

# Early mobilization of isolated ulnar-shaft fractures

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A consecutive series of 21 isolated ulnar-shaft fractures were treated with early mobilization. All the fractures healed with good function and without serious complications. As long as the radioulnar joints are intact, this type of fracture can safely be treated with immediate mobilization or a short period in a below-elbow cast.

Some recommend open reduction and internal fixation of the isolated ulnar-shaft fracture (Andersson et al. 1975, Muller et al. 1979), whereas others advocate plaster-cast immobilization (Altner et al. 1972), functional bracing (Sarmiento et al. 1976, Zych et al. 1987), or no immobilization at all (Pollock et al. 1983). We report our results of early mobilization of isolated ulnar-shaft fractures in 21 consecutive patients.

## Patients and methods

Between 1983 and 1987, 21 patients with an isolated ulnar-shaft fracture were treated at St. Göran's Hospital. The mean age of the patients was 39 (18-74) years. There were 16 men and 5 women.

The mechanism of injury was a direct blow in 15, a fall in 4, and unclear (traffic accidents) in 2. Most fractures occurred in the distal (13) or middle (6) third of the ulna (Table 1). In no case did the angulation exceed

10° measured at the fracture site as the largest angulation at two perpendicular radiograms. Three fractures were laterally displaced half or more of the ulnar diameter at the fracture site. All the lesions with involvement of the proximal or distal radioulnar joint were excluded.

The treatment consisted of immediate mobilization or a short period in a below-elbow cast to diminish pain (Table 2). No attempts were made to reduce the fractures. All the patients were followed clinically until they had a near painless normal range of motion, and radiographically until bridging external callus could be seen. We regarded this as uneventful healing, and no further radiographic examinations were performed (Figure 1). Within 6 months, all the patients had regained full forearm motion, with the exception of a slight (< 10°) reduction in rotation, and they were in most cases free of pain.

## Discussion

The radius and ulna are bound together proximally and distally by ligaments and joint capsules, and the strong interosseous membrane holds the two bones together. Thus, an isolated fracture of the ulnar shaft is stable,

Table 1. Location and displacement of the ulnar fractures

Location of fracture			Lateral displacement fraction of ulnar diam.				Angulation (°)		
Prox 1/3	Middle 1/3	Distal 1/3	0	0-1/4	1/4-1/2	> 1/2	0	1-5	6-10
2	6	13	10	6	2	3	10	8	3

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Table 2. Length of treatment in a circular below-elbow cast

Time of cast treatment (days)	Number of patients
0	10
1-7	3
8-14	5
15-21	3
	<hr/> 21

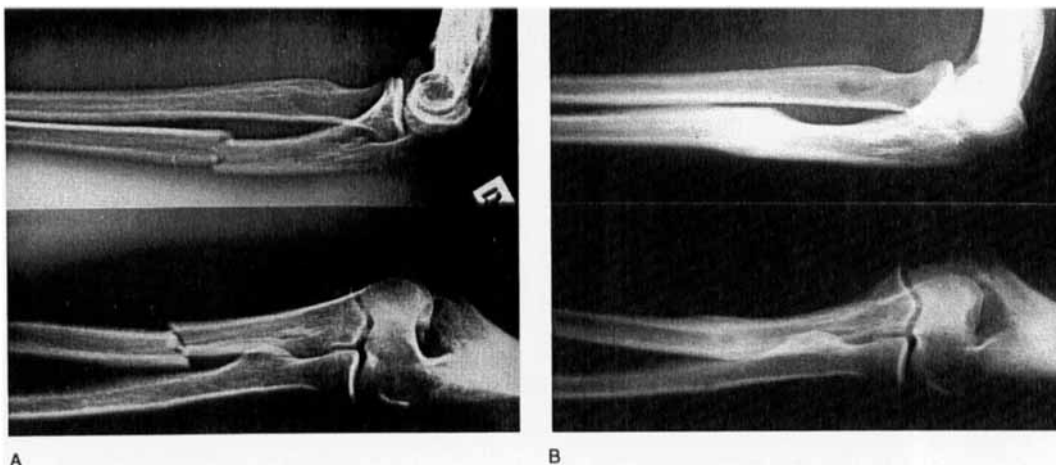


Figure 1. A 52-year-old man who sustained an isolated ulnar-shaft fracture after a fall. The fracture healed without any complication after early mobilization.

A. On the day of fracture.

B. Two years later.

providing there is no rupture of the radioulnar joints. This is confirmed by our study where only 3 patients had a displacement of more than half the ulnar diameter, and no patient had an angulation of more than  $10^\circ$ .

Sarmiento (1976) reported excellent results of treatment of isolated ulnar-shaft fractures, with no nonunions and a healing time of 2-3 months, using a prefabricated brace. Pollock (1983) reported 43 cases treated with a short period in a cast or an elastic wrap around the forearm to control swelling. He found no nonunions and a healing time of 2 months. Brakenbury (1981) reported a series of 245 isolated ulnar-shaft fractures with an overall 10 percent incidence of nonunion. Nonunion was three times as frequent in internally fixed fractures as in those treated closed. He also found that an above-elbow cast was not superior to a below-elbow cast in preventing nonunion.

In our study the fracture line could still be discerned at the last radiographic examination, although there was abundant external callus. Therefore, we have no radiographic proof of fracture healing; but because all the patients were free of symptoms, this would be of minor clinical importance. In agreement with Sarmiento (1976), we noted that patients treated with early mobilization develop abundant callus. No patient experienced any limitation of motion, or decreased function, after fracture healing.

In conclusion, we found that isolated ulnar-shaft fractures without gross displacement can safely be treated with immediate mobilization, or with a short period in a below-elbow cast, followed by early training, provided the radioulnar joints are not affected.

## References

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