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Dr. Deepak Jain
Department of Orthopaedics,
MGM Medical College &
Hospital, Navi Mumbai,
Maharashtra, India

Dr. Parimal Malviya
Department of Orthopaedics,
MGM Medical College &
Hospital, Navi Mumbai,
Maharashtra, India

Dr. Ashok Ghodke
Department of Orthopaedics,
MGM Medical College &
Hospital, Navi Mumbai,
Maharashtra, India

Corresponding Author:
Dr. Parimal Malviya
Department of Orthopaedics,
MGM Medical College &
Hospital, Navi Mumbai,
Maharashtra, India

Functional outcome of intrafocal pinning technique for the management of distal radius fractures

Dr. Deepak Jain, Dr. Parimal Malviya and Dr. Ashok Ghodke

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Abstract

Distal radius fractures are characterized by varying degrees of comminution with volar and dorsal displacement. Conventional methods of treatment for this fracture has resulted in unsatisfactory anatomical and functional results with varying degrees of deformity and disability. Of these Percutaneous wire fixation has gained much importance. The purpose of our study was to evaluate our early experience using Kapandji's technique.

Keywords: Distal end radius, intrafocal pinning, kapandji

Introduction

Distal radius fracture is the most common fracture of the upper extremity and there is very disagreement on its classification, treatment, functional and radiologic outcome. Distal radius fractures has met different kind of managements such as conservative treatment that first Colle's describes, close reduction and cast immobilization, external fixation, close reduction and percutaneous fixation with Kirschner wires and open reduction and internal fixation. Since their introductions, there were lots of studies to find out the advantages of one upon the others and although among these methods of treatment some has known advantages among others but the gold standard method of treatment still is a matter of debate. These fractures are characterized by varying degrees of comminution with volar and dorsal displacement. Conventional methods of treatment for this fracture has resulted in unsatisfactory anatomical and functional results with varying degrees of deformity and disability. Of these Percutaneous wire fixation has gained much importance. The purpose of our study was to evaluate functional outcome of intrafocal pinning technique for the management of distal radius fractures.

Materials and Methods

In this study, we used cases treated from July 2018 to June 2019, of 30 completely displaced fractures of the distal radius. In the surgical treatment, we inserted k wires using kapandji technique to achieve a anatomic reduction and stable fixation.

The inclusion criteria were

1. Recent fractures(within 3 weeks Postinjury)
2. Adult patients (21-50 years of age)
3. Closed fractures (displaced and unstable).

The exclusion criteria were

- Patients with poor anesthetic risk
- Open fractures
- Displaced comminuted intraarticular fractures,
- Bilateral fractures
- Polytrauma patients
- Previous fracture in the same limb
- Preexisting impairment of function of the same

- Lost for follow up and mental or physical inability to cooperate.

Results

The prospective cohort study included 30 patients. Mean patient age was 35.6 years (range 21-50 years).

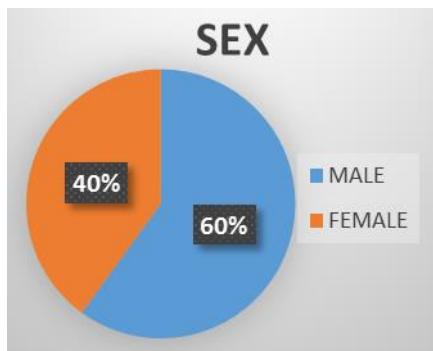


Fig 1: Gender Distribution

Mean procedure time for K-wiring was 15 minutes. 3 (1.5mm) K-wires were used with kapandji technique for fixation of distal end radius fractures. With the Kapandji leverage technique, anatomical or near-anatomical fracture reduction was achieved in all cases. Open reduction was not performed in any case. On immediate postoperative radiographs, there was no residual posterior angulation or translation.

All patients were immobilized in A/E Slab in full supination x 3 weeks. Physio with intermittent cock up splint x 1 week. Remove k wires under local after 4 wks and if done under axillary block then do manipulation of wrist joint. Start physio with cock up splint support for one month.

