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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/20692
DOI URL: <http://dx.doi.org/10.21474/IJAR01/20692>



RESEARCH ARTICLE

SPEED TECHNIQUE USING V-Y TRICEPS PLASTY FOR OLD UNREDUCED CHRONIC ELBOW DISLOCATION - A CASE REPORT AND REVIEW OF LITERATURE

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Manuscript Info

Manuscript History

Received: 25 January 2025

Final Accepted: 28 February 2025

Published: March 2025

Key words:-

Chronic Elbow Dislocation, Speed Approach, Open Reduction, Case Report

Abstract

Introduction: Chronic elbow dislocations are often associated with joint instability, persistent pain, and significant limitations in elbow function. In many developing countries, such injuries frequently go untreated or are improperly managed, often due to patients initially seeking care from traditional bonesetters. This delay in appropriate treatment commonly exacerbates the condition, leading to increased stiffness and soft tissue contractures.

Presentation of case: A 33-year-old female who presented with a posterior elbow dislocation that had remained unreduced for over one month following an injury to her right elbow. Prior to admission, she had received treatment from a traditional bonesetter. Upon evaluation, she was managed surgically with open reduction, triceps V-Y lengthening, and internal fixation using a transarticular K-wire. Postoperatively, her elbow was immobilized with a slab for three weeks.

Discussion: To achieve optimal outcomes in chronic elbow dislocations, several surgical approaches have been proposed. One such technique is triceps V-Y lengthening, which facilitates joint reduction, particularly in cases with significant chronicity. However, this method may be associated with certain drawbacks, including potential triceps weakness, delayed initiation of physiotherapy, and increased postoperative discomfort. Despite these challenges, our findings support that open reduction remains a valid treatment approach in patients of all ages and irrespective of the injury's duration, provided that consistent follow-up and rehabilitation are ensured.

Conclusion: Surgical management of neglected elbow dislocations effectively restores function, relieves pain, and ensures stability. Open reduction with soft tissue procedures offers a reliable option for delayed cases.

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Introduction:-

Chronic elbow dislocations continue to be a frequent issue in developing regions, with studies reporting around 15 cases over a span of two years [1]. Typically, patients first seek care from local bonesetters, who perform traditional massages and manipulations [2,3]. When an elbow dislocation remains unreduced beyond three weeks, it is

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classified as a neglected elbow dislocation [1,2]. Delayed medical intervention often occurs because bonesetters tend to immobilize the elbow in an extended position, which contributes to triceps muscle tightening and contracture of the collateral ligaments, ultimately resulting in a stiff, non-functional elbow [4].

A range of surgical options has been proposed for such cases, including closed or open reduction, internal fixation with Kirschner wires (K-wires), triceps lengthening with release of collateral ligaments, use of a hinged external fixator, excisional arthroplasty, arthrodesis, and total elbow arthroplasty [5].

In our case, we managed a patient presenting with a chronic unreduced elbow dislocation through open reduction. The procedure involved removal of interposed fibrous tissue between the distal humerus and ulna, medial and lateral soft tissue release, radiocapitellar joint and ulnohumeral joint reduction, fixation with K-wires, triceps lengthening via Speed V–Y plasty, and anterior transposition of the ulnar nerve.

Case Presentation

We present rare case of chronic, unreduced elbow dislocation. These patients had no significant preoperative interventions or associated comorbidities. The cases was managed at a tertiary care center—Kurnool Medical College, Andhra Pradesh. The case are reported in accordance with the PROCESS 2020 guidelines [6].

Case 1

A 33-year-old female presented to the emergency department with complaints of pain and stiffness in her right elbow, following a fall one month prior. The injury occurred due to a fall on an outstretched hand while in the bathroom.

Immediately post-injury, she sought treatment from a traditional bonesetter, where her elbow was immobilized using native bandages for approximately one month. Despite this, her symptoms persisted, prompting her to seek medical attention at our institution.

Clinical Examination:

On examination, there was visible deformity and tenderness over the right elbow joint. The three-point bony relationship—between the olecranon, medial epicondyle, and lateral epicondyle—was disrupted (Figure 1). The patient had a 10° flexion deformity with a further flexion range up to 45°. Supination and pronation were both restricted to 20°. Neurovascular examination revealed no deficits.



Fig.1:- Preoperative clinical picture.

Radiological Findings:

X-ray imaging demonstrated a posterolateral dislocation of the right elbow. The distal humerus appeared anteriorly displaced, and the olecranon was prominent posteriorly. Additionally, there was lateral displacement of the proximal radioulnar joint (Figure 2). A CT scan confirmed the dislocation and ruled out any associated fractures or intra-articular injuries



Fig. 2:- The preoperative X- ray of the dislocation of the right elbow. The distal humerus was prominent anteriorly, the olecranon and radial head was prominent posterolaterally.

