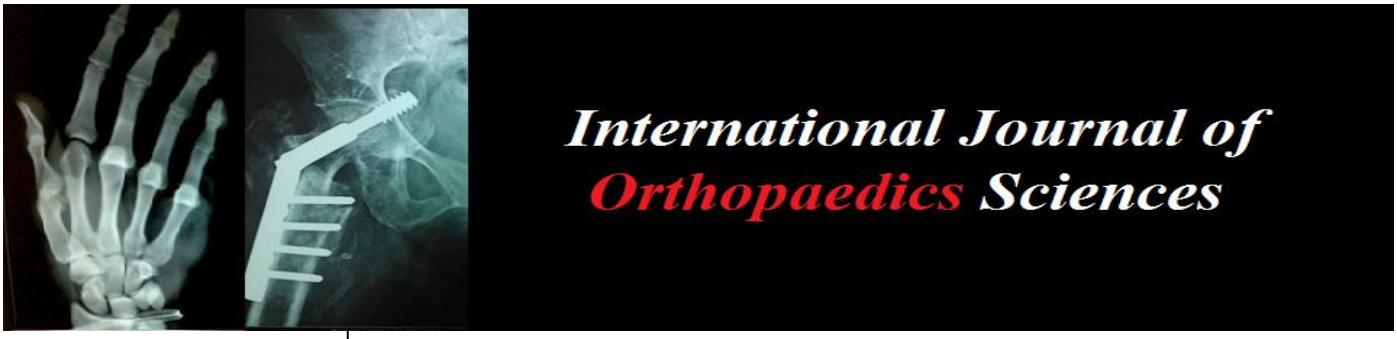

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Dr. S Selvakumar
MS Ortho., Assistant Professor, Department of Orthopaedics, Government Mohan Kumaramangalam Medical College, Salem, Tamil Nadu, India

Dr. L Kumar
MS Ortho., Assistant Professor, Department of Orthopaedics, Government Mohan Kumaramangalam Medical College, Salem, Tamil Nadu, India

Correspondence Author;
Dr. S Selvakumar
MS Ortho., Assistant Professor, Department of Orthopaedics, Government Mohan Kumaramangalam Medical College, Salem, Tamil Nadu, India

A prospective study of functional & radiological outcome of management of intra-articular distal radius fracture by plating

Dr. S Selvakumar and Dr. L Kumar

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Abstract
Aim: To analyze prospectively the functional & radiological outcome of management of intra-articular distal radius fracture by plating
Materials & Methods: About 30 adult patients with intra-articular distal radius fracture admitted to Government Mohan Kumaramangalam medical college hospital from May 2013 to February 2015 were included in this study. Post operatively patients were assessed using MAYO score.
Follow up: All patients had regular follow up every 4 weeks until union occurred after which patients had follow up every 3 months
Results: Low energy fractures in the elderly are linked to favourable functional outcomes, although there are several complicating factors. The morphological reduction of the distal radius articular surface and attaining good distal radio ulnar congruity with early mobilisation for early recovery are the important components of the treatment. According to the Mayo wrist score and other research, our study's 72% of VLCP patients had very good results.
Conclusion: We conclude from our study Following the foregoing debate, it has been determined that the use of a volar plate and screw system for fracture fixation is a preferable way to keep fracture fragments from collapsing, even in severely comminuted, unstable, and osteoporotic bones. Patients who have an unstable, dorsally or vertically misplaced The radiographic result of the intraarticular radius fracture was excellent to good, when used with a volar locking plate with a fixed angle. However, further research is required to confirm our findings over time.

Keywords: Volar plating, mayo score, modified henry's approach

1. Introduction

- Depending on factors such as age, transfer of energy, mechanism of injury and bone quality the distal end of the radius is subjected to different types of fractures, the wrist also can suffer substantial ligamentous injury causing instability to the carpus or distal radio-ulnar joint. These injuries are easily missed because the x-rays may look normal.
- The motivation is frequently the desire for distal radius anatomical restoration of distal radio-ulnar is shorter by more than 2 mm at the distal radio-ulnar joint, dorsal tilt of more than 10 degrees and dorsal translation of more than 30 per cent are likely to lead to a poor outcome and hence early correction should be Considered.
- The indications may vary according on the patient, their needs, the type of fracture, and other factors. It is crucial to take into account the variables that may predict fracture instability or functional outcome when planning treatment because the main objective of therapy is to restore maximum function to the hand and wrist.

