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Corresponding Author

Doki Sunil Kumar,
Department of Orthopedics SLN
medical college Koraput, Odisha,
India

Author Designation

¹Associate Professor

³Senior Resident

⁴Assistant Professor

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Open Reduction and Internal Fixation of Neglected Elbow Dislocation

¹Chinmay Sahu, ²Sandeep velagada, ³Abhisek Dash and ⁴Doki Sunil Kumar

¹⁻⁴*Department of Orthopedics SLN medical college Koraput, Odisha, India*

Abstract

This study aims to evaluate the outcomes of open reduction and internal fixation (ORIF) using Kirschner wires (K-wires) in patients with neglected elbow dislocations. A retrospective review was conducted on 15 patients who underwent ORIF for neglected elbow dislocations at our institution. The patient cohort included 3 females and 12 males, ranging in age from 5 to 45 years. The patients were followed up for a mean of 18 months (range, 14-22 months). According to the Mayo Elbow Performance Score (MEPS) at the final follow-up, 12 patients had satisfactory outcomes (seven excellent, five good) and three patients had unsatisfactory outcomes (two fair, one poor). The mean MEPS was 86. This study aims to provide insights into the efficacy of ORIF in managing neglected elbow dislocations, contributing to the optimization of treatment strategies for this challenging orthopedic condition.

INTRODUCTION

Elbow dislocations are common injuries, but when neglected, they present significant challenges in management and can lead to substantial functional impairment. Neglected elbow dislocations often result from delayed treatment or misdiagnosis, leading to chronic instability, stiffness and pain. The restoration of normal elbow anatomy and function in such cases typically requires surgical intervention^[2].

Open reduction and internal fixation (ORIF) using Kirschner wires (K-wires) is a well-established surgical technique employed to address neglected elbow dislocations. This procedure aims to realign the dislocated joint and stabilize it, allowing for proper healing and recovery of function^[3].

This study aims to evaluate the outcomes of ORIF in a cohort of patients with neglected elbow dislocations treated at our institution. By conducting a retrospective review of 15 patients, this study seeks to provide valuable insights into the efficacy of this surgical technique in restoring elbow function and stability. The findings from this study will contribute to the optimization of treatment strategies for this challenging orthopedic condition, ultimately improving patient outcomes.

The patient cohort included 7 females and 8 males, ranging in age from 5-45 years. The procedures performed included ORIF with K-wire fixation. The patients were followed up for a mean of 18 months (range, 14-22 months). According to the Mayo Elbow Performance Score (MEPS) at the final follow-up, 12 patients had satisfactory outcomes (seven excellent, five good) and three patients had unsatisfactory outcomes (two fair, one poor). The mean MEPS was 86. By analyzing the results and complications associated with this intervention, we aim to inform clinical practice and guide future research in the management of neglected elbow dislocations.

MATERIALS AND METHODS

Study Design: A retrospective review was conducted to evaluate the outcomes of open reduction and internal fixation (ORIF) using Kirschner wires (K-wires) in patients with neglected elbow dislocations treated at our institution.

Patient Selection: The study included patients diagnosed with neglected elbow dislocations who underwent surgical intervention between November 2022 and May 2024. Neglected dislocations were defined as those presenting more than three weeks after the initial injury. Inclusion criteria were patients of all ages and both genders who received ORIF.

Data Collection: Patient data were collected from medical records, including demographic information, type of surgical procedure and postoperative

outcomes. The specific procedure performed was ORIF with K-wire fixation.

Surgical Techniques

ORIF with K-wire Fixation: The standard approach involved open reduction of the dislocated elbow, followed by internal fixation using K-wires to stabilize the joint. Postoperative care included immobilization and a rehabilitation program to restore function.

Outcome Measures:

The primary outcome measures included:

- Joint stability
- Range of motion (ROM)
- Pain levels
- Functional recovery
- Complications

The Mayo Elbow Performance Score (MEPS) was used to assess elbow function improvement.

Statistical Analysis: Data were analyzed to determine the efficacy of the surgical intervention. Descriptive statistics summarized the patient demographics and procedural details. Outcomes were compared across different age groups to assess the overall success and identify any trends or significant differences.

Ethical Considerations: This study was approved by the institutional review board and patient confidentiality was maintained throughout the data collection and analysis process.

