

Bilateral anterior shoulder dislocation as a result of manipulation

A case report

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Abstract

Rationale: Bilateral anterior shoulder dislocation is clinically rare and has been reported to be related to high-speed sports.

Patient concerns: A 76-year-old woman presented with bilateral shoulders pain after traditional Chinese manipulation.

Diagnoses: She was diagnosed with bilateral anterior dislocations, and a closed reduction was immediately performed.

Intervention: The patient was referred for rehabilitation 3 days later, and bilateral rotator cuff injuries were identified from musculoskeletal ultrasound. After 4 weeks of physical therapy, the patient's shoulder pain had reduced and the passive ROM was nearly full.

Outcomes: At 1-year follow-up, only mild intermittent shoulder pain was noted, and there was no limitation of shoulder ROM.

Lessons: This case illustrates that patients with acute shoulder injuries who receive proper diagnosis and treatment can achieve good outcomes. Therefore, patients with musculoskeletal disorders should seek qualified specialists for accurate diagnosis and appropriate management.

Abbreviations: MSUS = musculoskeletal ultrasound (MSUS), ROM = range of motion (ROM), VAS = visual analog scale (VAS).

Keywords: bilateral anterior shoulder dislocation, manipulation, rehabilitation, trauma

1. Introduction

The majority of human joint dislocations occur in the shoulder. The annual incidence of shoulder dislocation has been reported as 15.3 per 100,000 populations.^[1] Anterior shoulder dislocation is the most common type of shoulder dislocation and accounts for 97.2% of all shoulder dislocations.^[2] However, bilateral involvement is clinically rare even with different mechanisms of trauma.^[3] Traditional Chinese manipulation is popular in the Chinese society for the treatment of pain disorders. This report presents a case of bilateral anterior dislocation after traditional Chinese manipulation.

1.1. Method

This is a case report and informed consent was obtained from the patient.

Editor: N/A.

The authors have no conflicts of interest to disclose.

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2. Case report

A 76-year-old woman presented to the emergency department with complaints of severe pain (visual analog scale [VAS] score, 7/10) and loss of movement in both shoulders. The episode began after a traditional Chinese manipulation of her shoulders. The past medical history included cardiovascular disease with regular follow-up at a local clinic, with no history of trauma, shoulder instability, or epilepsy. Physical examination in the emergency department revealed severe bilateral shoulder tenderness and range of motion (ROM) limitation with mild local numbness. There was no sensory, motor, or vascular deficit distal to the shoulder. Plain shoulder x-ray radiography showed bilateral anterior dislocations without fracture (Fig. 1 A and B). A closed reduction was performed under intravenous anesthesia. The results of subsequent x-ray imaging showed good anatomical reduction (Fig. 1C and D). Shoulder abduction orthoses were applied after successful reduction, and the patient was referred for rehabilitation 3 days later.

Physical examination performed at the outpatient clinic revealed bilateral shoulder swelling, bruising, and markedly limited ROM, but numbness had diminished. The right shoulder joint was too painful to be assessed for passive movement, and left shoulder passive ROM was <90° in both flexion and abduction. Local ice pack application, transcutaneous electrical nerve stimulation, isometric exercise, and gentle, pain-free passive ROM were suggested. Musculoskeletal ultrasound (MSUS) was performed 10 days after injury, and bilateral biceps tenosynovitis, supraspinatus tendinitis, and left subdeltoid bursitis were identified (Fig. 2). Physical therapy, including shoulder-reconditioning exercise and hot pack, were performed during an educational session of domiciliary shoulder girdle exercises. After^[4] weeks of treatment, the patient's shoulder pain reduced (VAS 3/10), and the passive ROM was nearly full.

