Journal of Advanced Zoology
ISSN: 0253-7214
Volume 45 Issue 1` Year 2024 Page 750:754

Case Series-Open Reduction Internal Fixation With Plating Of Distal Radius Fracture

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Article History

Received: 01/01/2024
Revised: 06/01/2024
Accepted:10/01/2024

Abstract

Distal radius fractures are a prevalent orthopedic challenge, often necessitating surgical intervention for optimal outcomes. This study focuses on the application of Open Reduction Internal Fixation (ORIF) in the management of these fractures, exploring the nuanced interplay between patient demographics, fracture characteristics, and postoperative recovery. Through a retrospective analysis of cases, we aim to provide insights into the efficacy of ORIF, elucidating the factors influencing surgical decision-making and the impact on functional outcomes. The study contributes valuable information to the orthopedic community, aiding in the refinement of treatment protocols for distal radius fractures.

Key words: Distal Radius Fracture,ORIF (Open Reduction Internal Fixation), Volar Plate, Comminuted Fracture,Intra-Articular Fracture, Malunion, Nonunion, Hardware Failure, Ulnar Styloid Fracture, Anatomical Alignment, Joint Congruity

Introduction:

Distal radius fractures account for a substantial proportion of orthopedic injuries, posing significant challenges in achieving both anatomical restoration and functional recovery. Among the myriad treatment options, Open Reduction Internal Fixation (ORIF) has emerged as a cornerstone in the surgical management of complex distal radius fractures. This study seeks to delve into the intricacies of ORIF, shedding light on its application, nuances, and the multifactorial considerations that guide orthopedic surgeons in the decision-making process.

The decision to pursue ORIF is influenced by various factors, including fracture displacement, instability, and patient-specific characteristics. Surgical intervention becomes imperative when conservative measures prove insufficient in maintaining adequate reduction or when functional impairment is pronounced. This study aims

to explore the rationale behind choosing ORIF, evaluating its efficacy in achieving anatomical alignment, and assessing the subsequent impact on patient functionality.
Through a retrospective analysis of cases treated with ORIF, we endeavor to delineate the correlation between patient demographics, fracture patterns, and postoperative outcomes. By dissecting the complexities inherent in these fractures, we aspire to contribute valuable insights that may inform future clinical decisions and enhance the overall management of distal radius fractures. This research not only addresses the technical aspects of ORIF but also emphasizes the importance of a patient-centered approach in optimizing recovery and restoring the functionality of the wrist and hand.
Inclusion and exclusion criteria play a crucial role in the selection of patients for Open Reduction Internal Fixation (ORIF) in cases of distal radius fractures. These criteria help ensure that the surgical intervention is appropriately indicated and that patients are likely to benefit from the procedure. Here are general inclusion and exclusion criteria:

Inclusion Criteria:
Displaced Fractures
Instability
Articular Involvement
Functional Considerations
No posterior soft tissue involvement.
Failure of Conservative Treatment
Open Fractures
Patient Age and Health

Exclusion Criteria:
Non-displaced Fractures
Minimal Symptomatic Fractures
Medical Comorbidities
Patient Refusal
Unstable Medical Conditions
Non-Compliance
Severe Soft Tissue Injury
Severe Osteoporosis

INVESTIGATIONS:

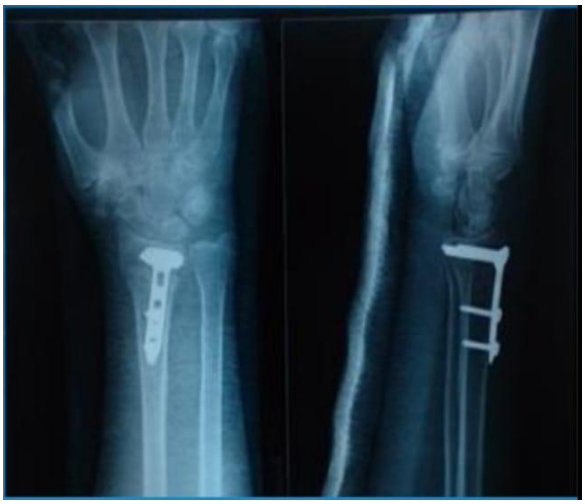
Antero posterior(A.P) and lateral Xrays of wrist joint were taken in all patients

MATERIALS AND METHODS:

7 cases of distal radius fracture were recovered

.Case presentation:
35-YEARS old male patient presented with pain over right wrist and difficulty in moving the wrist patient gives alleged history of slip and fall on outstretched hand. Patient was taken to hospital for further treatment .Xray right wrist was taken to diagnose any fracture due to the fall

Xray shows distal radius fracture


Post op Xray show distal locking plates

Surgical intervention

1. Patient Positioning:

Place the patient in a supine position on the operating table.

