

# Uncommon Inferior Shoulder Dislocation in the Emergency Department

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## Abstract

**Introduction:** Inferior shoulder dislocations, also known as luxatio erecta, are a rare subset of shoulder dislocations, accounting for <1% of cases encountered in emergency settings. This unique injury involves the inferior displacement of the humeral head below the glenoid cavity, often resulting from a downward force applied to an abducted arm. Clinically, luxatio erecta presents with the arm fixed in an abducted, overhead position, and is frequently associated with additional injuries, such as rotator cuff tears, fractures, or neurovascular compromise.

**Case Report:** This case report details the presentation, diagnosis, management, and outcomes of a 52-year-old male with an inferior shoulder dislocation complicated by a fracture of the greater tuberosity following a fall. Initial reduction attempts in the emergency department were unsuccessful, necessitating reduction under general anesthesia. A post-reduction CT scan revealed a displaced greater tuberosity fracture, which was subsequently stabilized through surgical fixation and rotator cuff repair.

**Conclusion:** This case underscores the critical importance of early recognition, appropriate imaging, and individualized treatment planning to ensure optimal recovery in cases of luxatio erecta with concomitant injuries.

**Keywords:** Luxatio erecta, greater tuberosity fracture, shoulder dislocation, closed reduction under anesthesia, inferior shoulder dislocation.

## Introduction

Shoulder dislocations are among the most frequently encountered traumatic injuries in emergency departments, with anterior dislocations being the most common, accounting for approximately 95–97% of cases [1]. However, inferior shoulder dislocations, known as luxatio erecta, are exceedingly rare, comprising <1% of all shoulder dislocations [2]. This type of dislocation is particularly unique due to the distinct mechanism of injury and the unusual positioning of the arm, which often presents in an abducted and overhead position [2]. The rarity of this condition, along with its association with additional injuries such as fractures of the proximal humerus, rotator cuff tears, or neurovascular compromise, makes it a challenging entity to diagnose and manage [3].

Luxatio erecta occurs when a significant downward force is applied to an abducted arm, causing the humeral head to be driven inferiorly and become locked beneath the glenoid. This

extreme positioning creates tension on surrounding soft tissues, potentially leading to injuries of the joint capsule, rotator cuff, and associated bony structures [4]. The arm is typically held in a fixed abducted position, with the elbow flexed, and the patient may be unable to adduct the arm due to pain and mechanical obstruction [5].

Management of inferior shoulder dislocations requires prompt recognition, early analgesia, and an attempt at closed reduction under controlled conditions [6]. However, due to the complexity of this type of dislocation and the potential for associated injuries, such as fractures of the humeral head, clavicle, or greater tuberosity, imaging and thorough post-reduction assessments are critical. In cases where closed reduction is unsuccessful or significant associated injuries are present, surgical intervention may be required to restore proper shoulder anatomy and function [5].

This case report describes a rare instance of inferior shoulder dislocation in a 52-year-old male, complicated by a fracture of the greater tuberosity. The patient's mechanism of injury involved a fall on an outstretched hand, a common cause of shoulder trauma. The report will discuss the clinical presentation, diagnostic findings, management, and outcomes of this case, providing insights into the challenges and considerations when treating luxatio erecta with an associated

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**Figure 1:** Position of the patient at presentation in the Emergency Department



**Figure 2:** X-ray left shoulder anteroposterior view at the time of presentation.

greater tuberosity fracture. This case underscores the importance of early recognition and intervention in rare dislocations to prevent long-term complications and ensure optimal functional recovery [7].

