Medical and Research Publications
International Open Access

Case Report **Journal of MAR Orthopedics (Volume 3 Issue 3)**

Acetabular Central Fracture Dislocation After Generalized Seizure Activity – A Case Report

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Received Date: April 20, 2022

Published Date: May 10, 2022
DOI: 10.1027/maror.2022.0117

Abstract:

Fracture is a less common complication in seizure patients, and fractures as a consequence of convulsive seizures without direct trauma occur in 0.3% of cases. Central acetabular fracture dislocation is usually caused by high-energy external trauma. Acetabular fractures after convulsions are even rarer, and only a few cases of acetabular fracture dislocations, purely caused by convulsive activity, have been reported therefore, we report a case of unilateral acetabular central fracture dislocation after a seizure episode, with relevant literature review.

In this setting, the central acetabular fracture not caused by direct trauma might initially remain unnoticed leading to a delayed diagnosis. In some cases, this may lead to death as a result of massive blood loss. It is also imperative to mention that these patients should be thoroughly examined neurologically to find out the exact etiology and should be treated accordingly to prevent future seizure activity.

Introduction

Acetabular fracture dislocations are common, typically result from high energy trauma, as observed in patients after high-speed motor vehicle accidents or after a fall with direct impact1.Seizure patients represent only 0.4% of emergency departmental visits, and 14% of these patients have accompanying injuries2.Fracture is not a common complication in seizure patients. Fractures as a consequence of convulsive seizures without direct trauma occur in only 0.3% of seizure cases3 either due to trauma or unbalanced forceful muscle contractions during seizure episode. Various musculoskeletal injuries including fractures of the facial bones/ribs and dislocations of the glenohumeral and manubriosternal joints, scapula, vertebrae, femoral neck, and pelvis are well known complications of seizures4. Acetabular fractures after convulsions are extremely rare, and only a few cases of acetabular fracture dislocations, caused purely by convulsive activity, have been described in the literature. Central acetabular fracture dislocation is rarely seen in these patients5. These cases often go unnoticed or present late because of absence of a history of direct trauma. Some of them are even detected after fatality6. Here, we report a case of unilateral acetabular central fracture dislocation after a seizure episode without direct trauma and include a relevant review of the literature. Possibility of this injury should be considered in patients who present with unilateral hip deformity and pain in the postictal period to avoid unnecessary delay in management. Informed consent was taken prior to publication from the patient and her family.

Case Report

A 15 yr old male visited emergency with history of a seizure episode at home. The seizure was generalized and lasted for 5 min followed by loss of consciousness for 10min after which patient recovered but was unable to rise up from floor. Patient was brought to casualty room when he complained of pain right hip. On examination patient had tenderness right hip and deformity right hip in flexion, adduction and external rotation. Patient was stablised and emergency management was performed. He had no history

of anticonvulant medication or previous seizure episode. On NCCT Head, revealed a small 8*6mm hypodensity in parietal region,rest of scan was normal. On plain Hip radiographs, revealed Right Acetabulum Fracture with medial displacement of right femoral head (Figure 1,2).After discussion, patient planned for non-operated management with Closed reduction and Traction Application. After Neurology opinion, patient started on Tablet Levetriacetam (anti –epileptic) for consultions.

Post Reduction Pelvis CT Scan was done revealed communated and undisplaced fracture anterior wall of right acetabulum with extension to medial wall and further extension into ischiopubic ramus suggesting T shape Acetabular Fracture in Judet Classification.Patient managed in ward on lateral traction and upper tibial pin traction for 3 weeks.


