

ORIGINAL ARTICLE

Functional Outcome of Plaster Splintage in the Management of Closed Extraarticular Fracture of Distal Radius

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ABSTRACT

Aim: To determine the outcome of extra-articular distal radius fracture treated with plaster splintage.

Methodology: This descriptive case series study was done in the Department of Orthopaedic Surgery, at Jinnah Hospital, Lahore from 01-08-2010 to 31-01-2011 which includes 50 patients who fulfill the inclusion criteria of age 40-80 years of either sex. After the approval of Hospital Ethical Committee, informed consent taken from every patient.

Results: The average age was 63.70±11.64 years. Seventeen (34%) patients were male and 33 (66%) patients were female. On visual analogue scale of pain, 23 (46%) patients had no pain and 27 (54%) patients had mild pain. Forty six percent patients shows excellent results and 54% patient shows good results.

Conclusion: Closed reduction and plaster splintage was used to assess the functional outcome in distal radius extraarticular fractures. Overall results were excellent in 64% cases and good in 54% cases in the distal radial extraarticular fractures treated with plaster splintage.

Keywords: Distal radius extraarticular fractures, Plaster splintage, Visual deformity, Pain and grip strength.

INTRODUCTION

A most common problem of fracture distal radius is consisting more than 16% of all fractures. The incidence of the distal radius fractures increases with age¹. Most of the time adequate management is required to maintain the reduction in displaced fractures^{2,3}. Distal radius fracture is most common type of fractures and casting is one of the modality of the treatment. If fracture does not displace in plaster within 2 weeks, close reduction and casting is an optimal treatment for distal radius fractures⁴. In most of the type 1, 2 and 3 fractures, close reduction and cast splintage may be the first option, as nonoperative treatment yields good results in these fractures.⁵ The results were excellent in 48% cases and good in 52% cases.⁶ Distal radius extraarticular fractures are mostly immobilized in palmar flexion and ulnar deviation in plaster splintage.⁷ Wrist range of motion and grip strength were measured in comparison to the unaffected side.⁸

MATERIAL AND METHODS

After approval from hospital ethical committee, all patients were admitted in the Department of Orthopaedic Surgery at Jinnah Hospital, Lahore through Out-patient and Accident Emergency Departments. Informed consent was taken from all patients. Demographic information was recorded. Procedure was done by a single orthopaedic surgeon. The plaster splintage of distal radius extraarticular fracture was done with manipulation after haematoma block in all patients qualifying the inclusion criteria.

RESULTS

The average age was 63.70±11.64 years. Out of 50, 4 (8%) patients were in age group <44 years in age group between 45-58 years. The male patients were 17 (34%) and 33 (66%) were female. The visual deformity of patients was 23 (46%) patients had no deformity and 27 (54%) patients had mild deformity. Twenty seven patients (54%) had grip strength between 85-99mmHg and 23 (46%) patients had grip strength of 100mmHg. There were 23 (46%) had excellent functional outcome and good functional outcome 27 (54%) patients.

Table 1: Age distribution of patients (n=50)

Age (years)	n	%age
<44	4	8.0
45-58	15	30.0
59-72	23	46.0
>72	8	16.0
Mean ±SD	63.70±11.64	

Table 2: Sex distribution of patients (n=50)

Gender	No.	%age
Male	17	34.0
Female	33	66.0

Table 3: Frequency of visual analogue scale

Visual analogue scale	No.	%age
No pain (0)	23	46.0
Mild pain		
1	10	20.0
2	9	18.0
3	8	16.0

Table 4: Frequency of pain on visual analogue scale

Pain on visual analogue scale	n	%age
Excellent	23	46.0
Good	27	54.0

Table 5: Frequency of visual deformity of patients

Visual deformity	No	%age
No deformity	23	46.0
Mild deformity	27	54.0

Table 6: Frequency of functional outcome of patients

Functional outcome	No	%age
Excellent	23	46.0
Good	27	54.0

DISCUSSION

Good functional results are directly related to the adequate anatomical reduction and maintaining of the reduction. Jenkins et al⁹ stress the importance of achieving and holding the correct dorsal angle and maintaining of radial length in determining the outcome of wrist range of motion and grip strength. A study carried out by Kilic⁸ mean age was 72±2 years. Another study done by Radwan¹⁰ the mean age was 48.68 years. A study presented by Armstrong¹¹ a bimodal age distribution has been documented for distal radial fractures; occur at ages 60-69 years. Kakarlapudi¹²

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reported most wrist fractures occur in older postmenopausal women with a female to male ratio of 4:1. We compared our results with the study done by Howard's et al¹³ in terms of functional outcome. They treated severely comminuted fractures of the distal radius in 50 patients comprising of two groups. Twenty five patients were treated by closed reduction and cast immobilization and 25 were treated by application of external fixator. The functional results were evaluated. Wrist function was evaluated at 6 months and 1 year using Solgaard's modification¹⁴. The functional outcome was easy to evaluate with simple instruments in this scoring system. Gripper was used to measure the grip, and a nomogram was used to classify the results. There is usually little difficulty in obtaining a good closed reduction in distal radius fractures, but holding the reduction is often troublesome¹⁵. The cast of below elbow is normally used to allow movement.¹⁶ In distal radius comminuted fractures 13 to 37% results were not satisfactory with conservative treatment¹⁷. Numerous authors have suggested various forms of fixation, but the results are not uniformly good and every technique has its own complications. Complications and technical difficulties like infection, soft tissue injury are common drawbacks. In our study of close reduction and cast immobilization of distal radius extraarticular fracture the functional outcome was assessed in terms of deformity, pain and grip strength.

CONCLUSION

It is concluded that:

1. It is easy to reduce extraarticular fracture of distal radius by close means and maintain reduction by plaster splintage.
2. Closed reduction and plaster splintage can be used to assess functional outcome in distal radius extraarticular fractures.
3. Overall results were excellent in 46% cases and good in 54% cases in the distal radial extraarticular fractures treated with close reduction and plaster splintage.

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