SpeedSurgical Technique using triceps v-y plasty:

The surgery was conducted by a consultant orthopedic surgeon at a tertiary referral center. Informed consent was obtained prior to the procedure. A modified posterior approach was utilized, specifically adapted for chronic, unreduced elbow dislocation. Under general anesthesia, the patient was positioned in the lateral decubitus position with the affected limb supported to allow full elbow flexion. A longitudinal posterior skin incision was made, followed by subcutaneous dissection and retraction to expose the aponeurosis of the triceps on the posterior aspect of the elbow. The ulnar nerve was identified, carefully released, and mobilized for anterior transposition at the conclusion of the procedure. Starting proximally, sharp dissection was used to reflect the triceps aponeurosis distally, creating a flap attached to the olecranon. A midline incision through the triceps was extended distally toward the olecranon. Subperiosteal dissection was carried out to free all muscular attachments from the distal humerus both anteriorly and posteriorly. Complete exposure of the distal humerus allowed visualization of the radial head and trochlear notch of the ulna. Dense fibrous tissue was noted within the olecranon fossa, coronoid fossa, and trochlear groove. Additionally, the collateral ligaments were contracted, and the joint capsule was significantly thickened. Callus and fibrous tissue were excised from the posterior surface of the humerus and olecranon fossa. The capsule was released from the distal humerus, and thorough arthrolysis was performed to clear the joint spaces. Joint reduction was achieved gradually and with care, avoiding forceful movements to prevent cartilage injury. As the triceps and contracted ligaments were progressively released, successful reduction was obtained in case. Due to the extensive circumferential capsular release, post-reduction elbow instability was observed in patients. However, care was taken to preserve the medial and lateral collateral ligaments as much as possible. The elbow was stabilized at 90° of flexion using a transarticular Kirschner wire inserted from the olecranon into the distal humerus. The periosteum and triceps were sutured over the posterior surface of the humerus, and the fascia was closed over the radial head. The aponeurotic flap of the triceps was reattached in its anatomical position. Triceps lengthening was accomplished using a Speed V-Y plasty technique. A posterior above-elbow plaster of Paris slab was applied for postoperative immobilization (Figure 3).

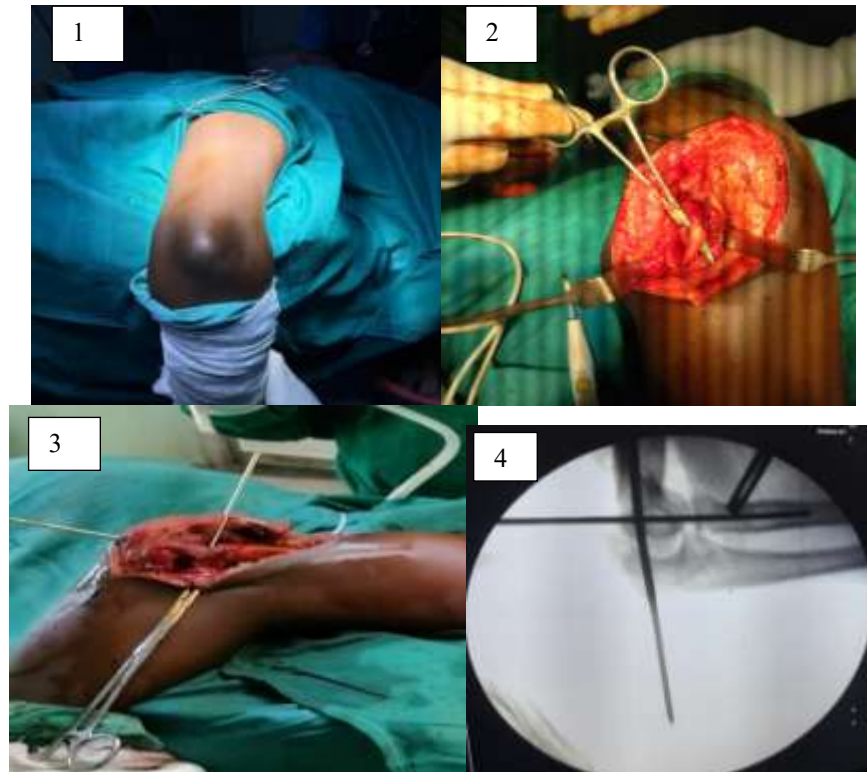


Fig.3:- Intraoperative findings. 1. The patient was positioned laterally with the affected limb supported at the arm so as to allow full elbow flexion.2. Operative picture of the distal humerus with fibrous tissue in the olecranon fossa and Ulnar nerve isolated and protected. 3. After resection of fibrous tissue, radiocapitellar and ulnotrochlear reduction was achieved by manipulation. 4. Postoperative C-arm imaging showed the elbow stabilized in 90 degrees of flexion, with a transarticular K-wire inserted from the olecranon into the distal humerus, and another K-wire inserted across the radiocapitellar joint."

