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CASE REPORT

NEGLECTED POSTERIOR DISLOCATION OF SHOULDER: A DIAGNOSTIC DILEMMA AND A CASE REPORT

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Abstract

Neglected posterior dislocation of the shoulder is uncommon and is a challenge for an orthopaedic surgeon. The diagnosis is often missed or delayed and this causes a delay in start of treatment thus having serious delirious effects on shoulder function. Identification of associated injuries like fractures around proximal humerus and rotator cuff tears is important to guide treatment. We present a case of a 55 year old male patient having a neglected posterior dislocation of right shoulder of 8 weeks duration.

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INTRODUCTION

Unreduced or neglected posterior dislocation of the shoulder is very rarely encountered and is a challenge for the orthopaedic surgeons [1]. They are the most commonly missed major joint dislocation of the body [2]. These injuries account for 2% to 5% of all shoulder dislocations [3,4]. Anterior gleno humeral dislocation is 15.5 to 21.7 times more common than posterior dislocations [5]. The diagnosis is missed or delayed in 79% of cases [4,6]. Thus an appropriate physical and radiological examination should be performed to confirm the diagnosis [7].

The main causes of posterior dislocation are major trauma, seizures and electric shocks, where indirect force is implicated [8]. A review of the literature revealed no gold standard in the treatment of neglected posterior shoulder dislocation [8]. Medium-sized anteromedial humeral head defects involving 25%–50% of the articular surface can be reconstructed using several methods, including lesser tuberosity transfer, rotational osteotomy of the humerus, osteochondral autografting and allograft reconstruction [9,10].

We present a case of a 55 year old male patient having a neglected posterior dislocation of right shoulder of 8 weeks duration.

Case report

A 55 year old right hand dominant male patient presented to orthopaedic out patient department with chief complains of inability to lift his right shoulder and inability to perform activities of daily living since 2 months. The patient had a past history of road traffic accident where he was hit by a motorcycle over anterior aspect of right shoulder 2 months back. The patient was taken to the primary health care center (PHC) near his village where X-ray of the shoulder was done (figure 1A). The X-ray findings were not significant and were indicative of soft tissue injury. The treating doctor at the PHC prescribed few analgesics and an arm pouch. After 1 week of rest the pain subsided but still the patient was not able to lift the shoulder. The patient then went to the traditional bone settler in his village where 3 sittings of massage, maneuvering and splinting of the injured shoulder was done at interval of 2 week each. At the end of two month he noticed no improvement in his right shoulder movement so he came to our institution for second opinion. On examination of the right shoulder, there was gross wasting of the right shoulder girdle muscles. Prominent acromion was seen and a globular mass of humeral head was palpated posteriorly below the acromion. The coracoid process was prominent anteriorly and was easily palpable. 10 degree of forward flexion and 10 degree of extension were present and the rotational movements (internal

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and external) were absent. There was no distal neuro vascular deficit. A clinical diagnosis of posterior dislocation of shoulder was made which was confirmed by antero posterior (figure 1B,C) and trans-axillary radiograph of the right shoulder (figure 1D).



Figure 1A: Initial radiograph on which posterior dislocation was missed. **Figure 1B,1C:** After serial manipulation by traditional bone setter leading to comminution of greater tuberosity. **Figure 1D:** Trans axial radiograph showing posterior dislocation of shoulder.

A magnetic resonance imaging of the right shoulder was done which revealed reverse Bankart's lesion, posterior dislocation of shoulder, comminution of greater tuberosity and impingement of humerus head on posterior glenoid rim (figure 2A-D).

muscle resutured with ethibond and provisional stabilization of joint with help of "K" wire done from humeral head to acromian.(figure 4A) Post operatively the limb was kept in 30 degree of abduction and 20 degree of external rotation in a shoulder spika for 4 weeks.

After 4 weeks, shoulder spika and K wire removed (figure 4B) and gentle mobilization exercises started and the limb was given an arm pouch for support. The patient was followed up at 3 months and latest at 6 months post surgery.



Figure 2A,B: MRI showing posterior dislocation of the shoulder. **Figure 2C,D:** MRI showing reverse Bankart's lesion with impingement of posterior glenoid rim to a bony defect in greater tuberosity.

