



Successful closed reduction of refractured wrist with a bent volar distal radius plate

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A case is presented of a 78-year-old woman who sustained a re-fracture of the distal radius after initial fixation with a volar locking plate. The fracture was located in the mid-portion of the Volar plate with palmar apex bending of the plate and signs of median nerve compression. A successful closed reduction was performed without hardware failure. The fracture united uneventfully.

Keywords : fracture ; volar plate ; locking ; hardware ; reduction.

INTRODUCTION

Treatment of unstable distal radius fractures using volar fixed-angle devices has gained popularity over recent years. Volar locking plates are designed to achieve rigid fixation and to allow early motion. Good to excellent clinical outcomes have been reported with these devices (3,4). Hardware failure or breakage of a volar locking plate is a rare complication. Only two reports in the literature have reported such complications, in patients with a non-union or delayed-union of a distal radial fracture (1,2). No case of hardware failure in the acute setting is available in the literature. A case is presented of a closed reduction of a re-fracture of the distal radius without hardware failure in a patient who was originally treated with a volar locking plate.

CASE REPORT

A 78-year-old woman presented to our Accident and Emergency Department after a fall on her left wrist. Clinical examination showed a palmar angulation deformity of the wrist (Fig. 1), and the patient demonstrated symptoms of compression of the median nerve at the carpal tunnel.

These symptoms consisted of paraesthesias in digits 2, 3 and 4. Six months earlier, she had undergone volar plate fixation (Synthes LCP-T-plate

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Fig. 1. — Bayonet deformity of the wrist



Fig. 2A & B. — Original distal radius fracture, AO type A3.1

4.5 mm/5 mm, Paoli, PA) for a distal radius fracture, AO type A3.1, of the same wrist (Fig. 2A & 2B).

This fracture had healed uneventfully and the patient had been discharged from further care, before the current fall. Radiographs showed a metaphyseal fracture of the distal radius at a different

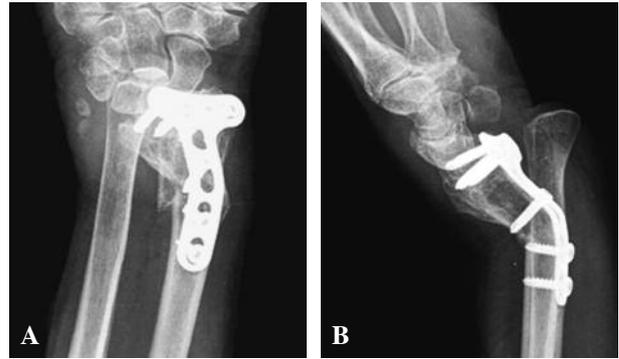


Fig. 3A & B. — Metaphyseal fracture of the distal radius located half way the length of the volar plate.



Fig. 4. — Clinical appearance after closed reduction

location, to the initial fracture (Fig. 3A & 3B). The volar plate and screws remained intact.

Because of the use of an oral anticoagulant (phenprocoumon), there was a relative contraindication to hardware removal and revision-osteosynthesis. However, the patient exhibited signs of median nerve compression, and an acute reduction of the fracture was deemed necessary. For that reason, a closed reduction was attempted.

Clinically, good alignment of the wrist was achieved with disappearance of the palmar angulation deformity of the wrist (Fig. 4).



Fig. 5A & B. — Radiographs at 6 weeks follow-up

Fluoroscopic images after the procedure showed an acceptable reduction of the fracture. In this 78-year-old patient, 20° of dorsal angulation of the distal radius was accepted. The volar plate showed a minor, palmar angulated curve near the fracture site. The fixation remained secure, without hardware breakage (Fig. 5A & 5B).

The paraesthesias resolved following the closed reduction. Postoperatively, the fracture was treated with a below-elbow splint for 2 weeks and a brace for an additional 4 weeks. At 6 weeks follow-up radiographs showed callus formation. At 6 months follow-up the patient was asymptomatic. Clinical examination showed 12° loss of flexion compared to the uninjured side. There was no difference in grip strength between the left and the right hand, measured with a Jamar hydraulic hand dynamometer (Sammons Preston Rolyan, Bolingbrook, USA). Radiographs showed complete consolidation of the fracture (Fig. 6A & 6B).

DISCUSSION

A case is presented of an elderly woman who sustained a re-fracture of the distal radius after initial fixation with a volar locking plate. The second fracture was located half way the length of the volar plate, at a location different to the original fracture. Urgent reduction of the fracture, with bending of the locking plate, was necessary in this patient. Co-



Fig. 6A & B. — Consolidation of the fracture at 6 months follow-up.

morbidities prevented us from revising the osteosynthesis. Because the previously placed plate and screws seemed to be intact and well fixed, we attempted to perform a closed reduction and retain the hardware. We achieved an acceptable reduction of the fracture, which healed uneventfully. We realize this is an exceptional case and we do not recommend this to be a standard procedure, however this case shows that a well fixed plate can be reshaped, without an open procedure.

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