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IPSILATERAL SHOULDER FRACTURE/DISLOCATION AND ELBOW DISLOCATION COMBINED WITH DISTAL RADIUS FRACTURE – CASE REPORT

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ABSTRACT

Upper extremity fractures and dislocations can have multiple combinations, most already described in the literature. This is the first report of ipsilateral shoulder fracture/dislocation, elbow dislocation, and distal radius fracture.
The patient presented after a low-energy trauma and was diagnosed with proximal humerus fracture (AO 11-A1)/anterior dislocation, posterior elbow dislocation, and distal radius fracture (AO 23-B1). The diagnostic and treatment processes were affected by the patient's intoxication. Due to poor patient cooperation, all injuries were treated non-surgically. The final results one year after the injury were excellent, with minor limitations in the range of motion of the shoulder and wrist joints.
Only about 10 case reports in the literature describe ipsilateral shoulder and elbow dislocation and only one report describes this injury combination and additional fracture of the humerus and forearm. In all these cases, injuries occurred as a result of high-energy trauma. Our case report is the first one that describes this combination of injuries caused by a low-energy trauma. The most likely predisposing factor was alcohol intoxication before the fall on the outstretched hand which caused the unusual transfer of force causing this injury combination. Diagnostic and treatment processes were significantly affected by the patient's poor cooperation. However, the final results show that non-operative treatment of this type of injury can provide excellent results in selected cases.
This case report shows that even this type of injury can be treated non-operatively with excellent results.
Key words: elbow injuries, radius fractures, shoulder dislocation, shoulder fractures, wrist fracture

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INTRODUCTION

Joint dislocations are frequent injuries treated by orthopedic surgeons. The shoulder is the most frequently dislocated large joint, with an incidence of 24/100,000 persons/year [1]. In second place is elbow dislocation, which has an incidence of 5.2/100,000 persons/year [2]. Fracture of the distal radius is another very common injury, presenting between 14 and 18% of all adult limb injuries [3].
Ipsilateral dislocation of the shoulder and elbow joints is a rare injury mentioned in the literature as a case report. Only a few case reports have been published in the last decade [4-8].
Most of these combined dislocations occur due to high-energy trauma, such as a fall from a height or traffic accident.
After searching the literature, we were able to find a case report that includes a combination of shoulder and elbow dislocation associated with a fracture of the diaphysis of the humerus [9], as well as a case report describing an ipsilateral dislocation of the shoulder and elbow joints and a fracture of the humerus diaphysis, radius and ulna diaphysis, and a fracture of the distal radius [10].
We could not find a reported combination of shoulder fracture/dislocation, elbow dislocation, and distal radius fracture. This case report aimed to point out another possible combination of upper extremity injuries that can occur as a result of low-energy trauma, as well as the results of conservative treatment.

CASE REPORT

A 57-year-old male patient was presented to the emergency room after left shoulder, elbow, and wrist injuries. He sustained these injuries after a ground-level fall. He

complained of shoulder and elbow pain. He denied other injuries or symptoms. On admission, vitals were stable; he was conscious, oriented, communicative, and visibly intoxicated (he admitted consumption of 4-5 beers before injury).

Physical examination revealed visible deformities of the left shoulder joint and left elbow. Palpation of the shoulder, elbow, and wrist was painful, and he was not able to move his arm due to pain. Peripheral pulses were palpable and there was no neurological deficit.

Radiographs of injured areas were performed and anterior dislocation of the shoulder joint with fracture of the proximal humerus (AO 11-A1), posterior dislocation of the elbow joint, and intra-articular fracture of the left distal radius (AO 23-B1) were detected (Figure 1). The patient denied the recommended diagnostic procedures (CT scan).

