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Surgical Management of Neglected Posterior Elbow Dislocation: A Case Report and Literature Review

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Abstract **Case Report**

Neglected elbow dislocations represent a challenging surgical issue, commonly leading to significant functional problems. We present the case of a 26-year-old male patient with a neglected posterior elbow dislocation resulting from polytrauma three years prior. Clinical examination revealed severe joint stiffness with compromised elbow function. Surgical intervention included open reduction, excision of heterotopic ossifications, ligament and capsular releases, and radial head resection. Postoperative outcomes showed marked improvement in elbow mobility and functional capacity. This case highlights the necessity of early detection and surgical management, showing the complexity and adapted approaches required for these rare cases.

Keywords: Neglected dislocation, elbow stiffness, open reduction, radial head resection, heterotopic ossification.

INTRODUCTION

Elbow dislocation is a frequently encountered orthopedic injury, predominantly occurring in young, active individuals involved in high-impact activities or accidents. While acute elbow dislocations are often straightforward to manage, neglected cases -defined as dislocations left untreated for more than three weeks- can lead to substantial functional problems and severe joint deformities. The reasons for neglect are often multifactorial, including missed initial diagnoses, inadequate initial treatments, or resource constraints in healthcare systems. Chronic elbow dislocations typically result in persistent joint stiffness, deformities, and significant limitations in daily activities, presenting considerable therapeutic challenges. Meticulous clinical assessment, radiological evaluation, and adapted surgical planning are crucial for managing these complex injuries to have better functional outcomes.

CASE REPORT

A 26-year-old male, right-handed mechanic residing in Marrakech, presented with painless stiffness of the left elbow, three years following a polytrauma sustained in a traffic accident, which initially resulted in a 10-day coma.

Clinical evaluation revealed elbow deformity with loss of anatomical landmarks (Nelaton triangle), flexion limited to 90°, and extension deficit of -20°, accompanied by pain on forced mobilization with a Visual Analogue Score (VAS) of 3/10. On the functional level, The patient was unable to bring his hand to his mouth (Figure 1). The Mayo Clinic Elbow Performance Score (MEPS) was 60 (Table 1) [1]. Radiographs confirmed a neglected posterior elbow dislocation (Figure 2).

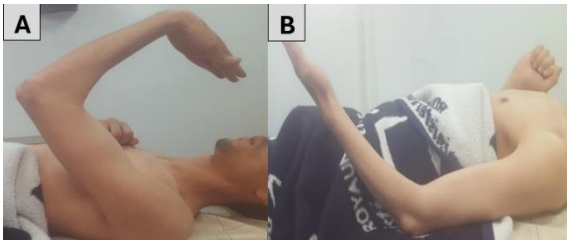

Figure 1: Preoperative image showing the patient's elbow range of motion

Table 1: Mayo Clinique Elbow Performance Score [1]

Function	Point Score
Pain (45 points)	
None	45
Mild	30
Moderate	15
Severe	0
Motion (20 points)	
Arc > 100 degrees	20
Arc 50 to 100 degrees	15
Arc < 50 degrees	5
Stability (10 points)	
Stable	10
Moderate intability	5
Gross instability	0
Daily function (25 points)	
Combing hair	5
Feeding oneself	5
Hygiene	5
Putting on shirt	5
Putting on shoes	5
Maximum possible total	**100**

The preoperative radiographs confirmed a neglected posterior elbow dislocation.

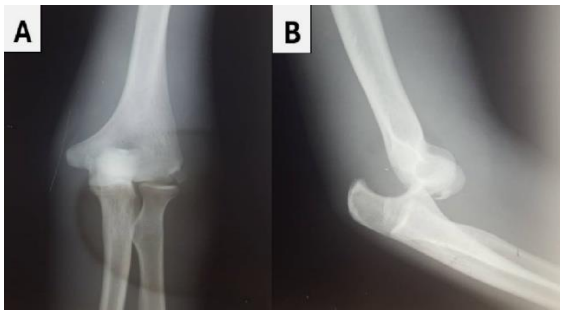

Figure 2: Preoperative anteroposterior (A) and lateral (B) radiographs showing the elbow dislocation

Operative report:

The patient was placed under general anesthesia in the suppine position. The left upper limb was positioned on a lateral arm table with a pneumatic tourniquet.

First step:

A medial approach of the elbow was performed. Ulnar nerve neurolysis was carried out and the nerve was put on a loop. The olecranon fossa was consistently filled with fibrotic tissue and heterotopic ossifications (Figure3). The collateral ligaments were retracted. Excision of the joint capsule was performed, along with resection of bony impingements. The elbow dislocation was then reduced.

