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Rare case of Neglected and locked posterior dislocation of shoulder following electric shock: Case report

KEYWORDS

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Introduction:

Posterior dislocation of the shoulder is not a common injury (2-4 % of all shoulder dislocation) [1,2]. It is difficult to diagnose if only AP radiographic projections are obtained. The incidence is 6 per 1,000,000. Unilateral dislocations occur due to trauma.

Electrical injury is a rare cause of posterior shoulder dislocation. Less than 5% of posterior shoulder dislocations are caused by electrical shocks [3]. The deformity includes internal rotation, flexion and adduction.

Case Report:

A 31 year old male presented with history of electric shock and by fall on right shoulder 45 days back. He was treated with immobilized hanging cast for 45 days which was removed due to persistent pain. On clinical examination the patient was unable to abduct the shoulder. AP and axial radiographs were performed to diagnose posterior dislocation of shoulder with reverse bankart and reverse Hillsachs lesions. CT was done for evaluation of fractured head of humerus and bony glenoid. MR imaging for presurgical evaluation of glenoid labrum adjacent neurovascular bundle and soft tissues. Basic lab investigations were unremarkable. Modified MCLAUGHLIN procedure was performed with immobilization by posterior dislocation brace (shoulder at 100 flexion and abduction, elbow at 700 flexion) for 6 weeks. Patient came for follow-up and was advised to undergo physiotherapy.

Discussion:

Posterior dislocation of shoulder is a rarest injury [1,2] of the most commonly dislocated joint of human body [4]. Unilateral posterior dislocation can be due to trauma, direct blow to the humeral head, fall on an outstretched arm or a motor vehicle collision [5,6]. Bilateral posterior shoulder dislocations are commonly caused by seizures. Drug dependency [7] and hypoglycemic episodes [8] have been rarely implicated causes.

According to **Wu Xu et al** [13] 70.2% of unilateral dislocation were attributed to trauma, 29.2% to seizures activity and only 0.6% was caused by electric shock. Whereas 89.2% of bilateral posterior dislocations were attributed to seizures activity, 5.4% by trauma and 5.4% were caused by electric shock patients.

Proper clinical examination is essential as it is frequently missed on AP radiographic projection. The classic signs of posterior shoulder dislocation like posterior fullness and prominence of the coracoid process, flattening on the anterior aspect, limitation of external rotation and limited elevation of the arm (often < 90) were first described by Cooper [9]. Lack of pain during external rotation may indicate a chronic dislocation.

High rate of misdiagnosing posterior dislocation ranges from 60- 80% [10, 11]. The reason appears to be absence of the "light bulb sign" on AP radiographs which looks grossly normal [12]. Axillary view, scapular Y view radiographs or CT scans are often neglected. Chronic transformation of the injury leads to a clinical such as shoulder contusion, rotator cuff tear and frozen shoulder.

Hawkins et al [10] found an average 1-year delay in diagnosis of which only 30% were diagnosed within 6 weeks from injury.

A few tips to avoid misdiagnosis include a high index of suspicion, accurate examination, and proper radiographic evaluation with a full three-view radiography of the injured shoulder: AP, lateral scapular, and axillary or Y view. Since the "light bulb sign" and "rim sign" are absent on the AP view, further investigation is often neglected, the axillary or Y view radiographs are often the key to diagnosing this injury. Literature review showed only 11.4% diagnosis rate using AP views, which increased to 100% when axillary or Y view radiographs were added.

The treatment of Posterior dislocation is multifactorial and varies from benign neglect to total shoulder arthroplasty. Main considerations for planning of treatment include the extent of the reverse Hill Sachs lesions, the duration of the dislocation, the condition of the glenoid fossa, and the age and the general health of the patient.

Treatment protocol includes closed reduction in acute diagnosis of reverse Hillsachs lesions < 20% in size and surgical correction in lesions > 20% size.

In unstable posterior dislocation of shoulder involving 30-50% of the humeral head operative stabilization is obtained by McLaughlin procedure or a modified McLaughlin technique. Lesions > 50% typically require arthroplasty to restore stability [10]. Humeral head replacement should be avoided in younger patients.

We concluded that the axillary or Y view radiographs should be taken as routine radiological investigation for all patients with shoulder trauma. CT scans and MRI can also be acquired for evaluation of labral, neurovascular and adjacent soft tissue.

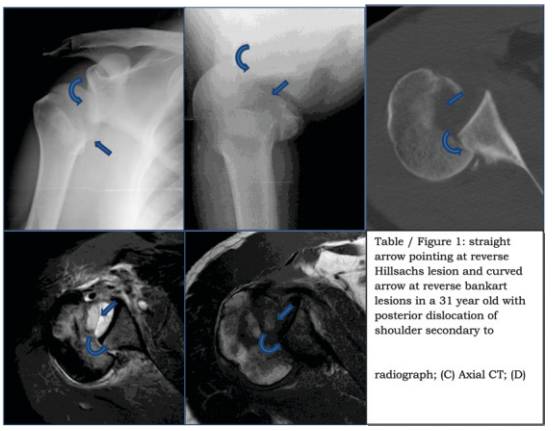

Table / Figure 1: straight arrow pointing at reverse Hillsachs lesion and curved arrow at reverse bankart lesions in a 31 year old with posterior dislocation of shoulder secondary to

radiograph; (C) Axial CT; (D)

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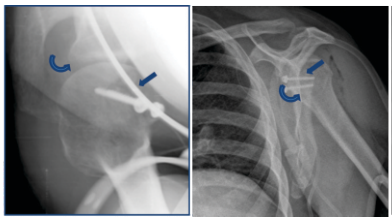

Table / Figure 2:

Post-operative (Modified MCLAUGHLIN procedure) images - straight arrow pointing at reverse Hillsachs lesion and curved arrow at reverse bankart lesions

(F) Axial radiograph and

(G) Y view.

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