

# Traumatic Asymmetric Bilateral Shoulder Dislocation: The First Case Report in Mexico

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## Learning Point of the Article:

Traumatic asymmetric bilateral shoulder dislocation is an extremely rare injury pattern that requires a high index of suspicion and careful radiological assessment to avoid missed diagnosis, particularly of posterior shoulder dislocation.

## Abstract

**Introduction:** Asymmetric bilateral shoulder dislocation is an exceptionally rare pattern of glenohumeral injury characterized by simultaneous dislocation of both shoulders in different directions. Since its first description in 1985, only a limited number of cases have been reported worldwide. Most cases are associated with seizures or electrical injuries, while traumatic mechanisms are uncommon. Reporting additional cases is important to improve recognition and management of this unusual injury pattern.

**Case Report:** We report the case of a 39-year-old Hispanic male who presented to the emergency department after a high-energy motorcycle accident. Clinical examination revealed bilateral shoulder deformity and severe pain with marked limitation of motion, without neurovascular deficit. Radiographic evaluation demonstrated asymmetric bilateral glenohumeral dislocation, consisting of an anterior subglenoid dislocation of the left shoulder and a posterior dislocation of the right shoulder. Computed tomography confirmed a non-engaging reverse Hill–Sachs lesion involving approximately 18% of the articular surface of the right humeral head. Urgent closed reduction under sedation was successfully performed using different reduction maneuvers for each shoulder, achieving stable joint congruency. The patient was managed conservatively with temporary immobilization followed by progressive physical rehabilitation. During follow-up, the patient demonstrated progressive improvement in pain and range of motion. At 6 months, full functional recovery was achieved without recurrence or complications.

**Conclusion:** This report describes the first documented case in Mexico of traumatic asymmetric bilateral shoulder dislocation caused by a high-energy mechanism without associated fractures. The case highlights the importance of maintaining a high index of suspicion and performing a comprehensive radiological evaluation in patients with shoulder trauma. Early diagnosis and prompt closed reduction followed by appropriate rehabilitation can lead to favorable functional outcomes even in rare and complex injury patterns.

**Keywords:** Shoulder dislocation, joint dislocations, shoulder injuries, motorcycle accidents, case reports.

## Introduction

Shoulder dislocations are among the most common joint injuries in adults and account for approximately 50% of all peripheral dislocations. Anterior dislocation is by far the most frequent type, with a reported incidence ranging from 95% to 97% of

cases, followed by posterior dislocation (2–4%) and inferior dislocation, which occurs in <1% of patients [1,2].

Within this spectrum, asymmetric bilateral shoulder dislocations, defined as the simultaneous dislocation of both glenohumeral joints in different directions (anterior, posterior,

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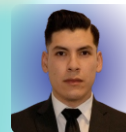
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**Figure 1:** Anteroposterior chest radiograph showing asymmetric bilateral shoulder dislocation.

or inferior), represent an exceptionally rare entity. Since the first case described by Aufderheide et al. in 1985 [3], only ten additional reports have subsequently been published in international literature [4,5,6,7,8,9,10,11,12,13].

Analysis of the published cases shows that most of these injuries occur in male patients with a wide age range and are primarily associated with seizure episodes. Less frequently, they are related to low-energy trauma, electrical injuries, or combined mechanisms [4,5,6,7,8,9,10,11,12,13,14].

Regarding the injury pattern, the most commonly reported combination is anterior–posterior (opposite-direction pattern), although variants involving inferior dislocation or chronic presentations have also been described [4,5,6,7,13]. In addition, most reported cases are associated with fractures of the proximal humerus, glenoid rim injuries, or other osseous defects, which increases diagnostic and therapeutic complexity [6,8,9,10,11,12,14].

The diagnosis is mainly based on clinical evaluation and imaging studies. Radiography remains the initial diagnostic modality of choice and is often complemented by computed tomography to characterize associated bone injuries and guide therapeutic decision-making [5,6,7,8,9,10,11,12,13,14]. Management strategies reported in the literature are heterogeneous and range from closed reduction with conservative treatment to complex surgical procedures, depending on joint stability, associated injuries, and the patient's functional status.

In this context, we present the first documented case in Mexico of traumatic asymmetric bilateral shoulder dislocation, successfully treated with conservative management and

objective functional evaluation using the Disabilities of the Arm, Shoulder, and Hand (DASH) score, contributing additional clinical evidence to this extremely rare condition.

### Case Report

A 39-year-old male patient with no relevant past medical history presented to the emergency department following a motorcycle accident. The patient was traveling as a passenger without a protective helmet at an approximate speed of 50 km/h when the driver performed a sudden brake maneuver, causing the patient to be projected approximately two meters and impact the pavement directly on both shoulders and the head. No warning signs of traumatic brain injury or loss of consciousness were documented.

