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Case report

Simultaneous bilateral shoulder and bilateral central acetabular fracture dislocation: What to do?

Hardik Sheth, Abhijeet Ashok Salunke*, Ramesh Panchal, Jimmy Chokshi, G.I. Nambi, Saranjeet Singh, Amit Patel, Ranu Sheth

Pramukswami Medical College, Anand, Gujrat, India

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ABSTRACT

Musculoskeletal injuries following seizures have a high morbidity and mortality. These injuries are often missed and the diagnosis is delayed due to a lack of clinical suspicion and appropriate investigations. We report a case of 72 years old male with simultaneous bilateral central acetabular fracture dislocation and bilateral posterior shoulder fracture dislocation secondary to an epileptic seizure. Present study highlights the significance of clinical suspicion and clinico-radiological evaluation for diagnosis of a rare injury following episode of seizures. Simultaneous fracture dislocation of all four limbs treated with a holistic approach can lead to a good functional recovery. Surgical management with open reduction and internal fixation is preferred and replacement arthroplasty should be reserved for cases with implant failure and elderly patients.

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Introduction

Injuries around the shoulder, hip joint and vertebral compression fractures following epilepsy episode are described in medical literature.^{1–4} The possible mechanism of musculoskeletal injury following seizures is due to severe muscle contraction.^{5–12} Without direct trauma, simultaneous acetabular fracture and shoulder fracture dislocation are extremely rare. Central acetabular fracture is a complicated and life-threatening injury because of hypovolume shock from severe blood loss.^{11–17} Musculoskeletal injuries following seizures have a high morbidity and mortality.^{4–7,12–17} These injuries are often missed and the diagnosis is delayed due to a lack of clinical suspicion and appropriate investigations.^{1–6,15–17}

We report a case of 72 years old male with simultaneous bilateral central acetabular fracture dislocation and bilateral posterior shoulder fracture dislocation secondary to an epileptic seizure.

Case report

A 72 years old male patient presented in our emergency services department following two episodes of generalized tonic clonic seizures. He had no trauma and past epilepsy episodes. On clinical examination, his pulse rate was 100 per minute and systolic blood pressure was 90 mmHg and diastolic pressure was 50 mmHg. The respiratory and abdomen system examination were unremarkable. Patient presented with hypo-volume shock and was treated with hypertonic solution and plasma expanders. Once patient was hemodynamically stable, computed tomography of the brain was performed and found within normal limit. Magnetic resonance imaging of the brain revealed multiple ischemic foci, suggesting small vessels disease. After postictal period, patient had severe pain, deformity and reduced movements of both shoulder and hip joints. The neurological examination was within normal limits. Clinical examination showed swelling and deformity around both shoulder joints. On examination of the hip joint, bilateral hip deformity and painful movements were found. The distal pulsations and neurological examination in both upper and lower limbs were normal. Plain radiograph of the pelvis showed bilateral central dislocation of the acetabulum (Fig. 1). Computed tomography of the pelvis was performed and showed comminuted fracture of the anterior, posterior, and medial walls of the right acetabulum

* Corresponding author. Tel.: +91 9726500263.

E-mail address: drabhijeetsalunke@gmail.com (A.A. Salunke).

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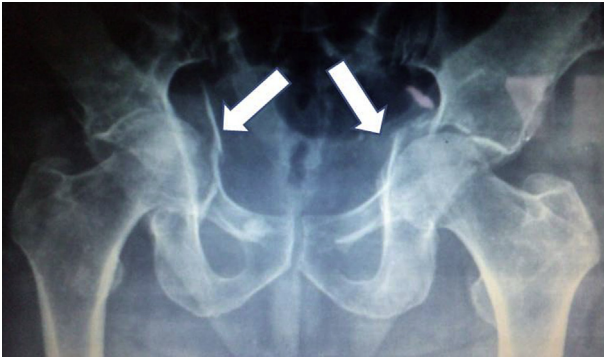


Fig. 1. Anteroposterior radiograph of the pelvis showing bilateral central acetabular fracture dislocation.

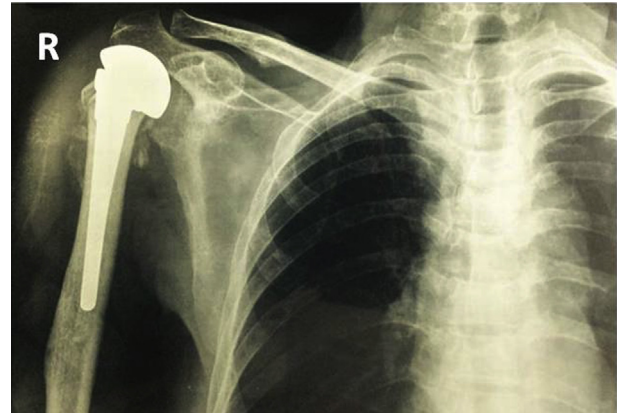


Fig. 3. Anteroposterior radiograph of the left shoulder showing fracture dislocation.

with superior and inward displacement of the right femoral head. Also comminuted fracture of anterior-posterior column as well as superior and inward displacement of the left acetabulum was observed.