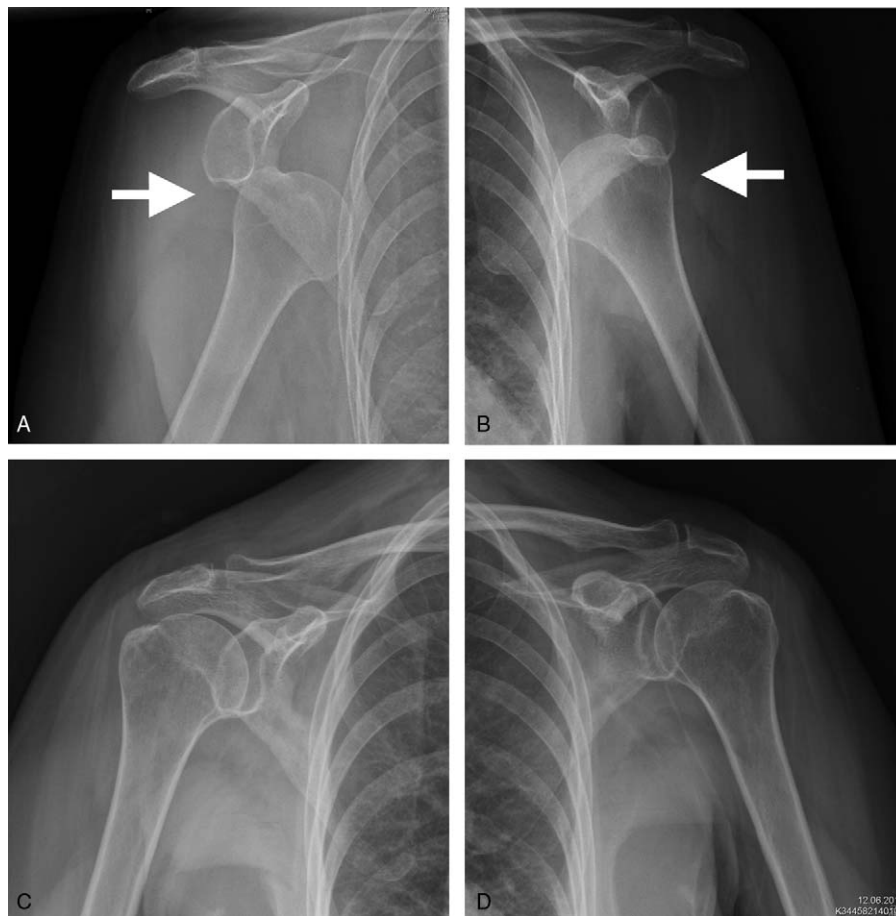


Figure 1. Anterior dislocation (arrow) of bilateral shoulder joints. (A, B) Before close reduction; (C, D) after close reduction.

At 1-year follow-up, right shoulder pain was mild and intermittent (VAS 2/10), and there were no limitations of bilateral shoulder ROM. The apprehension test revealed no instability phenomenon; however, the empty can test and Speed's test were positive. Follow-up MSUS showed bilateral bicipital tenosynovitis, left supraspinatus tendinitis, and a full thickness tear of the right supraspinatus tendon (Fig. 2).

3. Discussion

A previous study reviewed 70 cases of bilateral shoulder dislocation with difference causes^[4] and found that it was mainly associated with high-speed sports, such as water skiing and motorcycle or horseback riding. Pullover exercise or weightlifting with inappropriate weights could also result in bilateral shoulder dislocation.^[11] Patients with bilateral shoulder dislocations exhibit a bimodal age distribution with 2 peaks of young men (70%) and middle-age woman.^[4] In younger patients, high-energy insult has been shown to cause shoulder dislocation with Hill-Sachs & Bankart lesion.^[5] A prospective cohort study reported that 55.7% of young patients with shoulder dislocation developed recurrence of shoulder instability within 2 years.^[6] Because of the weakening of the aging rotator cuff tendons, rotator cuff injuries in the elderly are not uncommon as a result of dislocation.^[7] MSUS is a useful tool for diagnosis of rotator cuff injury. Axillary nerve injury also has been reported as an associated injury after anterior

shoulder dislocation.^[5] Nerve conduction studies are indicated for patients with persistent paresthesia or paresis. In elderly patients with shoulder dislocation, early ROM exercises and physical therapy should start within 1 week after prompt closed reduction to avoid shoulder stiffness and muscle wasting. After the acute stage, therapeutic exercise is crucial to restore muscle strength and endurance. Compared with younger patients, older patients are less likely to have recurrent shoulder dislocation and may have a better outcome if appropriately managed.

Some studies have reported that traditional Chinese manipulation is effective in release of chronic neck pain and low back pain.^[8] Although complications of spinal manipulation have been well discussed and the most frequent complications are vertebrobasilar accidents and cauda equina syndrome,^[9] the present study, to our knowledge, is the first to present bilateral shoulder dislocation and related soft tissue injuries as complications related to shoulder manipulation. In this case, the patient received manipulation in an unregistered clinic by an unlicensed practitioner, which is consistent with a systemic review that stated that most adverse events of manipulation are associated with nonprofessional and forceful techniques.^[10]

In conclusion, an elderly woman who suffered from bilateral shoulder dislocation after manipulation had a favorable outcome after proper diagnosis and successful management, which included early closed reduction, MSUS examination, and a rehabilitation program to relieve pain, restore ROM, and

