



## Posterior dislocation of the shoulder with ipsilateral humeral shaft fracture : A case report and review of literature

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**Isolated posterior dislocation of the shoulder with ipsilateral humeral shaft fracture is a rare combination. Three cases of such co-existence have been reported so far. We report a fourth case and review the literature.**

**Our aim is to highlight the importance of this rare co-existence. A high index of suspicion is necessary to diagnose posterior dislocation of the shoulder as most concentration is on the humeral shaft fracture. Delayed diagnosis has a poorer prognosis.**

**Keywords :** shoulder ; posterior dislocation ; humeral shaft fracture.

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Shoulder dislocation is a common orthopaedic injury. Posterior dislocation of the shoulder is a rare injury, which is more common after an epileptic attack or an electric shock. The diagnosis is often missed because of subtle clinical signs. Its presence with an ipsilateral humeral shaft fracture is even less common and poses difficulties in imaging and management. We describe a case of posterior dislocation of the shoulder with ipsilateral humeral shaft fracture and review literature.

### CASE REPORT

A 45-year old right-handed gentleman fell from a bicycle and sustained an injury to his right shoulder.

His only medical problem was atrial fibrillation for which he was on warfarin. He had a very swollen and bruised shoulder and was diagnosed to

have a long spiral fracture of his humerus (fig 1), which was treated conservatively with a U-slab. He was followed up in the outpatient clinic and the alignment of the humeral shaft fracture was satisfactory on following radiographs.

When the U-slab was removed with a view to mobilise the shoulder, the shoulder contour was lost, and true lateral and axillary radiographs confirmed a posterior dislocation of the shoulder.

The patient was treated with open reduction and transfer of the lesser tuberosity in the reverse Hill Sachs defect. A bony block from the lesser tuberosity was fixed in the defect area by a two-hole semi tubular plate and cancellous screws (fig 2 a,b). Post operatively he was treated in a brace in external rotation for 6 weeks, and mobilisation was started at 6 weeks. Three months post-operatively, the

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*Fig. 1.* — AP radiograph on admission showing spiral fracture of the left humeral diaphysis.

patient had 60° of abduction, 40° of forward flexion, 10° of external rotation, 30° degrees of extension and 40° of internal rotation, and was neurovascularly intact.

### DISCUSSION

We report a case of posterior dislocation of the shoulder with ipsilateral humeral shaft fracture. There are more cases described in literature where the shoulder has dislocated anteriorly along with a humeral shaft fracture, but the diagnosis of dislocation in these cases has been much easier. On the



**a**



**b**

*Fig. 2.* — **a.** Postoperative radiograph of the left shoulder, after fixation of the lesser tuberosity in the humeral head defect; **b.** Lateral view.

background that isolated posterior shoulder dislocations themselves are a rare and commonly missed injury, this combination poses an important diagnostic and management problem. We could find only three cases reported in literature so far (table I).

Table I. — Other cases in the literature with combined posterior dislocation of the shoulder and fracture of the ipsilateral humeral shaft

Authors	Age	Sex	Mechanism of injury	Duration of diagnosis (Post injury)	Treatment	Outcome
Kavanaugh <i>et al</i> 1978	41	M	RTA Car rolled over a few times	5 weeks	Open reduction with bone block / fracture allowed to heal by itself	Flexion and abduction 80°, IR and ER 35°
Barquet <i>et al</i> 1985	45	M	RTA Car overturned	17 days	Amputation at fracture site/ CR for dislocation failed, OR not done because of adjoining infection	Poor
Naresh <i>et al</i> 1997	45	M	RTA Push bike hit a car from the side	0 Days	Halder nail for fracture and spica for dislocation	? Radial nerve palsy

RTA = road traffic accident ; CR = closed reduction ; OR = open reduction.

Pater and Ziegler (4) reported a case of non-union of a humeral shaft fracture after unrecognised longstanding posterior dislocation of the shoulder. In their case report, a 75-year-old lady who had a fall underwent 2 ½ years of treatment following the original injury. She was treated with a fracture brace for 4 months, followed by a brace with electrical stimulation for further 3 months, followed by intramedullary nailing and then with plating and bone grafting. The patient was known to have had shoulder problems for years before the humerus fracture, and her shoulder radiographs from 3 years earlier showed a posterior dislocation following a seizure, which was undiagnosed. It was proposed that unrecognised chronic posterior dislocation caused increased biomechanical stresses at the humeral fracture site contributing to the development of non-union. The patient subsequently had a hemiarthroplasty of the shoulder and her humeral fracture went on to heal well.

Barquet *et al* (1) reported a case of a 45-year-old man who had a road traffic accident. The patient was diagnosed to have a posterior dislocation of the shoulder on the seventeenth day. He underwent amputation through the humerus fracture site for associated injuries and infection. The shoulder joint itself could not be reduced closed and open reduction was not performed because of the nearby infection.

Naresh *et al* (3) described a case of a 45-year-old man who fell from a pushbike. An axillary view demonstrated a posterior dislocation of the shoulder along with an already fractured humeral shaft. The shoulder was reduced closed and immobilised in a U-slab, however the patient developed radial nerve palsy post-reduction. He underwent internal fixation with a Halder nail and the shoulder was manipulated back into place again and immobilised in a spica in external rotation. The spica was removed at four weeks, at which time the radial nerve palsy was showing signs of recovery.

Kavanaugh (2) described a case in which a 41-year-old man was involved in a road traffic accident. He had a humerus fracture which was managed with an over the shoulder sugar tong splint. He had follow-up at 10, 18 and 24 days and his humeral fracture was found in satisfactory position but he developed mild radial nerve palsy which was treated with a cock-up splint. At five weeks post-injury, he complained of progressive pain and stiffness in his shoulder, and fluoroscopy and transscapular views showed a subacromial posterior dislocation. He underwent open reduction and application of a bone block from the iliac crest to the posterior glenoid. The shoulder spica was removed at two months and a follow-up visit at ten months showed limited forward and lateral elevation to

80°, internal and external rotation to 35°, and the radial nerve palsy recovered.

### CONCLUSION

Posterior dislocation of the shoulder in combination with ipsilateral humeral shaft fracture is very rare. Radiographic evidence can be very subtle and clinical examination difficult in view of pain and swelling. There is also a tendency to accept suboptimal lateral imaging, as it is difficult to obtain proper lateral radiographs because of pain. In our case, the patient was on warfarin and had a very big swelling around the shoulder, making clinical examination and proper imaging very difficult.

We recommend that all humeral shaft fractures should have a radiograph of one joint above and one joint below, and clinical examination be performed with a high index of suspicion regarding

possible glenohumeral dislocation. In some cases, clinical examination and obtaining adequate radiographs may not be possible, in which case a CT scan would be recommended.

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