Peri-implant radial and ulnar shaft fractures after volar locking plate fixation of the distal radius

Dear Sir,

A 34-year-old man was transferred to our emergency room after a traffic accident. He presented with forearm pain and deformity. Nine months previously, he received open reduction and internal fixation with a stainless steel volar locking plate (Trimed Volar Bearing Plate, CA, USA) for a distal radius fracture. On admission, X-rays revealed a peri-implant fracture of the radius, and a fracture of the ulnar shaft (Figure 1).

The patient underwent hardware removal, reduction of the fractures, and fixation using a longer volar plate for the radial fracture and a compression plate for the ulnar fracture (TriMed Wrist Fixation System™, CA, USA). Postoperatively, the forearm was splinted for 3 weeks. After that, the patient was referred for physical therapy and rehabilitation to improve range of motion of the elbow, forearm, and wrist using active and gentle active-assisted exercises. Between 3 and 6 weeks postoperatively, light weight-lifting training was performed; 6 weeks postsurgery, all lifting and twisting restrictions were removed. Also at this time, his X-rays showed bone healing (Figure 2). At final follow-up, 24 months after surgery, the patient's elbow extension and flexion was from −10° to 120°, wrist pronation and supination was from 80° to 65°, and wrist flexion and extension were 80° and 70°. All movements

Figure 1. Fractures of the shafts of the radius and ulna noted in X-rays. [a] Lateral views. [b] Anterior–posterior views.

Figure 2. [a] Internal fixation of the peri-implant fracture in the radial shaft with a volar bearing plate and a compression plate for the ulna fracture. Final follow-up at 24 months after surgery, anterior–posterior X-ray. [b] Final follow up, lateral X-ray.
were completely painless. His grip strength was 80% that of the opposite hand.

This is a rare case of a peri-implant fracture after volar locking plate fixation of the distal radius. With the large and steadily increasing number of patients receiving volar locking plates in recent years (Snoddy et al., 2015), we believe that the number of these cases could increase over time. For that reason, surgeons should be aware of ways to treat this complication.

During surgery, we fixed the radius first, because fixation of the radius stabilized the forearm, thereby allowing us to repair the ulna with the elbow flexed (Schulte et al., 2014). Our patient’s recovery included complete resolution of pain and restoration of almost full range of motion. This permitted him to resume his usual job as a taxi driver.

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References

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