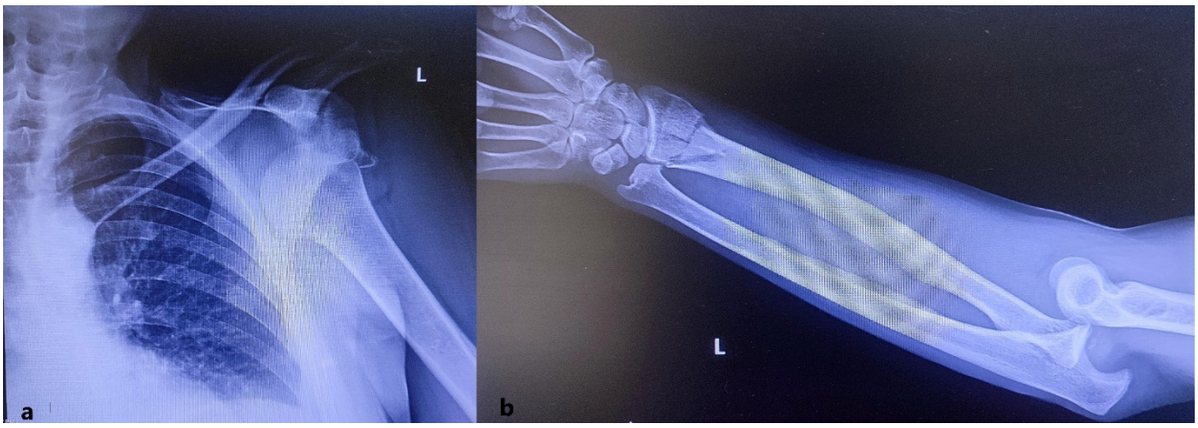

Figure 1. a) anterior dislocation of shoulder with fracture of the greater tubercle of humerus b) posterior dislocation of the elbow joint and intra-articular fracture of the left distal radius

After short intravenous sedation, a manual elbow reduction was performed first, which was confirmed by the inspecting and checking the passive range of motion.

In the second stage, a reduction of shoulder joint dislocation was performed. After the reduction, inspection revealed a normal-appearing shoulder joint and the passive range of motion was normal.

In the last stage, manual reduction of distal radius fracture was performed. An upper arm plaster splint was used to immobilize the wrist and elbow joint, and a sling was used to immobilize the shoulder joint.

Follow-up radiographs verified a successful reduction of the shoulder and elbow dislocations. Proximal humerus fracture was well reduced.

Wrist radiographs showed improved but not ideal fracture reduction. There was still minor shortening of the distal radius and dorsal angulation of the distal fragment.

Surgical treatment of distal radius fracture (open reduction and internal fixation) was recommended, but the patient denied it. The patient was hospitalized to monitor local neurovascular status due to expected swelling. The next day, he was discharged home. At the first follow-up examination one week later, follow-up radiographs of the wrist did not show significant displacement of the fragments compared to earlier images. Surgical treatment was proposed to the patient again, which he again declined. Radiographs were repeated 14 days after the injury and surgery was recommended again but the patient again declined it.

Considering the refusal of surgical treatment and the radiologically verified stability of the fracture of the distal radius, the patient's upper arm immobilization was removed, and a forearm plaster cast was placed. The sling was removed, and the patient was recommended to start movements in the elbow and shoulder joints. At the follow-up examination, the forearm plaster immobilization was removed six weeks after the injury.

On examination, he had minor swelling of the wrist. Palpation was painless. Palmar flexion and dorsiflexion range of motion (ROM) were limited to 55 degrees each. Shoulder external rotation was limited at 55 degrees, abduction was 130 degrees, and the rest of the shoulder movements were normal. The elbow joint had no swelling. He had a full range of flexion and extension, but pronation and supination were reduced to 45 degrees each. The patient was referred for physical therapy.

The patient had no complaints during the follow-up examination three months after the injury. The palpation of injured joints was painless. The ROM of the shoulder joint was improved, with abduction limited to 140 degrees and external rotation at 70 degrees. The ROM of the elbow joint was normal. Dorsiflexion and palmar flexion of the wrist joint were almost normal (-10 degrees loss of ROM each).

At the follow-up examination 12 months after the injury, the patient denied any complaints and had returned to his previous occupation (Mason). The ROM of the shoulder, elbow, and wrist joints was the same as on the previous examination. Wrist radiographs revealed a well-healed fracture (Figure 2).