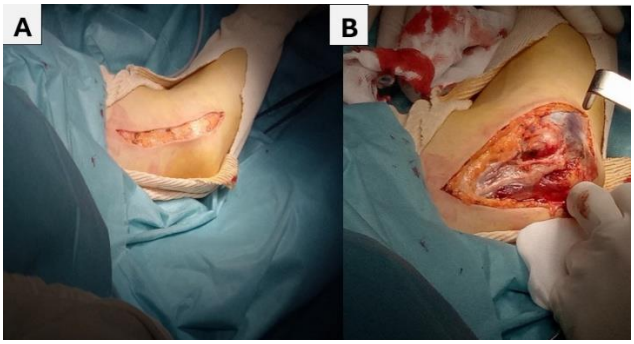

Figure 3: Peroperative images showing the medial approach of the elbow (A) and dissection of the ulnar nerve (B)

Second step:

A lateral approach of the elbow was done. Exploration revealed hypertrophy of the radial head, which justified a radial head resection (Figure 4).

Figure 4: Peroperative image showing a hypertrophic radial head

Post-resection elbow mobilization showed 120° of flexion and a 10° extension deficit (Figure 5). Closure was performed over a suction drain. The limb was immobilized with a posterior brachio-antebrachio-palmar (BABP) splint.

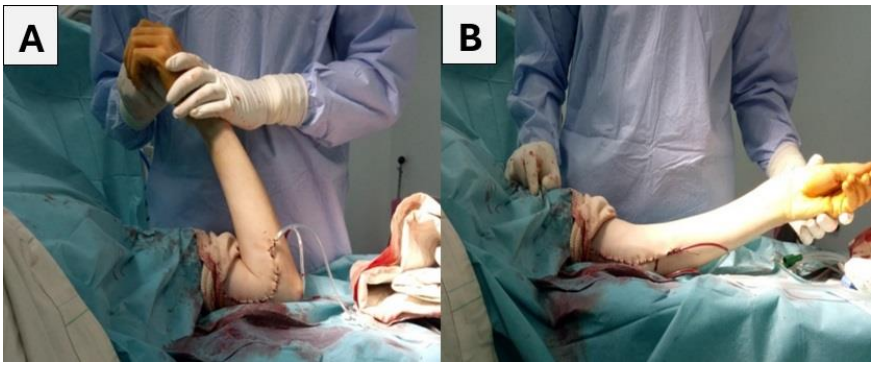

Figure 5: Peroperative images showing flexion (A) and extension (B) degree after surgery

DISCUSSION

The concept of "functional stiffness" was introduced by Martini et al., who defined it as the ability to achieve elbow flexion between 80 and 90 degrees. In such cases, surgical intervention is often discouraged, as functional adaptation through compensatory movements of the shoulder and wrist is usually sufficient for basic activities of daily living. In contrast, in non-functional stiffness—where flexion remains below 80 degrees despite adaptive mechanisms—most authors agree that surgery is justified and often necessary [2].

In our experience, the timing of surgical intervention plays a critical role. Procedures performed within the first six months following dislocation are technically more straightforward, primarily due to limited soft tissue contracture, particularly of the ligaments and the triceps. This observation is consistent with the findings of Coulibaly *et al*., who demonstrated that early intervention minimizes operative complexity and postoperative stiffness [3].

Various surgical approaches have been described for open reduction in chronic elbow dislocations, with the posterior and lateral approaches being the most frequently utilized [4]. The posterior trans-tricipital approach offers a wide and direct exposure of the joint, and allows for lengthening of the triceps tendon via a V-Y plasty, which facilitates reduction. However, this technique may compromise postoperative triceps strength, which is a relevant consideration in young or active patients [2].

On the other hand, the lateral approach, as advocated by Krishnamoorthy et al. [5], provides excellent visualization of the humeroradial joint and anterior structures, particularly the coronoid fossa. Nonetheless, it does not allow access to the ulnar nerve or the postero-medial capsule, often necessitating an additional medial incision, which increases the risk of complications and scarring.

In cases of extensive joint surface damage or when open reduction fails—either immediately or over

time—resection arthroplasty of the distal humerus has been suggested as a salvage procedure. Although it results in loss of elbow stability, it preserves a degree of mobility and is often preferred over arthrodesis, which sacrifices all joint movement [6].

Jupiter [7] introduced the use of an articulated external fixator in these complex cases, enabling early mobilization and yielding promising functional outcomes. Early controlled motion appears to play a decisive role in preventing recurrent stiffness and improving long-term function.

Functional assessment tools, such as the Mayo Clinic Elbow Performance Score, are commonly used to evaluate surgical results. However, Coulibaly et al. [3] have raised concerns about the score's validity in neglected dislocations. In their view, the scoring system overemphasizes pain relief—allocating up to 45 points to this parameter—even though pain is often mild or absent in chronic dislocations. As a result, patients may receive a "good" or "fair" score despite having poor overall function.

The most common complications associated with the surgical treatment of neglected elbow dislocation include ulnar nerve palsy or paresis and postoperative infections. Fortunately, ulnar nerve involvement is typically transient, with recovery observed within two to three months in most cases, as reported in the study by Ait Essi *et al*. [4].

CONCLUSION

Neglected elbow dislocations continue to present considerable clinical challenges, particularly in resource-constrained contexts. Surgical intervention aims to convert non-functional stiffness into functional mobility, underscoring the importance of early management.

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