

# ANTEROSUPERIOR SHOULDER JOINT DISLOCATION IN PARKINSON'S DISEASE—A CASE REPORT

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## ABSTRACT

A 55-year-old male with Parkinson's disease sustained a fall onto his right upper limb. Radiographs confirmed anterosuperior dislocation of the shoulder. Patient had generalised rigidity, bradykinesia and rest tremors. Anterior deltoid and subscapularis were incompetent with increased tone in the middle and posterior deltoid. Although reduction could be achieved, it could not be maintained. Conservative management was adopted as his activity level was low and he had minimal pain.

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## INTRODUCTION

Shoulder is an inherently unstable joint. With a wide range of motion and relatively small bony constraints, it depends on static and dynamic soft tissue support for stability. Traumatic dislocations are usually antero-inferior (sub-coracoid) with reported incidence of 97.2% with the remaining majority of 2.8% being posterior.<sup>1,2</sup> Inferior dislocations have a very small incidence, usually as a part of case series. Anterosuperior dislocation however is extremely rare. To our knowledge, there is only one case report of traumatic anterosuperior dislocation of shoulder joint, in a patient with Parkinson's disease. We report a case of a patient with Parkinson's disease who sustained a traumatic anterosuperior dislocation.

## CLINICAL CASE

A 55-year-old male with Parkinson's disease fell onto his outstretched right hand. He presented with swelling on his right shoulder and discolouration of the shoulder and arm. He walked with difficulty, was nearly homebound and needed help for activities of daily living. On examination, he had contusions over the anterior as-

pect of his right shoulder extending into his arm. The shoulder was in an extended and adducted position. Humeral head prominence was noted just anterior to the acromion. The head was felt to lie subcutaneously. Flexion and further adduction was painfully restricted. He had generalised rigidity, bradykinesia and rest tremor. An unsuccessful attempt at closed reduction had already been made by another orthopaedic surgeon earlier in the day. Radiographic imaging confirmed the clinical diagnosis of anterosuperior dislocation of humeral head. On gentle traction and manipulation, the humeral head could be easily reduced into the joint. After reduction, he had near normal passive forward flexion, adduction and rotations as long as the gentle traction was maintained. Active range could not be ascertained. There was a soft tissue defect noted in the region anterior to acromion suggesting a tear in the clavicular origin of the deltoid. As soon as the inferior traction was released, however, the shoulder returned to a dislocated position due to the increased tone in the muscles. A CT scan was performed, yielding poor quality





**FIGURE 1.** X-ray AP view showing the humeral head dislocated anterosuperiorly.



**FIGURE 2.** Axial section and 3D CT reconstruction showing the dislocated humeral head with wide separation from the glenoid.

images due to constant rest tremors. Associated fractures were ruled out. MRI could not be done due to patient non-compliance.

Conservative management was opted for as the patient was low demand, had minimal pain and had uncontrolled tremors.

At 3 months follow-up, there was persistent anterosuperior dislocation of the head but the shoulder was nearly pain free and he had active flexion of 30 degrees. Considering the patient's sedentary lifestyle and associated co-morbidities, conservative approach was continued.

## DISCUSSION

Although anterosuperior migration has been well described in massive anterosuperior rotator cuff tear with loss of integrity of coracoacromial arch, its traumatic counterpart is extremely rare.

Downey *et al.* reported a case of traumatic superior dislocation in a 28-year old, without evidence of a fracture. He had no neurovascular compromise, spontaneously reduced and regained full range of motion.<sup>1</sup>

Matsuzaki *et al.* reported a case of post-traumatic anterosuperior dislocation of humeral head in an 83-year old woman with Parkinson's disease. She had concomitant massive cuff tear of supraspinatus and subscapularis. Surgical management was attempted,



**FIGURE 3.** Clinical picture showing 3 months since dislocation.

but re-dislocation occurred post surgery. Surgical treatment was performed under general anesthesia, using a deltopectoral approach. The coracoacromial ligament was found to be incompetent and the joint capsule disrupted. Avulsed lesser tuberosity fragment was found to be inside the glenohumeral joint. The supraspinatus tendon was massively disrupted and the end of the tendon could not be determined, and was judged irreparable. The avulsed fragment of the lesser tuberosity was reattached using metal suture anchors and the upper and lower components of the subscapularis tendon were sutured together. Postoperatively, the right arm was immobilized in an abduction pillow for two weeks. However, two weeks after the surgery, re-dislocation of the humeral head was confirmed by radiograph. Patient opted for conservative treatment as her pain was not severe and her activity level was low. At 1 year follow-up, patient was almost pain free, albeit with a limited range of motion. They opined that the activity level of the patient should be considered in older patients with shoulder dislocations as the pain in an unreduced joint comes down to a tolerable level within days, if the activity level of the patient is relatively low. They concluded that in such cases a goal of absence or reduction of pain rather than real repair might be appropriate.<sup>3</sup>

Ogawa *et al.* reported 2 cases of anterosuperior dislocation of the humeral head secondary to deltoid contracture. In their cases, the shoulder joint was found to be in the extended position, and the scapula anterolaterally positioned in the standing position. This resulted in forward protrusion of the entire shoul-

der joint, which appeared as if anterior dislocation or subluxation of the humeral head occurred. This was also accompanied with 'snap-in and snap-out' phenomenon. They hypothesised that the fibrous bands which occurred immediately in front of the acromial angle, fixed the shoulder in extended and abducted position. This band converted the weight of the arm into the force which led to superior dislocation of the humeral head. Once this occurs, the tension on the fibrous band slackens and the abduction contracture decreases. In our patient, the anterior deltoid was disrupted and the posterior deltoid in spasm created a similar biomechanical environment to maintain the dislocation.<sup>4</sup>

Moorman et al. stated the importance of coracoacromial ligament in their study in which release of this ligament along with acromioplasty increased superior translation.<sup>6</sup>

Anterosuperior migration is also reported in massive rotator cuff tears. Anterosuperior tears are described as tear of the subscapularis and supraspinatus with or without infraspinatus. Subscapularis forms an important humeral head depressor counteracting the elevating forces of deltoid. The incidence of superior excursion of the humeral head on the glenoid was significantly higher in patients with associated subscapularis tears.<sup>6,7</sup>

In the present case, it can be hypothesised that a tear in the anterior deltoid increased the tone in the middle and posterior deltoid. Along with this, a

tear in the subscapularis caused an imbalance in the supporting musculature resulting in loss of reduction. Attempted closed reductions were able to achieve reduction, but failed to maintain the same, unlike the normal anterior shoulder dislocations. This may be due to the disruption of the anterior deltoid fibers and concomitant rotator cuff deficiencies. There was only one similar case report where surgical intervention failed and the authors there felt that a conservative line of treatment was sufficient when the demands were low.

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