CASE REPORT

Acute spontaneous atraumatic bilateral anterior dislocation of the shoulder joint with Hill-Sachs lesions: first reported case and review of literature

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SUMMARY

The anatomy of the shoulder joint comprises a relatively large humeral head with a shallow glenoid cavity allowing a remarkable range of motion at the expense of inherent instability. Despite anterior shoulder dislocations being the most common type encountered, bilateral dislocations are rare and almost always posterior. The aetiology is usually direct or indirect trauma related to sports, seizures, electric shock or electroconvulsive therapy. We present the first reported case of atraumatic bilateral acute anterior shoulder dislocations with associated Hill-Sachs lesions in a young, fit and well patient with no comorbidities. MRI illustrated the Hill-Sachs lesions with superior labral tear from anterior to posterior, and confirmed the acute nature of the injury by demonstrating the bone marrow oedema. The patient was treated surgically with arthroscopic anterior stabilisation. At 6 months following surgery, the patient has a pain free full range of movement of both shoulders with no further dislocations and has returned to work.

all day and apart from this there was no history of any specific trauma. He does not have a history of epilepsy and certainly did not experience an electric shock leading up to his presentation. There is no significant birth history, no family history of connective tissue disorders and no other medical history.

After driving home from work he experienced bilateral shoulder pains and noticed that both shoulders looked deformed.

The emergency department found bilateral anterior shoulder dislocations with no associated fractures, which were promptly reduced.

He was then seen in the fracture clinic where the history was noted and examination revealed pain with limited movements at the shoulder joint, bilaterally. His axillary nerve function was preserved. He was not noted to have hypermobile joints. He was advised a sling, mobilisation within pain limits and avoidance of the abduction external rotation position.

BACKGROUND

The shoulder joint is a ball and socket head. The anatomy comprises a relatively large humeral head with a shallow glenoid cavity allowing a remarkable range of motion at the expense of inherent instability.¹ This resultant instability makes the shoulder joint the most frequently presenting major dislocated joint in the accident and emergency department.²

Bilateral shoulder dislocations are extremely rare, and when they do occur they are mostly posterior,³ and usually a result of direct or indirect trauma related to sports, seizures, electric shock or electroconvulsive therapy.⁴⁻⁵ Simultaneous bilateral anterior shoulder dislocations are very rare and only about 30 cases have been described in the literature,⁴⁻⁶⁻⁸ and all are related to trauma.

We present the first reported atraumatic bilateral acute anterior shoulder dislocation in a young, fit and well patient with no comorbidities: we have only found one similar case of chronic bilateral atraumatic chronic anterior shoulder dislocation in a 69-year-old woman reported in 1999, where the patient had rapidly progressing severe rheumatoid arthritis and was of a cachectic physique.⁹

CASE PRESENTATION

This patient is a 46-year-old right-handed male manual worker. He had been digging at a work site

INVESTIGATIONS

Initial X-rays confirmed the clinical suspicion of simultaneous bilateral spontaneous shoulder dislocations (figures 1–4). Subsequent bilateral shoulder MRI of the patient revealed a moderate-sized Hill-Sachs's lesion on each side, 23 mm on the right (figure 5) and 25 mm on the left (figure 6). The right and left glenoid labra were grossly abnormal with a superior labral tear from anterior to posterior (SLAP) tears.

Figure 1 Anteroposterior shoulder X-ray demonstrating right shoulder dislocation.

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Figure 2 Lateral shoulder X-ray demonstrating right shoulder dislocation.

TREATMENT

The patient was treated by elective examination under anaesthesia, and arthroscopic anterior stabilisation of the shoulders. There was a 3-month interval between procedures to allow for recovery and rehabilitation of the operated shoulder. The decision of surgical treatment was based on continued signs of instability with positive apprehension and relocation signs following a period of conservative treatment.

OUTCOME AND FOLLOW-UP

At 6 months following surgery, the patient has a pain-free full range of movement of both shoulders with no further dislocations and has returned to work as a manual worker.