Administer appropriate anesthesia (general or regional) based on the patient's condition and surgeon's preference.

2. Preoperative Planning:
Review imaging studies (X-rays, CT scans) to understand the fracture pattern and plan the surgical approach.
Determine the need for additional procedures such as ulnar styloid fixation or ligament repair.

3. Sterile Preparation and Draping:
Thoroughly clean and prepare the surgical site.
Drape the limb in a sterile fashion, exposing the distal radius and surrounding areas.

4. Incision:
Make an incision based on the chosen surgical approach (volar, dorsal, or combined).
Considerations:
Volar Approach: Typically provides good exposure for fractures with volar displacement.
Dorsal Approach: Useful for dorsal or comminuted fractures.
Combined Approach: May be necessary for complex fractures.

5. Soft Tissue Dissection:
Carefully dissect through the soft tissues to expose the fractured site.
Protect neurovascular structures and maintain meticulous hemostasis.

6. Fracture Reduction:
Perform a gentle reduction of the fracture, correcting any angulation or displacement.
Utilize fluoroscopy to verify and confirm proper alignment.
7. Fixation:
Choose appropriate fixation devices:
Plates: Anatomically contoured volar or dorsal plates.
Screws: Variable-angle or fixed-angle screws for stable fixation.
Kirschner Wires: Temporary fixation or for specific fracture patterns.
Place fixation devices to secure the fracture fragments in the desired alignment.
8. Bone Grafting (if necessary):
If dealing with comminuted fractures or bone defects, consider bone grafting for additional support.
9. Soft Tissue Repair:
Address any associated soft tissue injuries.
Ensure proper closure of incisions in anatomical layers.
10. Postoperative Imaging:
Confirm the placement of hardware and the achieved fracture reduction using fluoroscopy.
11. Immobilization:
Immobilize the wrist in a splint or cast to protect the surgical site during the initial healing phase.

RESULTS:

Anatomical Restoration:
Successful ORIF aims to restore the normal anatomy of the distal radius, ensuring proper alignment and joint congruity.

Fracture Healing:
Properly performed ORIF facilitates bone healing, reducing the risk of nonunion or delayed union.

Improved Function:
Patients often experience improved wrist function, range of motion, and grip strength compared to preoperative levels.

Pain Reduction:
Relief from preoperative pain is a common positive outcome, contributing to better overall quality of life.

Early Mobilization:
ORIF with stable fixation allows for early mobilization and rehabilitation, minimizing stiffness and promoting faster recovery.

Reduced Complications:
A well-executed procedure can minimize the risk of complications such as malunion, hardware failure or infection.

Acknowledgement: We thank the participant who was consented to be part of this case report. We would like to thank our clinical laboratory, radiology & pathology team of Sree Balaji medical college and Hospital, for their contributions towards diagnosis & management.

Author contributions: Dr P.Thiagarajan contributed towards treatment protocol and follow up. Dr Manish Khadke contributed in preparing the case series and collecting clinical and radiological images. Dr Ranjith M G contributed towards editing, drifting case report.

Informed consent: Written and oral informed consent were obtained from the participant in the study.

Ethical committee approval: Proper ethical committee approval was taken for the study.

Funding source: None

Conflict of interest: Conflict of interest declared none.

REFERENCES:

1. Wong KK, Chan KW, Kwok TK, Mak KH. Volar fixation of dorsally displaced distal radial fracture using locking compression plate. *Journal of Orthopaedic Surgery.* 2005;13(2):153–57.
2. Arora R, Lutz M, Deml C, Krappinger D, Haug L, Gabl M. A prospective randomized trial comparing nonoperative treatment with volar locking plate fixation for displaced and unstable distal radial fractures in patients sixty-five years of age and older. *J Bone Joint Surg Am.* 2011;93(23):2146–53.]
3. Swan K Jr, Capo JT, Tan V. Distal radius plating options. *Curr Opin Orthop.* 2003;14:238–44.
4. Orbay LJ, Fernandez LD. Volar fixation for dorsally displaced fractures of the distal radius: a preliminary report. *The Journal of Hand Surgery.* 2002;27A(2):205–15.
5. Hengg C, Nijs S, Klopfer T, Jaeger M, Platz A, Pohlemann T, et al. Cement augmentation of the proximal humerus internal locking system in elderly patients: a multicenter randomized controlled trial. *Archives of Orthopaedic and Trauma Surgery* 2019;139(7):927-42.