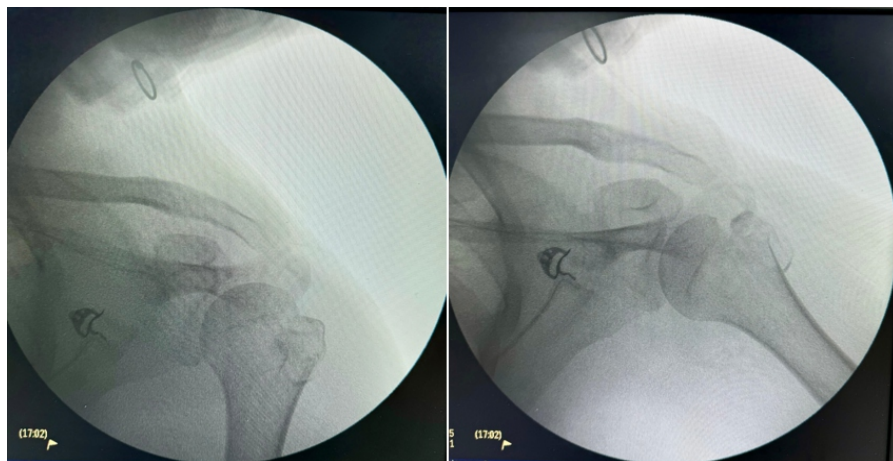
**Case Report**

A 52-year-old male, resident of a metropolitan city, presented to the emergency department of a tertiary care center with severe pain in his left shoulder. He reported that the pain began suddenly after he fell while at a local fish market early in the morning. The patient had gone to buy fish on a Sunday when he slipped on a wet floor due to ice. As he fell, he extended his left hand to break the fall. He heard a distinctive “pop” sound from his left shoulder, followed by immediate and excruciating pain, preventing him from moving his arm [8]. Unable to adduct his

left arm, he was forced to hold it overhead with his right hand for support.

Upon arriving at the emergency department, the patient described severe pain in the left shoulder, especially when attempting to move the arm. He also noted swelling in the lower (inferior) aspect of his shoulder. The physical examination revealed that the patient’s left arm was abducted overhead, with his elbow flexed in a salute-like position. Despite his discomfort, there was no neurovascular compromise in the left arm, as confirmed by the absence of any distal neurovascular deficit [3]. Bystanders at the market had been unable to assist in repositioning the patient’s arm, and they transported him to the hospital on a motorbike while the arm remained overhead. Upon arrival at the emergency department, he was given immediate analgesia for pain relief. Initial attempts to reduce the dislocation were made in the emergency department under controlled conditions and analgesia, but these attempts were unsuccessful.

An X-ray of the left shoulder was performed, revealing an inferior shoulder dislocation



**Figure 3 & 4:** C-Arm Images Post Reduction of the Left Shoulder under Anaesthesia



**Figure 5:** Post-operative X-ray left shoulder anteroposterior view.

(luxatio erecta). Since the initial reduction attempt failed, the decision was made to transfer the patient to the operating theater for further management. Under general anesthesia, the left shoulder was successfully reduced without complications. A post-reduction CT scan was obtained to assess for any associated injuries. The imaging revealed a fracture of the greater tuberosity of the humerus, but no additional injuries were identified [9].

Given the fracture of the greater tuberosity, the patient was scheduled for surgical fixation. During the procedure, the fracture was stabilized using a cancellous (CC) screw with a washer. In addition, a suture anchor was employed to secure the rotator cuff, ensuring stability, and promoting optimal healing [4].

Following the surgery, the patient was transferred to the ward for post-operative observation. He was placed in a shoulder immobilizer to limit movement and prevent further injury. The post-operative plan included early rehabilitation to focus on passive range of motion exercises, gradually progressing to active exercises as the fracture healed. The patient was advised to follow up regularly to monitor his progress and ensure proper recovery.

### Discussion

Inferior shoulder dislocation, or luxatio erecta, represents a rare and challenging condition that requires prompt recognition and specialized management [4]. This particular injury is characterized by the unusual presentation of the arm being fixed in an abducted and overhead position, often described as “salute-like.” The pathophysiology of luxatio erecta involves a downward force applied to an abducted arm, driving the humeral head inferiorly, resulting in its entrapment beneath the glenoid. This type of dislocation is associated with significant soft tissue and bony injury due to the extreme positioning and force required to dislocate the joint in this manner [4].

Inferior shoulder dislocations account for <1% of all shoulder dislocations. The rarity of luxatio erecta makes it an uncommon but serious orthopedic emergency [3]. The mechanism of injury is typically a high-energy trauma, often involving a fall onto an outstretched arm, as was observed in this case. The patient’s fall in a fish market led to a hyperabduction of the arm, generating the mechanical force necessary to dislocate the humeral head inferiorly. In addition to the dislocation, the patient sustained a fracture of the greater tuberosity, a known complication in such cases [2].