After getting anaesthetic clearance for surgery, patient was posted for surgery under general anaesthesia in a beach chair position using extensile gleno humeral approach.

Intra operative findings showed grossly comminuted fracture of the greater tuberosity, rupture of the sub scapularis tendon (figure 3A), reverse bankarts lesion, 2cmx2cm crater in the area of greater tuberosity which is hinged by posterior glenoid rim and displaced biceps tendon inside the glenoid fossa (figure 3B).



Figure 4A: Post operative radiograph. **Figure 4B:** 4 weeks post operative radiograph after removal of "K" wires.

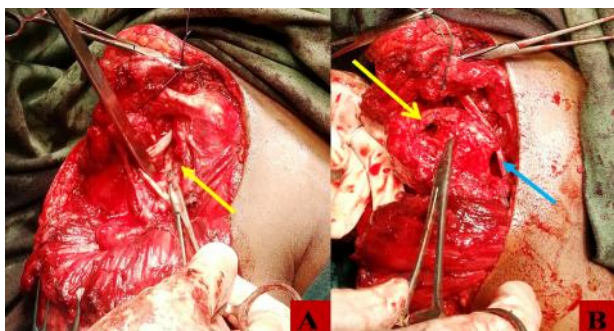


Figure 3A: Ruptured sub scapularis tendon (yellow arrow). **Figure 3B:** A 2cmx2cm defect in greater tuberosity (yellow arrow) and dislocated biceps tendon in glenoid fossa (blue arrow).

Two cannulated cancelous screws were used to fix the greater tuberosity along with tension band wiring with ethibond. Long head of biceps was tenodesis in its groove using ethibond. Ruptured sub scapularis tendon was separated from the anterior capsule and sutured to lesser tuberosity using ethibond. Deltoid

At 6 months follow up his forward flexion was 90 degree, extension 20 degree, abduction 90 degree, internal rotation 30 degree and external rotation 30 degree (figure 5A-E).



Figure 5A-E: 6 month follow up clinical photographs of the patient showing various movements around operated shoulder joint.

DISCUSSION

Posterior shoulder dislocation is an infrequent injury caused due to trauma or violent contracture of the muscles of the shoulder girdle as in epilepsy or in electric shock injuries. In our case the case of dislocation was direct trauma to the shoulder. Frequent cause of misdiagnosis is the failure to take adequate radiographs [11]. In our case the patient was misdiagnosed as soft tissue injury of the shoulder at the primary health center because of inadequate radiograph (only antero posterior view) that was done there and the inexperience of the treating doctor. In a series of 40 patients reported by Hawkins *et al.* [12] approximately 60% of the diagnosed cases were missed and a mean delay of one year between injury and diagnosis was reported; only 30% of diagnoses were made within six weeks. In our case the delay between the dislocation and actual diagnosis was 2 months. Numerous signs demonstrating posterior dislocation of the shoulder on the anteroposterior view have been mentioned in the literature [13,14]. These include internal rotation of the humerus, the vacant glenoid sign, the 'light-bulb' appearance of the humeral head, the 'rim-sign' in which there is more than 6 mm between the anterior glenoid rim and the humeral head, and the 'trough line', which is a vertical line made by the impaction fracture of the humeral head [13,14]. In our case, because of repeated manipulations done by the local bone settler leading to gross comminution of greater tuberosity and impaction of greater tuberosity to posterior glenoid rim, "rim sign" was not seen on routine radiograph. It is believed that there are about 70,000 traditional healers and bone setters in India and that they treat 60% of all trauma[15].

In our patient as the patient went to the traditional bone setter, his initial radiograph showed posterior dislocation of shoulder with single piece of greater tubercle fracture and after 3 sittings of manipulation his radiograph showed comminution of greater tubercle.

Our case highlights the plight of events and complications in various trauma cases done by local bone settlers in mostly rural and also in some urban cities of India which poses a challenge to the treating orthopedic surgeon.

CONCLUSION

Posterior shoulder fracture-dislocation continues to be a "diagnostic trap" for the unaware physician despite the advances in imaging techniques. In neglected injuries, open reduction of the humeral head, stable fixation of all of the associated fractures and filling of the anterolateral defect with graft or transfer of lesser tuberosity may lead to optimum result and good functional recovery. Our case also highlights the role of traditional bone settlers in India in causing more complications than treating the patient.

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