Plain radiographs of both shoulders were performed and showed both shoulder fracture dislocation (Figs. 2 and 3). Computed tomography of the right shoulder showed comminuted and posteriorly displaced fracture of the surgical neck of humerus and the humeral head was displaced posterior–inferiorly. Computed tomography of the left shoulder showed fracture of the spine of scapula with comminuted and posteriorly displaced fracture of the surgical neck of humerus and the humeral head was displaced posterior–inferiorly.

Patient was initially treated with a shoulder arm pouch. Hemiarthroplasty was performed for right shoulder fracture dislocation (Figs. 4 and 6). Left humeral fracture dislocation was treated with open reduction and internal fixation with plating (Figs. 5 and 6). Bilateral central hip dislocation was treated conservatively initially with slower femoral skeletal traction. During postoperative period, passive shoulder mobilization started for right shoulder while left shoulder was immobilized in internal rotation for 6 weeks in the shoulder arm pouch. The patient was asked to non-weight bearing for 3 months. During skeletal traction, passive



Fig. 4. Anteroposterior radiograph of the right shoulder showing fracture dislocation treated with Neer's hemiarthroplasty.

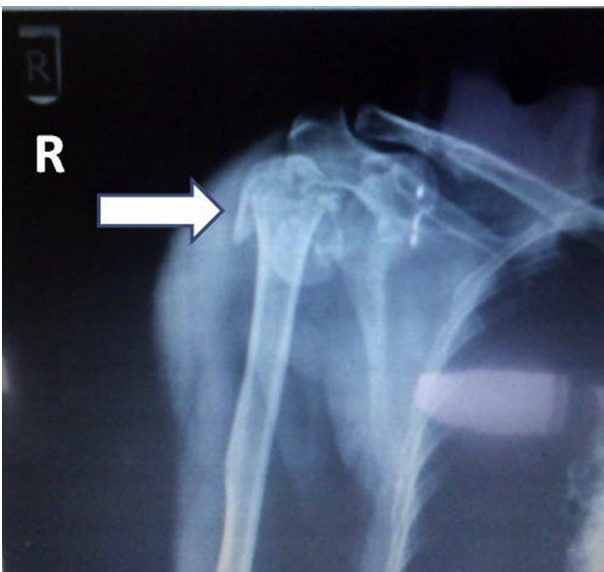


Fig. 2. Anteroposterior radiograph of the right shoulder showing fracture dislocation.

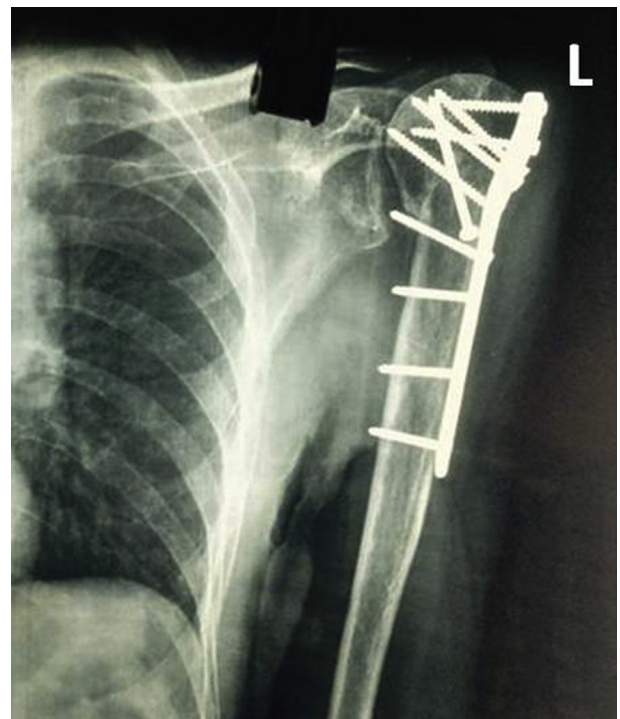


Fig. 5. Anteroposterior radiograph of the left shoulder showing fracture dislocation treated with open reduction and internal fixation with plating.