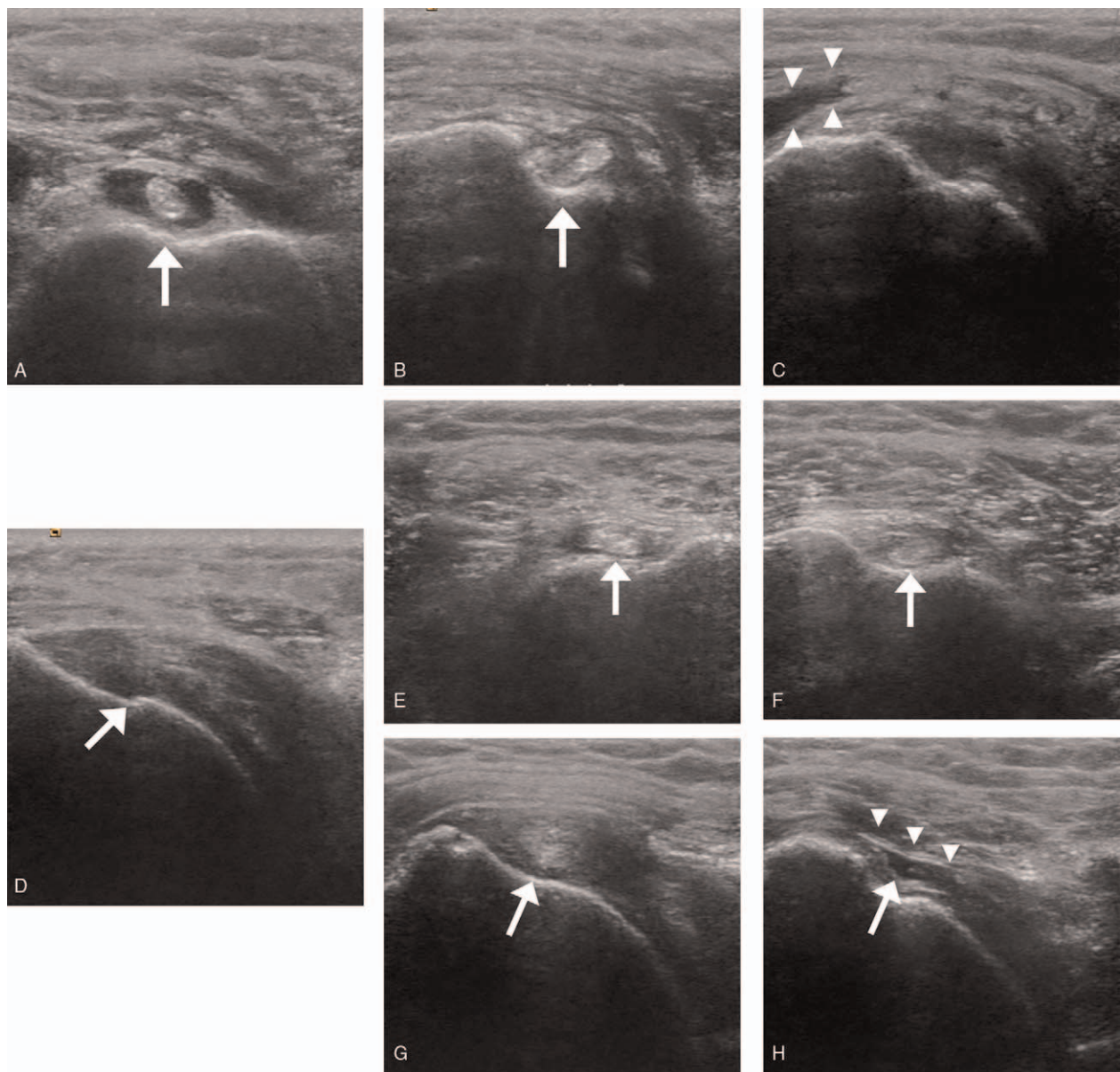


Figure 2. Ultrasonographic findings of the bilateral shoulder joints in the acute phase of dislocation (A) (left biceps tendon, transverse view), (B) (right biceps tendon, transverse view): the echogenicity of the bilateral biceps long tendons are heterogeneous, and fluid accumulation is observed in the tendon sheath (arrow), particularly on the left side. (C) (left supraspinatus tendon, longitudinal view): fluid accumulation between the supraspinatus tendon and deltoid muscle (arrowheads). (D) (right supraspinatus tendon, longitudinal view): the echogenicity of the right supraspinatus tendon is heterogeneous (arrow). The ultrasonography findings of the bilateral shoulder joints after 1-year follow-up. (E) (left biceps tendon, transverse view), (F) (right biceps tendon, transverse view): the echogenicity of the bilateral biceps long tendons are heterogeneous, and fluid accumulation is observed in the tendon sheath (arrow). (G) (left supraspinatus tendon, longitudinal view): the echogenicity of the left supraspinatus tendon (arrow) is heterogeneous. (H) (right supraspinatus tendon, longitudinal view): an anechoic lesion (arrow) in the right supraspinatus tendon and deltoid muscle herniation (arrowheads) are shown in the sonogram and are compatible with a complete tear of the right supraspinatus tendon.

maintain muscle strength. This case illustrates that patients with musculoskeletal disorders should seek qualified specialists for accurate diagnosis and appropriate management to avoid unexpected injuries and complications.

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