



## BILATERAL ANTERIOR GLENOHUMERAL DISLOCATION: A CLINICAL CASE

### Orthopaedics

**Dr Sidhant Rana** Civil Hospital Kangra, Himachal Pradesh

**Dr Rahul Bhardwaj\*** Civil Hospital Palampur, Himachal Pradesh. \*Corresponding Author

### ABSTRACT

Bilateral anterior glenohumeral dislocation is a quite rare occurrence. Conditions such as epilepsy, electrocution or trauma may present with bilateral dislocations, but these are majorly posterior. We present a case of bilateral anterior glenohumeral dislocation caused by a road traffic accident. The interest in publishing this case is that this is a clinical rarity with few cases reported in the literature.

A 60-year-old male patient was brought to the emergency department after a road traffic accident, complaining of severe pain in bilateral shoulders and inability to move them. Objective examination showed clinical signs giving the suspicion of bilateral anterior glenohumeral dislocation, which was confirmed by x-ray imaging. Both dislocations were successfully reduced in the emergency department using the Kocher's technique.

Synchronicity of the force acting on bilateral shoulders makes anterior dislocations a rarer entity than posterior dislocations. Though there is a chance of missing these injuries in the initial presentation, understanding the patho-mechanics can help in early diagnosis and timely intervention.

### KEYWORDS

Anterior shoulder dislocation Bilateral, Bilateral dislocation, Dislocation, Road traffic accident

### INTRODUCTION

Although unilateral anterior glenohumeral dislocation is the commonest form of joint dislocation and the type that leads the greatest number of patients to come to the Emergency, its bilateral form is a very rare occurrence. Cases of bilateral glenohumeral dislocation have been described originating from convulsive crises (epilepsy or hypoglycaemia), electrocution, falls, traction forces or muscle training exercises.

### CLINICAL CASE

The patient was a 60-year-old man who came to the Emergency after a road traffic accident. He complained of intense pain in both shoulders, accompanied by functional incapacity. On objective examination, both upper limbs were seen to present external rotation with slight abduction.

Duga's test and Hamilton ruler tests were positive on both the sides. The patient did not present any neurovascular abnormalities in the upper limbs.

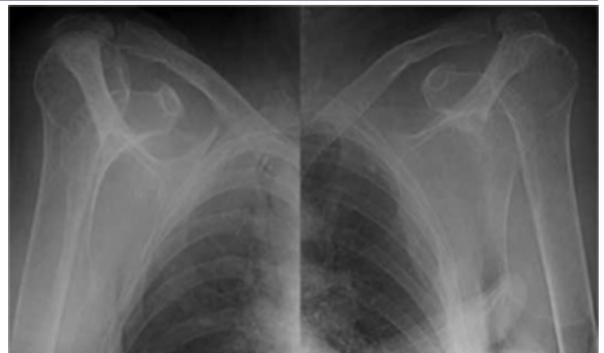
Anteroposterior x-rays on both shoulders revealed the existence of bilateral anterior glenohumeral dislocation, without fracture (Figure 1).



**Figure 1. X-ray images: bilateral anterior dislocation of the shoulders**

Under adequate sedation and analgesia closed reduction of both the shoulders were done using Kocher's manoeuvre. After the reduction, a new neurovascular assessment was made, and new X-rays were produced to confirm that the joint structures were well positioned and to rule out any possible fracture lines that might have initially been hidden or any interferences from the reduction manoeuvres (Figure 2).

The shoulders were immobilised in adduction and internal rotation with separate shoulder immobilisers for three weeks followed by physiotherapy. Patient regained full range of movements



**Figure 2. X-ray images: bilateral anterior dislocation of the shoulders after reduction.**

### DISCUSSION

With a reported incidence of 17/100,000 per year shoulder is an inherently unstable joint accounting for about 85% of all dislocations<sup>1-3</sup>. Of all the reported dislocations of the shoulder anterior accounts to 96%, posterior to 3% and 1% are inferior. In 1902, the first bilateral shoulder dislocation was described in a patient which was following muscular contractions caused by a camphor overdose<sup>4</sup>. Greater tuberosity fractures are quite commonly seen in anterior dislocations which account for almost 15%<sup>1,5</sup>.