Mean follow-up was 6 months. All fractures healed. Cosmesis was excellent after cast removal. All patients achieved full wrist flexion and extension and forearm rotation. Mean time to achieve full wrist range of motion after immobilization was 3 weeks (range, 2-5 weeks). There was no loss of reduction or remanipulation. No cast- or K-wire-related complications were observed.

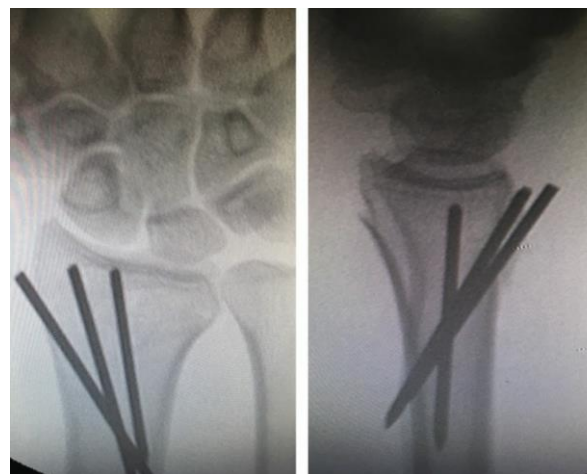


Fig 4: Postop X-ray Ap & Lateral View

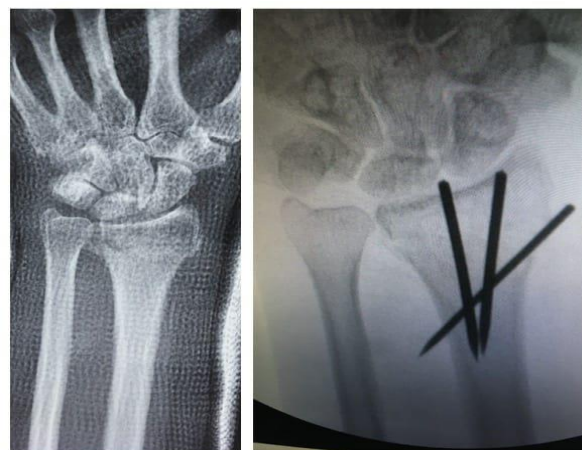


Fig 5: Preop & Postop X-ray Ap View

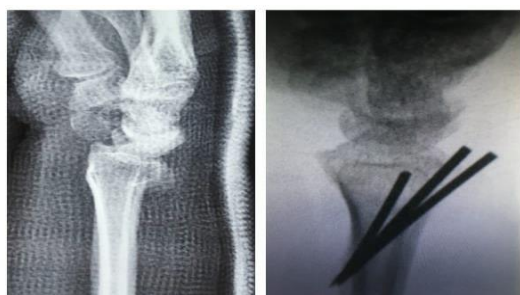


Fig 2: Preop & Postop X-ray Lateral View



Fig 3: Preop & Postop X-ray Lateral View

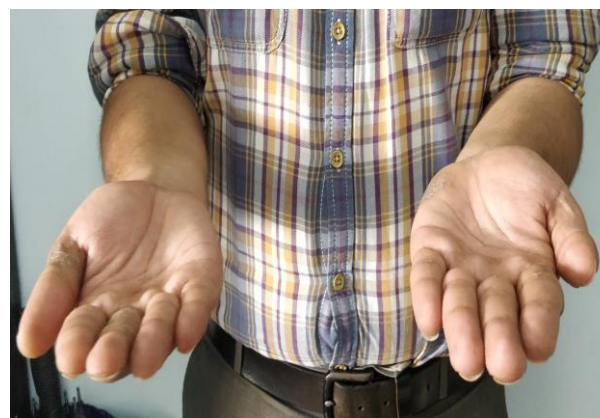


Fig 6: Postop 2 Months Showing Full Supination



Fig 7: Postop 2 Months Showing Full Pronation



Fig 8: Postop 2 Months Showing Full Dorsiflexion



Fig 9: Postop 2 Months Showing Full Palmar flexion

Conclusion

Kapandji technique is a simple, cheap and effective method for the treatment of unstable distal radius fractures, with good clinical and radiographic results.

Very easy procedure.

Very low implant and surgery cost.

No assistance required for traction.

Minimal scar with out need for more invasive procedure.

Effective technique in treatment of selected unstable dorsally displaced fracture.

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