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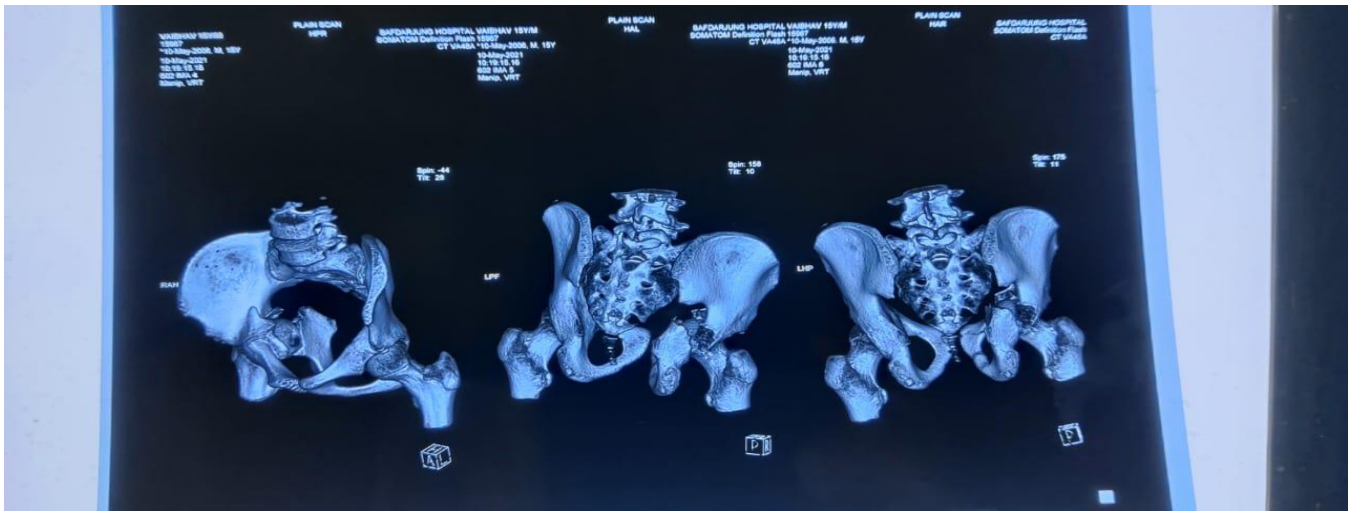
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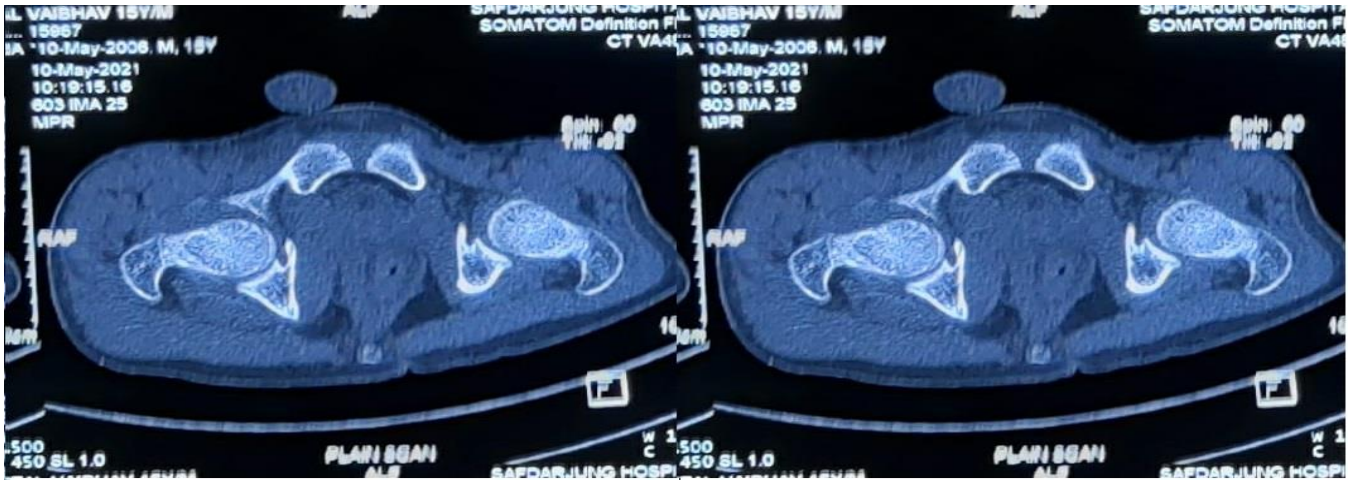
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Discussion

Fractures are a less common complication in seizure patients but have been reported to occur in 0.3 to 2.4%of patients who experience seizures[3, 4]. Of those diagnosed with a fracture, 50% had a fracture directly related to trauma, whereas only 25% had a fracture due to seizure activity alone, and in the other 25% fractures were undetermined4. Fractures of the pelvis involving the floor of the acetabulum usually result from high-energy external trauma, such as a motor vehicle accident or a fall from height with direct impact. In patients with seizure disorders, the occurrence of acetabular fracture after seizure without accompanying direct trauma is extremely rare. One of the first reports issued on acetabular fracture resulting from seizure was published in 1944 by Haines, whose patient was on anticonvulsive therapy[6]. It is also imperative to mention that long-term seizure patients who are under antiepileptic medications affecting intestinal calcium absorption can suffer from anticonvulsant osteopathy [7], which might increase their susceptibility to fracture.