On physical examination, the patient presented with severe bilateral shoulder pain, loss of the normal rounded contour of both shoulders, and marked limitation of both active and passive range of motion. No neurological deficits or distal vascular compromise were identified in the upper extremities.

The initial trauma radiographic series demonstrated, on the anteroposterior chest projection, an asymmetric bilateral glenohumeral dislocation (Fig. 1). Targeted shoulder radiographs revealed an anterior subglenoid dislocation of the left shoulder (Fig. 2) and a posterior dislocation of the right shoulder (Fig. 3).

Computed tomography confirmed a non-engaging reverse Hill–Sachs lesion involving approximately 18% of the articular surface of the right humeral head (Fig. 4).

Under conscious sedation with diazepam and midazolam,



**Figure 2:** Anteroposterior radiograph of the left shoulder demonstrating anterior subglenoid dislocation.

## Discussion

Asymmetric bilateral shoulder dislocations are extremely rare injuries. The most commonly reported presentation involves opposite directions (anterior–posterior). The main mechanism of injury described in the literature is seizure activity, whereas other etiological mechanisms, such as electrical shock, have been reported only exceptionally, with a single documented case. The traumatic mechanisms described in the literature predominantly involve low-energy events or combined mechanisms. In this context, the present case represents the first report of asymmetric bilateral shoulder dislocation secondary to a pure high-energy traumatic mechanism [4,5,6,7,8,9,10,11,12].

These injuries are frequently associated with fractures of the proximal humerus, glenoid rim injuries, or rotator cuff lesions, which increase both diagnostic and therapeutic complexity as well as the risk of long-term functional sequelae [4,5,6,8,9,10,12]. In contrast, no associated fractures were identified in the present case, which allowed for conservative management following stable closed reduction, with satisfactory functional outcomes. These findings are consistent with those reported by Özer et al., and Lehtreini et al., in selected cases successfully treated without surgical intervention [5,9].

From a diagnostic perspective, isolated anteroposterior radiographs are often insufficient to identify posterior shoulder dislocation, particularly in bilateral presentations or in polytrauma patients, which may lead to delayed diagnosis [14,15]. For this reason, the initial evaluation should be complemented with scapular “Y” and axillary views, which significantly increase diagnostic sensitivity. In selected cases, computed tomography plays a crucial role in accurately defining



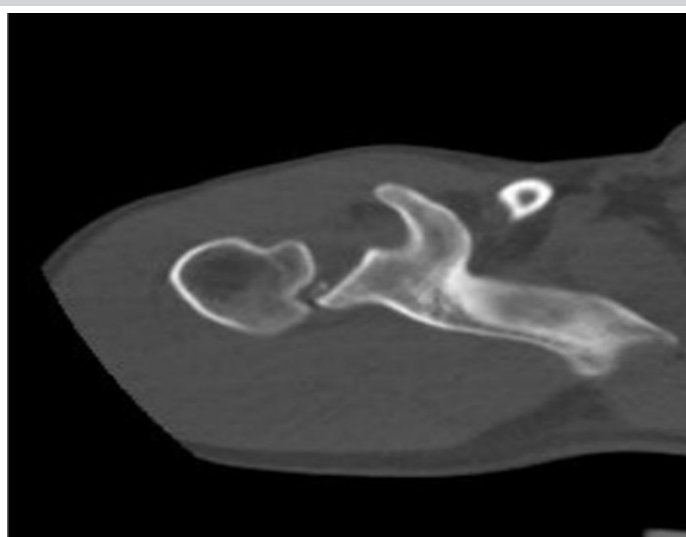
**Figure 3:** Anteroposterior radiograph of the right shoulder showing posterior dislocation with the light bulb sign and presence of the glenoid rim sign (vacant glenoid).

bilateral closed reduction was performed using the Kocher maneuver for the left shoulder and the Wilson maneuver for the right shoulder, achieving adequate joint congruency (Fig. 5).

Subsequently, a universal shoulder immobilizer was applied to the left shoulder and an abduction pillow to the right shoulder, along with analgesic management using non-steroidal anti-inflammatory drugs. The patient was discharged with outpatient follow-up.

Immobilization of the left shoulder was discontinued after 2 weeks and the abduction pillow of the right shoulder after 3 weeks. A physical rehabilitation program was then initiated, including pendulum exercises, progressive isometric strengthening, thermotherapy, and therapeutic ultrasound.