While inferior dislocations alone can cause significant morbidity, they are frequently accompanied by concomitant injuries to the surrounding soft tissues and bony structures. The rotator cuff, joint capsule, and neurovascular structures are particularly at risk due to the violent nature of the injury. The presence of a greater tuberosity fracture, as seen in this patient, is

common and can occur in 15–30% of cases. Other potential complications include rotator cuff tears, labral injuries, and in some cases, axillary nerve damage. However, in this instance, there was no evidence of neurovascular compromise.

The clinical presentation of luxatio erecta is highly characteristic [7]. The patient typically holds the affected arm in a fixed abducted position, often supported by the contralateral hand, as adduction is both painful and mechanically restricted. In this case, the patient exhibited the classic “salute-like” posture, with the elbow flexed and the arm abducted overhead. Initial clinical evaluation should focus on ruling out neurovascular injuries, particularly axillary nerve damage, and assessing for distal perfusion and sensation.

Imaging plays a critical role in confirming the diagnosis and identifying associated injuries. Standard radiographs, including anteroposterior and lateral views of the shoulder, are usually sufficient to demonstrate the inferior displacement of the humeral head [4]. However, advanced imaging, such as CT scans, is often necessary post-reduction to evaluate for fractures or other soft-tissue damage. In this case, the initial X-ray confirmed the inferior dislocation, and subsequent CT imaging revealed a greater tuberosity fracture.

The management of inferior shoulder dislocation involves prompt reduction, followed by careful assessment and treatment of associated injuries [8]. Immediate analgesia is crucial for patient comfort, and attempts at closed reduction should be made in a controlled environment, such as the emergency department, under sedation or anesthesia if necessary. Closed reduction is typically achieved by applying gentle traction in the direction opposite to the dislocation while slowly adducting the arm. However, the complexity of the dislocation and the presence of associated injuries, such as fractures, can complicate the reduction process. In this case, despite adequate analgesia and controlled conditions, closed reduction in the emergency department was unsuccessful, necessitating reduction under general anesthesia in the operating theater.

Once the dislocation is reduced, the focus shifts to managing any associated injuries [3]. The greater tuberosity fracture in this case required surgical fixation to restore shoulder stability and optimize functional recovery. The fracture was treated using a cancellous screw with a washer, and a suture anchor was employed to secure the rotator cuff, which is often compromised in such injuries. Operative fixation of greater tuberosity fractures is indicated when there is significant displacement, as non-operative management may lead to rotator cuff dysfunction and poor long-term outcomes.

The prognosis for inferior shoulder dislocations depends largely on the promptness of reduction, the extent of associated injuries, and the success of fracture management. Early reduction minimizes the risk of neurovascular compromise and

reduces the likelihood of long-term complications, such as stiffness or joint instability. Rehabilitation plays a crucial role in functional recovery, with early passive range of motion exercises initiated to prevent joint stiffness. Active rehabilitation follows once the fracture is stable, focusing on strengthening the rotator cuff and restoring full shoulder mobility [7].

In this case, the patient was placed in a shoulder immobilizer postoperatively and was scheduled for early rehabilitation to prevent stiffness. The use of a suture anchor to repair the rotator cuff and surgical fixation of the greater tuberosity fracture ensured that the patient had a stable shoulder for future functional recovery. The patient was advised to adhere to a structured rehabilitation program, starting with passive exercises and gradually progressing to active range of motion and strengthening exercises as healing progressed.

### Conclusion

This case illustrates the complexity of managing inferior shoulder dislocations, particularly when complicated by an associated greater tuberosity fracture [3]. Inferior shoulder dislocations are rare but present significant challenges due to their potential for neurovascular and soft-tissue injury [7]. Successful management relies on timely reduction, thorough imaging to assess for concomitant injuries, and appropriate surgical intervention when necessary. In this case, the combined use of closed reduction under anesthesia and surgical fixation of the associated fracture resulted in a positive outcome, with the patient expected to achieve a full functional recovery with proper rehabilitation. This case underscores the importance of a comprehensive and individualized approach to managing rare shoulder dislocations, especially when associated with fractures.

**Declaration of patient consent:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the Journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

**Conflict of Interest:** NIL; **Source of Support:** NIL

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