Postoperative Care and Functional Outcomes

Approximately two weeks following surgery, the fixation pins were removed. Patients were instructed to remove their splint multiple times daily to perform gentle active range of motion exercises. Once a satisfactory level of strong active movement was achieved, daytime use of the splint was discontinued; however, nighttime use was advised for an additional 2 to 3 months. Patient follow-up outcomes are detailed in Table 1. At the final follow-up conducted six weeks postoperatively, the mean Mayo Elbow Performance Index score was 75, indicating a generally good functional outcome. While patients did not report any pain at rest, mild discomfort was noted during activities involving weightlifting. No signs of joint instability were detected during the final assessments. The Visual Analog Scale (VAS) score postoperatively was 0, and the Disabilities of the Arm, Shoulder and Hand (DASH) score averaged 29.2. The mean elbow flexion arc ranged between 100° and 120°, allowing patients to perform most daily activities effectively. Notably, no complications obtained in these case.

Table 1:- Summary of final outcome and follow-up data of the patient.

variable	Case
Age	33
Sex	Female
Mode of injury	Fall
Associated fracture	No
Duration of dislocation	One month
Pre- op ROM	10°- 45°
Post- op ROM	15°- 120°
DASH pre- op	63.9
DASH post- op	20.2

VAS pre- op	2/10
VAS post- op	0/10
Mayo elbow performance score pre- op	45
Mayo elbow performance score post- op (6 weeks post- op)	80
Grade result	Good
Complications	None

Discussion:-

In developing countries, neglected posterior dislocations of the elbow are relatively common. This is often attributed to limited healthcare access, lack of awareness, and delayed referrals. Kachnerkar et al. reported 15 such cases over a two-year span in rural regions, where patients typically present weeks to months after the initial trauma due to illiteracy and delayed diagnosis [7–9]. These patients are frequently mismanaged before reaching specialized care centers. Most injuries result from a fall onto an outstretched hand, with the elbow partially extended and the forearm in pronation—a position that naturally dissipates impact forces [10,11].

Effective treatment requires attention not only to joint alignment but also to associated soft tissue contractures and adaptations. The primary goals of surgical intervention in chronic simple elbow dislocations are to achieve stable, concentric joint reduction, restore a functional range of motion (ROM), and maintain joint stability. With advancements in surgical techniques, there has been a trend toward more proactive operative management in these cases [8].

Diagnosis is based on detailed history, clinical evaluation of stiffness and ROM, and radiographic assessment (coronal and sagittal imaging). Open reduction remains the standard treatment for such cases [1–3,12], often yielding improved postoperative ROM within 4 to 6 weeks compared to preoperative status [4,5,7].

The duration since injury and patient age significantly influence the choice of treatment. Some authors suggest that open reduction is most beneficial within three months of injury [8]. Beyond this period, earlier studies reported suboptimal outcomes and recommended either conservative management or elbow arthroplasty for chronic cases [12]. For instance, Naidoo found that only 39% (9 of 23 patients) achieved a functional ROM ($\geq 100^\circ$) when treated surgically more than three months post-injury (range: 4 months to 4.5 years) [13]. In our case series, patients with dislocations of approximately one month duration demonstrated favorable results, with a mean Mayo Elbow Performance Score of 75, signifying “good” outcomes.

Various surgical strategies have been described for managing long-standing dislocations. One such method is the posterior approach combined with triceps V–Y plasty, as described by Speed. This technique facilitates reduction, particularly in chronic cases, by lengthening the triceps. However, potential drawbacks include postoperative triceps weakness, delayed rehabilitation, and increased pain [8,14,15].

In our observations, patient with dislocation older than one month still achieved a functional ROM. Nevertheless, a key limitation of our study was the small sample size, indicating the need for further research with a larger cohort to validate these findings.

Conclusion:-

Based on the findings of our study, open reduction continues to be a viable treatment option for patients with chronic elbow dislocation, regardless of age or duration of injury. Favorable clinical outcomes can be achieved when consistent follow-up and a structured rehabilitation protocol are implemented. However, to minimize potential bias and enhance the reliability of outcomes, further cohort studies with larger sample sizes and more homogenous patient populations are warranted.

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