Figure 3 Anteroposterior shoulder X-ray demonstrating left shoulder dislocation.

Figure 4 Lateral shoulder X-ray demonstrating left shoulder dislocation.

DISCUSSION

Static and dynamic stabilisers provide stability to the shoulder joint. The static stabilisers which provide stability at rest are comprised of the glenoid labrum, glenohumeral ligaments and

Figure 5 Coronal section on the right shoulder showing moderate Hill-Sachs defect and grossly abnormal glenoid labrum with superior labral tear from anterior to posterior. The associated bone marrow oedema adjacent of the Hill-Sachs defect confirming acute nature.

Figure 6 Coronal section of left shoulder showing moderately large Hill-Sachs defect with adjacent marrow oedema and extensive tear of the glenoid labrum.

capsule.^{10 11} The dynamic stabilisers comprising of the rotator cuff muscles, long head of biceps and deltoid provide stability during shoulder motion.¹²

The convex humeral head articulating with the concave glenoid and labrum provide bony stability together with the static and dynamic stabilisers.¹³ A compromise of this concavity-compression, such as present in significant glenoid or humeral impression fractures, can lead to instability. The patient in this case presented with bilateral impression fractures of the humeral head (Hill-Sachs lesions), which occur in up to 65–71% of first-time dislocations, due to the compromise between concavity and compression, which contributes to recurrent shoulder instability.^{14 15}

The main aim of treatment for primary anterior shoulder dislocations is to achieve stability, analgesia and functional range of motion. The decision over surgical and non-surgical treatment hinges on the nature of the injury and several patient-specific factors: age, medical history, occupation, sports participation, functional demands and compliance.¹⁶ The risk factors for recurrent dislocation are decreased sporting activity,¹⁷ and male gender.¹⁶

Non-surgical treatment typically involves closed reduction followed by a period of immobilisation and targeted physical therapy.¹⁶ Surgical treatment is indicated when non-operative treatment has failed or when pain and instability restrict activities of daily living. The rate of recurrent instability after a first anterior shoulder dislocation is reduced by early surgical intervention compared with non-operative treatment, especially in young active male patients.¹⁸

Rotator cuff repairs, capsular shifts, labral repairs, bony blocks and osteotomies are surgical options for shoulder stabilisation. Rehabilitation after surgery plays a vital role in long-term outcomes. When comparing open surgery versus arthroscopic stabilisation, there is less morbidity and stiffness, and improved function post-operatively with arthroscopic surgery compared to open procedures.¹⁹

We have described the first reported case of its kind and in seeking aetiology we can only speculate. Shoulder instability is broadly categorised into traumatic and atraumatic. Hippocrates

was thought to have first described this; ‘Traumatic dislocations are described by the acronym TUBS (Traumatic, Unilateral dislocation with Bankart lesion and usually requiring Surgery) and atraumatic by AMBRI (Atraumatic, Multidirectional, frequently Bilateral, responds to Rehabilitation and rarely requires an Inferior capsular shift)’.²⁰

A third category was added by Neer, where there is acquired shoulder instability from repeated minor injuries (micro-trauma) or repetitive use, such as above the head activities.²¹ We have a potential explanation for the occurrence of acute spontaneous atraumatic bilateral anterior shoulder dislocations in our patient.

Learning points

- ▶ Despite anterior shoulder dislocations being the most common type encountered, bilateral dislocations are rare and almost always posterior.
- ▶ The aetiology of bilateral shoulder dislocations is usually direct or indirect trauma related to sports, seizures, electric shock or electroconvulsive therapy.
- ▶ This is the first reported case of simultaneous acute atraumatic bilateral anterior shoulder dislocations in a fit and well patient with no previous injuries and no degenerative or inflammatory arthritis.
- ▶ Non-surgical treatment typically involves closed reduction, a period of immobilisation and physical therapy for strengthening the rotator cuff and scapular stabilisers.
- ▶ Surgical treatment is indicated when extensive non-operative treatment fails or pain and instability affect activities of daily living.

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Competing interests None.

Patient consent Obtained.

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