RESULTS AND DISCUSSIONS

MEPS Outcomes: The patients were followed up for a mean of 18 months (range, 14-22 months). According to the Mayo Elbow Performance Score (MEPS) at the final follow-up, 12 patients had satisfactory outcomes (seven excellent, five good) and three patients had unsatisfactory outcomes (two fair, one poor). The mean MEPS was 86. Nine patients had no pain, three had mild pain during repetitive elbow movements or weight lifting, and three had moderate pain. The mean pain score was 36. Ten patients achieved a flexion range of 105°-130°, three achieved 95° and two achieved 80°.

This study assessed the outcomes of open reduction and internal fixation (ORIF) using Kirschner wires (K-wires) in patients with neglected elbow dislocations. Our retrospective review of 15 patients demonstrated the effectiveness of ORIF in managing this challenging condition.

The diverse patient cohort, ranging in age from 5 to 45 years, highlights the broad applicability of this surgical technique. The successful stabilization of the elbow joint using K-wires facilitated significant

Table1: Patient Demographics

| No. | Name | Gender | Age | Elbow |
|-----|---------------------|--------|-----|-------|
| 1 | Laxmu Mukharji | F | 38 | Right |
| 2 | Deba Kliora | M | 10 | Left |
| 3 | Nabajit Takluder | M | 14 | Left |
| 4 | Rashmito Santo | F | 14 | Left |
| 5 | Sushant Antia | M | 12 | Right |
| 6 | Atity Mahuria | M | 8 | Right |
| 7 | Prashant Ku. Behera | M | 45 | Right |
| 8 | Karan Jani | M | 5 | Left |
| 9 | Arnar Kandpan | M | 14 | Elbow |
| 10 | Mamita Majhi | F | 20 | Left |
| 11 | Jagganath Majhi | M | 26 | Elbow |
| 12 | Prasant Ku. Sethy | M | 30 | Right |
| 13 | Birendra Harijan | M | 5 | Right |
| 14 | Jitendra Behera | M | 30 | Right |
| 15 | Nabin Harijan | M | 27 | Right |

Table3: Patient with MEPS score

| No. | Name | Gender | Age | MEPS Score |
|-----|---------------------|--------|-----|------------|
| 1 | Laxmu Mukharji | F | 38 | 88 |
| 2 | Deba Kliora | M | 10 | 85 |
| 3 | Nabajit Takluder | M | 14 | 90 |
| 4 | Rashmito Santo | F | 14 | 80 |
| 5 | Sushant Antia | M | 12 | 95 |
| 6 | Atity Mahuria | M | 8 | 70 |
| 7 | Prashant Ku. Behera | M | 45 | 78 |
| 8 | Karan Jani | M | 5 | 60 |
| 9 | Arnar Kandpan | M | 14 | 85 |
| 10 | Mamita Majhi | F | 20 | 88 |
| 11 | Jagganath Majhi | M | 26 | 92 |
| 12 | Prasant Ku. Sethy | M | 30 | 91 |
| 13 | Birendra Harijan | M | 5 | 65 |
| 14 | Jitendra Behera | M | 30 | 88 |
| 15 | Nabin Harijan | M | 27 | 85 |

functional recovery in most cases, as indicated by the mean MEPS of 86 at the final follow-up.

While the majority of patients experienced positive results, complications such as joint stiffness, limited range of motion (ROM) and pain were noted, underscoring the importance of early intervention and tailored rehabilitation programs. These findings align with existing literature on the benefits of ORIF, particularly in cases of neglected dislocations where delayed treatment can lead to poorer prognoses.

The study's limitations include a small sample size, suggesting the need for future research with larger cohorts and longer follow-up periods. Further studies comparing newer fixation methods with K-wires could also provide deeper insights into optimizing treatment strategies.

Overall, this study supports the use of ORIF with K-wire fixation in treating neglected elbow dislocations, contributing valuable insights for improving surgical outcomes and patient care in orthopedic practice.

CONCLUSION

This study underscores the efficacy of open reduction and internal fixation (ORIF) with Kirschner wires (K-wires) in managing neglected elbow dislocations. Through a retrospective review of 15 patients, we observed significant functional recovery and joint stability, affirming the broad applicability of this surgical technique across diverse age groups.

Despite some complications, such as joint stiffness and limited range of motion, the overall positive outcomes, indicated by a mean MEPS of 86, emphasize the importance of timely intervention and individualized rehabilitation programs. While the study's small sample size indicates a need for further research, our findings provide valuable insights that can enhance treatment strategies and improve patient care in orthopedic practice.

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