bars connecting pairs of half-pins in the third quarter of the radial diaphysis and in the first and second metacarpal diaphyses. In the first metacarpal, the pins were introduced just radial to the extensor pollicis brevis tendon in the anatomic frontal plane, and the four remaining pins were inserted in a dorsoradial oblique plane. Open blunt dissection was used. The thumb was held in moderate abduction and its metacarpal base was pressed ulnarwards when the frame was locked (Figure 2).

Postoperatively, active finger movements and forearm rotation were encouraged. Radiographs on the 10th day showed maintained fracture positions. One month postoperatively, the proximal part of the combined frame was removed and wrist training was permitted. The Bennett fracture was immobilized for 6 weeks, the remaining intermetacarpal frame then being removed. Radiographs at this time showed healing and no additional dislocation. Normal hand and wrist function was restored within another month. At the 2-year follow-up, there was normal function without pain and no radiographic evidence of posttraumatic arthrosis in either joint.



Figure 1. A 45-year-old woman with a Frykman type IV fracture and a Bennett fracture (arrow). At admission.

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Figure 2. The distal radius fracture and Bennett fracture after closed reduction and external fixation.

Discussion

We chose external fixation instead of the common pinning technique of Wagner (1950) or the open Gedda and Moberg (1953) or similar (Cantero 1984) techniques for two reasons. First, we wanted to avoid the possible situation where a plaster-cast-treated radius fracture might need a rereduction at the weekly examination, with a newly transfixed Bennett fracture in close proximity. We have never experienced any adequately reduced and externally fixated radius fractures needing a second reduction due to unacceptable secondary displacement. Secondly, we wished to test an alternative method of treating Bennett's fracture with a small metacarpal frame. The combined external frame therefore appeared to be a good solution.

For isolated fractures of the first metacarpal base a miniframe connected to the trapezium has been used by other authors (Howard 1987, Asche 1989) but would have been less practical in our combined fracture case.

The prerequisite for treating a Bennett fracture externally is that one can conclude peroperatively under fluoroscopic control that adequate closed reduction is obtainable, as to restoration of the joint surface congruity. Contrary to Schuind et al. (1988), we do not believe that for a pure Bennett injury the frame need be a triangular one giving distraction between the distal radius and the first metacarpal. A fixator immobilizing only the thumb metacarpal and

pressing its base ulnarwards, thus counteracting the dislocation force of the abductor pollicis longus tendon, would suffice.

Finally, we wish to draw attention to the risk that a standard wrist radiograph positive for a distal radius fracture might diminish the clinician's or the radiologist's scrutiny for checking the presence of a concomitant injury. This check should especially focus on the lunate, the scaphoid, and the first metacarpal base.

References

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