During follow-up, progressive improvement in pain and range of motion was observed. At 3 months, shoulder flexion and abduction reached 160° in the right shoulder and 140° of flexion with 145° of abduction in the left shoulder, with preserved muscle strength and trophism. Functional assessment using the DASH questionnaire showed scores of 15 points for the right shoulder and 20 points for the left shoulder, improving to 8 and 9 points, respectively, at 6 months. This improvement was associated with complete recovery of the range of motion (Fig. 6) and absence of complications.



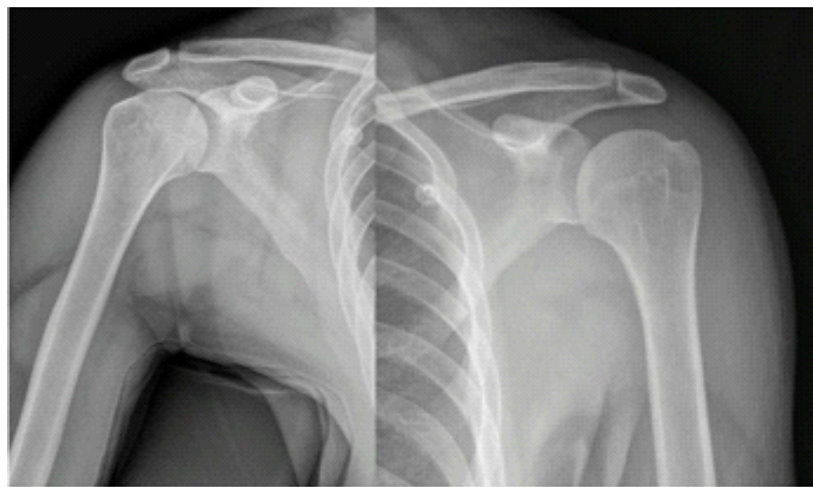
**Figure 4:** Axial computed tomography scan of the right shoulder showing a reverse Hill–Sachs lesion associated with posterior dislocation.

## Conclusion

Asymmetric bilateral shoulder dislocation is an exceptionally rare entity whose diagnosis and management represent a significant clinical challenge. The present case constitutes the first documented report in Mexico of asymmetric bilateral shoulder dislocation secondary to a high-energy traumatic mechanism without associated osseous injuries, thereby expanding the previously described etiological spectrum.

This case highlights the importance of maintaining a high index of diagnostic suspicion, particularly in complex traumatic scenarios, as well as the need to complement the initial radiographic evaluation with specific projections and computed tomography to avoid missed diagnoses, especially of posterior shoulder dislocation.

In the absence of associated fractures or persistent instability, individualized conservative management based on the accepted principles for each type of glenohumeral dislocation can provide satisfactory functional outcomes. The use of a validated functional scale, such as the DASH questionnaire, adds further value by allowing an objective and reproducible assessment of recovery, an aspect that remains scarcely documented in the existing literature.



**Figure 5:** Post-reduction anteroposterior radiographs of both shoulders.

the dislocation pattern and detecting associated osseous injuries, such as Hill–Sachs or reverse Hill–Sachs lesions, thereby optimizing therapeutic planning [15,16].

Post-reduction management of asymmetric bilateral shoulder dislocations is not standardized due to the rarity of this condition. In the absence of specific guidelines, treatment is generally based on the established principles for anterior, posterior, and inferior glenohumeral dislocations, considered as independent entities. These principles guide decisions regarding the type and duration of immobilization as well as the gradual initiation of functional rehabilitation [16,17,18].

Regarding reduction techniques, the literature suggests that the most appropriate maneuver is the one with which the clinician is most familiar, provided that biomechanical and safety principles are respected, particularly in complex bilateral scenarios [14,15,16].

In the present case, the use of a universal shoulder immobilizer for the anteriorly dislocated shoulder and an abduction pillow for the posteriorly dislocated shoulder provided adequate protection during the acute phase. Subsequently, the initiation of a supervised rehabilitation program facilitated progressive recovery of range of motion and muscle strength, without evidence of residual instability or complications, with outcomes comparable to those previously reported in the literature [4,7].

An important aspect of this report is the objective functional assessment using the DASH questionnaire. Unlike most previously reported cases, in which outcomes were described subjectively, only Diniz et al. used the Constant–Murley score to evaluate functional recovery [12]. Finally, DASH scores lower than 10 points are considered compatible with normal or near-normal upper-limb function [19,20], which is consistent with the results obtained in this case.



**Figure 6:** Final active range of motion of both shoulders at 6 months of follow-up.

## Clinical Message

Asymmetric bilateral shoulder dislocation is an extremely rare injury that can be overlooked in high-energy trauma. Careful clinical assessment and appropriate radiographic evaluation, including axillary or scapular Y views, are essential for early diagnosis and appropriate management.

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

**Conflict of interest:** Nil **Source of support:** None

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