Aim of the study

Functional & radiological outcome of management of intra-articular distal radius fracture by plating

Materials and Method

- Study Design: Prospective study
- Period Of Study: May 2013 to February 2015
- Sample Size: 30

Classification

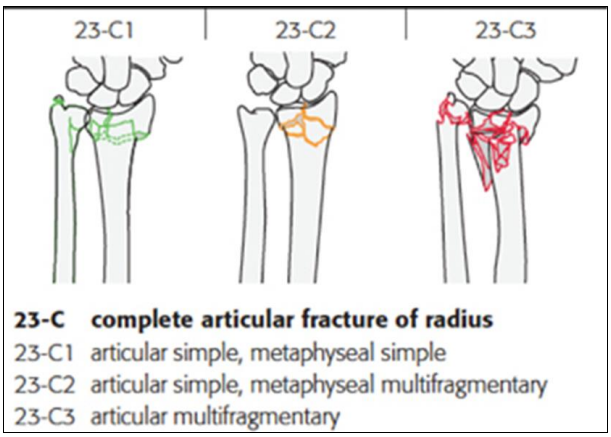

Fig 1: AO classification

Inclusion criteria

16 to 60years

- AO 'C' fractures
- Failure of conservative treatment
- Unacceptable reduction after at least one attempt at closed reduction

Exclusion criteria

- Skeletal immaturity
- Severe open or delayed fracture where ORIF is contraindicated
- Delay of >14 days after injury
- Isolated radial styloid
- Unwilling patients

Operative technique

- Anaesthesia – GA/RA
- Supine Position.

Palpate the styloid process of the radius. It is the most distal part of the lateral side of the radius. Then move in an ulna direction to palpate the tendon of flexor carpi radialis which is thick and immobile. The flexor carpi radialis muscle and tendon lie radial to the palmaris longus muscle at the level of the wrist and just to the ulnar side of the radial pulse.

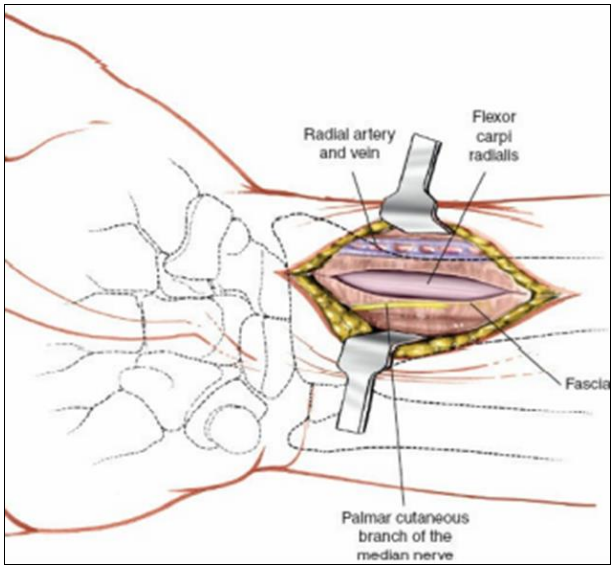

Fig 2: Modified Henry's Approach

Incise the deep fascia overlying the tendon of flexor carpi radialis, Identify the radial artery radially and the tendon of flexor carpi radialis ulnarly

In order to see the pronator, the flexor carpi radialis tendon is retraced ulnarly.

Fig 3: Intraoperative image

Along the line of the skin incision pronator quadratus is incised to reveal the volar aspect of the distal radius By manipulating k-wires, the fracture reduction done. It is possible to maintain reduction temporarily.