After trauma, with forced extension and abduction of the arm, the humeral head is levered in an inferior manner by the coraco-acromial arch and rotator cuff from the glenoid fossa and anteriorly by the flexors and external rotators resulting in anterior dislocation.<sup>3</sup>

Brown in his review of bilateral shoulder dislocations grouped injuries according to etiological causes in to three main groups viz following acute muscular violence, traumatic and atraumatic.<sup>6,7</sup>

The involuntary muscle contractions are recognized as the culprit in epileptic seizures and electrocution responsible for the bilateral posterior dislocations. The imbalance between the contractions of the relatively weak external rotators and the more powerful internal rotators results in adduction and internal rotation of the humerus sufficient to cause posterior glenohumeral dislocation, during an episode of seizure.<sup>8</sup>

Although bilateral posterior dislocations can happen, the synchronicity of the impact required to produce bilateral anterior dislocations are quite uncommon making the injury a rare entity and if it occurs the force of the impact usually causes a fracture. Usually one extremity takes the brunt of the impact with trauma being the most common etiology.<sup>9,10</sup> Bilateral dislocation needs force to act on both the shoulders simultaneously.<sup>7,11</sup> Trauma, fall from bike, weight lifting,

bench press, horse riding, skiing, diabetic nocturnal hypoglycaemia, domestic assault, grand mal seizures, swimming, gymnasium injuries or electric shocks have been the reported causes which resulted in bilateral anterior dislocation.<sup>6,8,9,12,13</sup> One mechanism for bilateral anterior dislocation following a seizure is thought to occur from the impact of the shoulders to the floor, after the collapse and not during the muscle contractions.<sup>5</sup> This could be the mechanism in our first case with the seizure disorder, which is in accordance with the history given by the patient.

Ramchander et al. have demonstrated in cadavers, the possibility of bilateral dislocation of shoulders anteriorly by gradually increasing the extension while keeping both the shoulders in adduction and internal rotation. In this position with increasing extension humeral neck hitches to the acromion and head will be levered out anteriorly.<sup>14</sup>

5-75% cases of shoulder dislocations are associated with a neurological sequel, which can range from involvement of complete brachial plexus to temporary neuropraxia of a single nerve.<sup>7</sup> Delayed diagnosis is expected in more than about 10% of cases, which can be prevented.<sup>5,7,8,12</sup> Patients who have delay in diagnosis, associated untreated seizure disorder, associated fractures will usually have bad prognosis.<sup>6</sup>

## CONCLUSION

Anterior shoulder dislocations occurring bilaterally are the least common of all shoulder dislocations.<sup>9,10</sup> Early reduction and immobilisation forms the baseline of management. This is followed by definitive treatment, which could be active and passive physiotherapy after adequate immobilisation or surgery if required, in the more active younger patient group. Given that misdiagnosis sums up to about 10% of bilateral shoulder dislocations,<sup>8,12</sup> which can quiet significantly impact the quality of life, it is important to perform a thorough clinical examination for early diagnosis and management.

## REFERENCES

1. Devalia KL, Peter VK. Bilateral post traumatic anterior shoulder dislocation. *J Postgrad Med.* 2005;51:72.
2. Kazár B, Relovszky E. Prognosis of Primary Dislocation of the Shoulder. *Acta Orthop Scand.* 1969;40(2):216–24.
3. Kroner K, Lind T, Jensen J. The epidemiology of shoulder dislocations. *Arch Orthop Trauma Surg.* 1989;108(5):288–90.
4. Mynter H. Subacromial dislocation from muscular spasm. *Ann Surg.* 1902;36(1):117–9.
5. Lasanianos N, Mouzopoulos G. An undiagnosed bilateral anterior shoulder dislocation after a seizure: a case report. *Cases J.* 2008;1(1):342.
6. Brown RJ. Bilateral dislocation of the shoulders. *Inj.* 1984;15:267–73.
7. Ballesteros R, Benavente P, Bonsfills N, Chacón M, García-Lázaro FJ. Bilateral Anterior Dislocation of the Shoulder: Review of Seventy Cases and Proposal of a New Etiological-mechanical Classification. *J Emerg Med.* 2013;44(1):269–73.
8. Dunlop CCR. Bilateral anterior shoulder dislocation. A case report and review of the literature. *Acta Orthop Belg.* 2002;68:168–70.
9. Dinopoulos HT, Giannoudis PV, Smith RM, Matthews SJ. Bilateral anterior shoulder fracture-dislocation. *Int Orthop.* 1999;23(2):128–30.
10. Choulapalle R, Chokkarapu R, Kolluri RK, Anne SR, Perumal SR, Avadhanam PK, et al. A Case of Neglected Bilateral Anterior Shoulder Dislocation: A Rare Entity with Unusual Mechanism of Injury. *Case Rep Orthop.* 2015;2015:1–3.
11. Tripathy SK, Sen RK, Aggarwal S. Simultaneous bilateral anterior shoulder dislocation: report of two cases and review of the literature. *Chin J Traumatol.* 2011;14:312–5.
12. Auerbach B, Bitterman A, Mehta V. Bilateral Simultaneous Anterior Shoulder Dislocation. *Austin J Orthopade & Rheumatol.* 2015;2:1009–1009.
13. Akinci O, Akalin Y, Otuzbir A, Oztürk A. Concurrent cases of bilateral anterior shoulder dislocation: our observations in three cases. *Eur Res J.* 2016;2(1):80–4.
14. Siwach R, Singh R, Rohilla R, Sangwan SS. Bilateral anterior dislocation of the shoulder—A case report and review of the literature. *Inj Extra.* 2008;39(12):394–7.