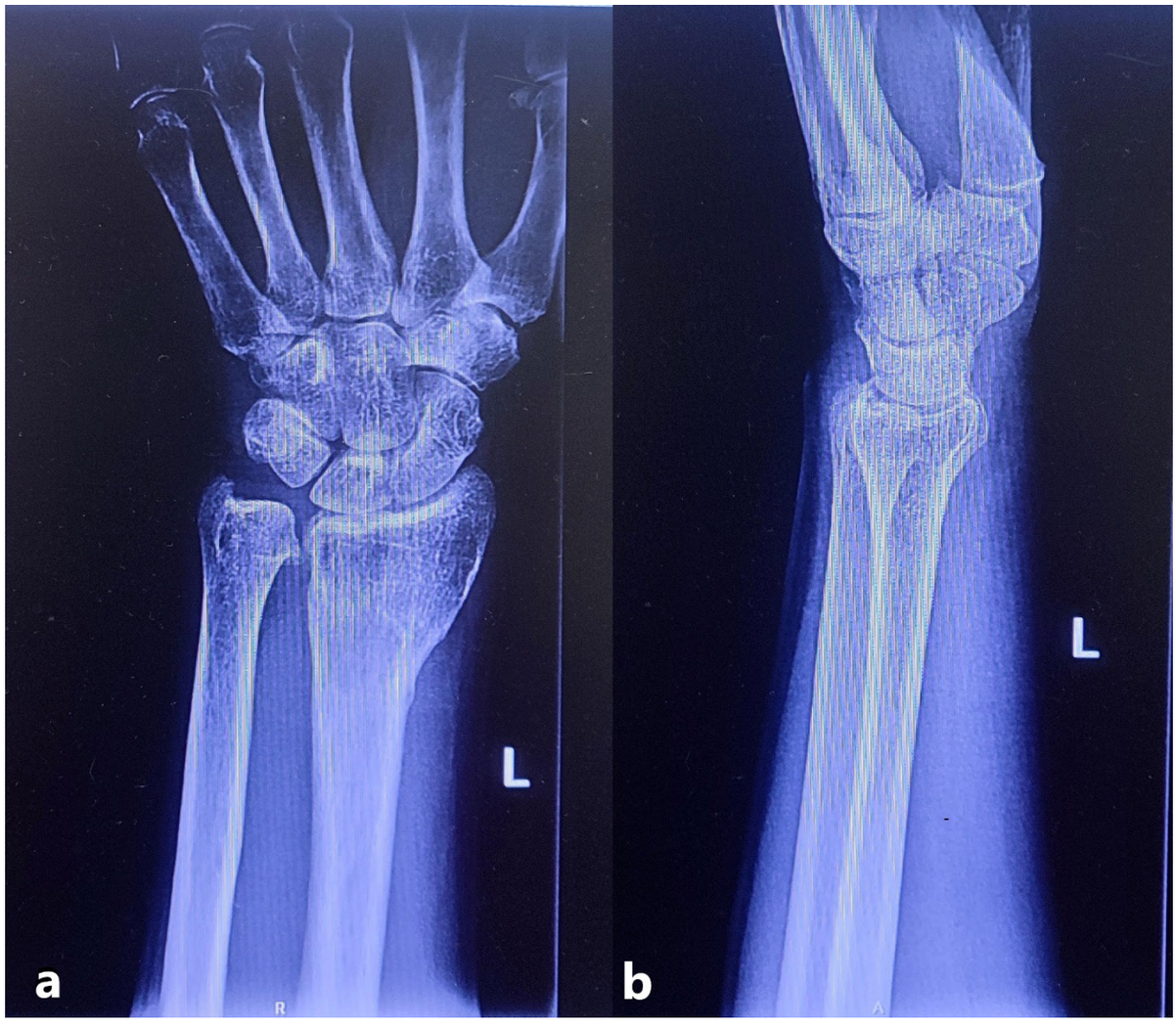

Figure 2. a) and b) well-healed fracture of distal radius

DISCUSSION

Combined ipsilateral shoulder and elbow dislocation is a very rare injury, which is supported by the fact that only about 10 case reports have been published. There is only one case report ever published that describes a combination of ipsilateral shoulder and elbow dislocation in combination with fracture of the humerus diaphysis and both bones of the forearm [10].

These case reports describe combinations of injuries that occurred as a result of high-energy trauma, such as falls from a height or injuries caused while working with machines or in traffic accidents.

In our case, the patient suffered injuries after a ground-level fall, which is the first described case in the literature. The most likely predisposing factor, in this case, is alcohol intoxication, which can be one of the causes of hyper relaxation of the muscles.

The exact mechanism of the injury could not be accurately determined due to the patient's intoxication, but it is most likely a fall on an outstretched arm, during which the wrist was dorsiflexed and the elbow was slightly flexed with external rotation and abduction of the shoulder. During the transfer of force to this position of the extremity, it is possible that the dislocation of the shoulder and elbow joints, as well as the fracture of the distal radius, may occur [9].

The diagnostic process for this type of injury can be prolonged due to the presence of pain in several locations on the extremity, where the elbow is usually the most painful. In these cases, dislocation of the shoulder joint is most often overlooked. In our case, the diagnosis was further complicated by the patient's alcohol intoxication at the time of admission. Considering all this, the claim that a detailed physical examination of the extremities is very important in the diagnostic process is confirmed once again. Attention must also be paid to the neurovascular status of the arm, forearm and hand.

The treatment process itself was somewhat complicated by the patient's refusal of the proposed surgical treatment of the distal radius fracture. Because of this, the wrist was immobilized for a prolonged period, which may be one cause of the limited range of motion of the wrist joint in the early follow-up period. However, the final results show that non-operative treatment of this type of injury can provide excellent results in some cases.

CONCLUSION

This is the first case report of ipsilateral shoulder fracture/dislocation and dislocation of the elbow joint with a fracture of the distal radius caused by low-energy trauma (ground-level fall). This case also shows that conservative treatment remains a good option for treating of these injuries.

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