The suitable plate with Applying 3.5 cortical screws and 4mm cancellous screws. fluoroscope' examination of screw size to avoid problems later complications. Often sutured to encompass the distal end of the pronator quadratus plate to stop the tendon from being irritated.

The plate has two purposes:

The distal fragment buttressing and keeps the metaphyseal reduction in place.

Mayo wrist score

Category	Score	Findings
Pain (25 points)	25	No pain
	20	Mild pain with vigorous activities
	20	Pain only with weather changes
	15	Moderate pain with vigorous activities
	10	Mild pain with activities of daily living
	5	Moderate pain with activities of daily living
	0	Pain at rest
Satisfaction (25 points)	25	Very satisfied
	20	Moderately satisfied
	10	No satisfied, but working
	0	No satisfied, unable to work
Range of motion (25 points)	25	100% percentage of normal
	15	75% - 99% percentage of normal
	10	50% - 74% percentage of normal
	5	25% - 49% percentage of normal
	0	0% - 24% percentage of normal
Grip strength (25 points)	25	100% percentage of normal
	15	75% - 99% percentage of normal
	10	50% - 74% percentage of normal
	5	25% - 49% percentage of normal
	0	0% - 24% percentage of normal
Final result (total points)	90 - 100	Excellent
	80 - 89	Good
	65 - 79	Fair
	<65	Poor

Post-operative protocol

The mean follow-up was 9 months, with a range of 3 to 14 months. 20 patients received ongoing care.

UNION: There was good union among all the patients. There were 14 unions on average.
16 instances had healed by 12 weeks, with a range of 10 to 18 weeks.
The remaining 14 instances took longer to complete.

Table 1: Mayo functional score

Excellent	12
Good	7
Fair	8
Poor	3

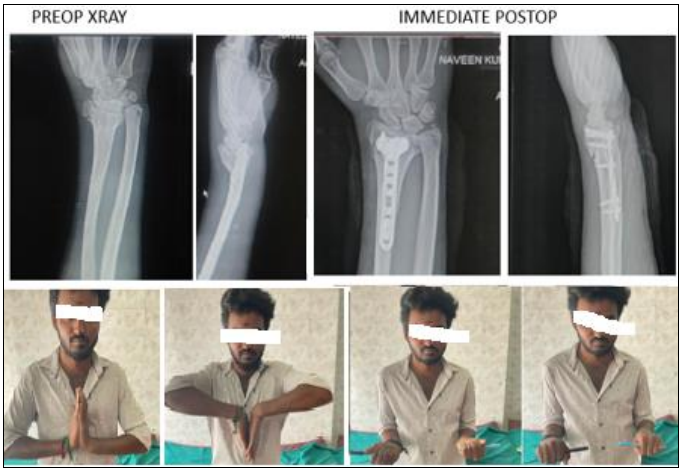

Fig 4: Case 1

Fig 5: Case 2

Discussion

Low energy fractures in the elderly are linked to favourable functional outcomes, although there are several complicating factors.
The morphological reduction of the distal radius articular surface and attaining good distal radio ulnar congruity with early mobilisation for early recovery are the important components of the treatment.
According to the Mayo wrist score and other research, our study's 72% of VLCP patients had very good results.

Comparision of functional evaluation				
	Very good (%)	**Good (%)**	**Satisfactory (%)**	**Bad (%)**
John K Bradway *et al*.	44	12	44	-
Jupiter *et al*.	63	20	17	-
Dennison *et al*.	80	20	-	-
Anakwe *et al*.	24	60	16	-
Our study with VLCP	50	26	23	1

Conclusion

We conclude from our study Following the foregoing debate, it has been determined that the use of a volar plate and screw system for fracture fixation is a preferable way to keep fracture fragments from collapsing, even in severely comminuted, unstable, and osteoporotic bones.
Patients who have an unstable, dorsally or vertically misplaced The radiographic result of the intraarticular radius fracture was excellent to good, when used with a volar locking plate with a fixed angle.
However, further research is required to confirm our findings over time.

Conflict of Interest

Not available

Financial Support

Not available

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