Fig. 6. Clinical photograph showing surgical scar over both shoulder joints.

physiotherapy for lower limbs started. Traction was interrupted at 12 postoperative week and range of movement exercises for both hips were started gradually. Patient was reviewed at regular interval of 4 weeks during the follow-up period. His radiograph after 3 months showed an acceptable congruity of both hip joints. He had improvement in his functions and was able to perform activities of daily living comfortably. He sustained right intertrochanteric femur fracture following trivial fall at home 2 year after previous injury, and was treated with dynamic hip screw fixation. At present patient had a 3 years' follow-up from his initial seizure episode (Fig. 7).

Discussion

Clinical suspicion of fracture dislocation around the hip and shoulder in patients with epileptic seizures is useful to avoid delay in diagnosis and prevent its complications. Less than one percent patients with epilepsy sustain fractures without direct traumatic events.^{1–5} Simultaneous bilateral posterior dislocation of the shoulder is rare injury and it accounts for less than 2% of all shoulder dislocations.^{3–10} In 1971 Shaw et al³ postulated that convulsion leads massive contraction of muscles around the shoulder. These contractions of muscles with adduction, internal rotation and flexion attitude of the shoulder leads to posterior

dislocation. The clinical features of posterior shoulder dislocation of the shoulder are severe pain, deformity around the shoulder joint. Plain radiograph and computed tomography of the shoulder are useful for diagnosis and surgical planning.^{3–9}

The treatment of posterior fracture dislocation of the shoulder includes open reduction and fixation, hemi-arthroplasty and total shoulder replacement.^{3–10} Tellisi et al⁶ described a case of bilateral posterior fracture dislocation of the shoulder. Right shoulder fracture dislocation was treated by closed reduction and left shoulder required open reduction and trans-fixation with Kirschners wire. We performed open reduction and internal fixation with plating for the left shoulder and hemi-arthroplasty was performed for right shoulder fracture dislocation.

The complications of posterior fracture dislocation of the shoulder include unreduced shoulder dislocation, avascular necrosis, implant failure and shoulder stiffness.^{3–10}

Central acetabular fracture dislocation is seen following high velocity road traffic accidents and rarely following episode of seizures.^{11–17} Rath et al¹⁶ in 1997 suggested that the mechanism of injury around the hip joint following seizures is due to severe uncontrolled muscle contraction of proximal thigh muscle leading to strong force towards the hip joint. Other factor includes severe osteoporosis due to old age and anti-epileptic medications can lead to acetabular fracture and central dislocation of the hip joint following seizures episodes without direct traumatic event.^{1,2,11–17}

Due to central acetabular dislocation, patients often present with hypovolemic shock following profound blood loss.^{11–17} The management of hypovolemic shock includes proper use of hypertonic solution, plasma expanders and blood products.

Operative treatment for central acetabular fractures dislocation includes conservative treatment with skeletal traction, open reduction with internal fixation and total hip arthroplasty.^{11–17} Hip arthroplasty with fixation of acetabulum fracture is helpful in elderly patients in view of high risk of avascular necrosis.

To sum up, present study highlights the significance of clinical suspicion and clinico-radiological evaluation for diagnosis of a rare injury following episode of seizures. Simultaneous fracture dislocation of all four limbs can be treated by a holistic approach. Surgical management with open reduction and internal fixation is preferred and replacement arthroplasty should be reserved for cases with implant failure and elderly patients.

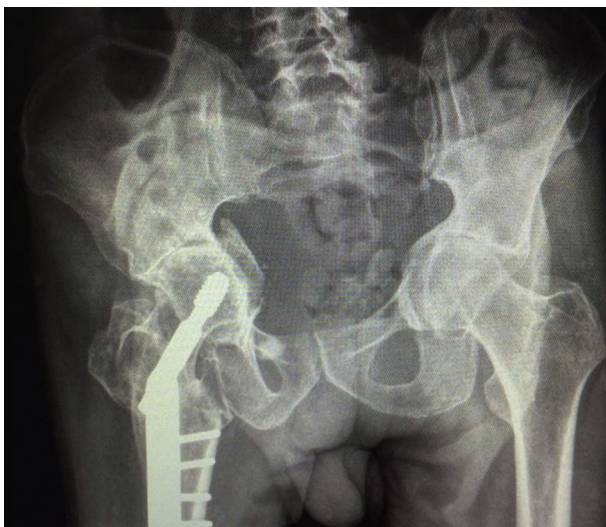


Fig. 7. Anteroposterior radiograph of the pelvis showing right intertrochanteric fracture fixation with dynamic hip screw.

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