Several factors could increase the fracture risk in seizure patients. Uncontrolled massive muscle contraction being one reason, and if they occur around the hip, in a craniomedial direction, especially in an osteoporotic bone, the force generated could be strong enough to lead to an acetabular fracture. Given the tremendous mass of pelvi-trochanteric muscle acting in a craniomedial direction, it is understandable that forceful contractions during generalized tonic clonic seizure activity can result in a fracture dislocation8.The mechanism of injury could be explained by massive uncontrolled muscle contractions which can force the head of the femur in the craniomedial direction against the acetabulum[9].

The causes of seizure-induced fractures include epileptic seizure, electroconvulsive therapy, seizure secondary to hyponatremia, diabetes mellitus, contrast media (Iohaxol) injection, alcohol withdrawal, antibiotic therapy, eclampsia or dialysis for patients with renal failure[1,5,6]. Neurocysticercosis has never been reported earlier as a cause of seizure-induced fractures.

Patients with extremity pain, deformity, ecchymosis, and crepitus should aid the identification of bone injury after a seizure and always be followed by radiographs of the affected area to prevent delayed diagnosis because unrecognized injuries following an epileptic seizure may result in long term functional disability[10]. Central acetabular fracture dislocation can be treated either operatively or nonoperatively depending upon the degree of displacement and medical condition of the patient. Nonoperative treatment of the displaced acetabular fractures often results in poor outcome and may need total hip arthroplasty later on[11]. This case highlights the importance of proper evaluation in young non-osteoporotic patients who have experienced an epileptic attack without any previous history of seizure attack. It is also imperative to mention that these patients should be thoroughly examined neurologically to find out the exact etiology and then be treated accordingly to prevent future seizure activity.

Furthermore, evaluation of extremity pain, deformity, ecchymosis, and crepitus can aid the identification of bone injury after a seizure and radiographs of the affected area are always necessary. Hence, the possibility of an acetabular fracture dislocation should be kept in mind when a patient complains of hip pain or cannot walk after a seizure.

Conclusion

In conclusion, the current case provides an example of a rare and relatively unknown but life-threatening fracture pattern caused by a seizure activity which is prone to delayed diagnosis and a significant mortality. Hence, the possibility of acetabular fracture dislocation should be kept in mind while examining a postictal patient even in young non-osteoporotic patients.

References

1. J. R. Pearson and E. J. Hargadon, “Fractures of the pelvis involving the floor of the acetabulum,” The Journal of Bone & Joint Surgery, vol. 44, pp. 550–561, 1962.

2. D. Buck, G. A. Baker, A. Jacoby, D. F. Smith, and D.W. Chadwick, “Patients’ experiences of injury as a result of epilepsy,” Epilepsia, vol. 38, no. 4, pp. 439–444, 1997.

3. P. F. Finelli and J. K. Cardi, “Seizure as a cause of fracture,” Neurology, vol. 39, no. 6, pp. 858–860, 1989.

4. Friedberg R, Buras J. Bilateral acetabular fractures associated with a seizure: a case report [J]. Ann Emerg Med 2005;46(3):260-2.

5. Park KS, Moon JY, Oh CS, et al. Acetabular central fracture dislocation after generalized seizure during lumbar myelography with iohexol [J]. Case Rep Orthop 2013;2013:190917

6. H. H. Haines, “An unusual complication of convulsive therapy,” The Psychiatric Quarterly, vol. 18, no. 2, pp. 273–277, 1963.

7. M. J. Moro-Alvarez, M. D´ıaz Curiel, C. De La Piedra, M. L. Mari˜noso, and M. T. Carrascal, “Bone disease induced by phenytoin therapy: clinical and experimental study,” European Neurology, vol. 62, no. 4, pp. 219–230, 2009.

8. A. T. Berman, P. C.Metzger, and J. L. Chinitz, “Central acetabular fracture-dislocation secondary to an epileptic seizure in a chronic renal patient,” Journal of Trauma, vol. 21, no. 1, pp. 66–67, 1981.

9. Y. Takahashi, H. Ohnishi, K. Oda, and T. Nakamura, “Bilateral acetabular fractures secondary to a seizure attack caused by antibiotic medicine,” Journal of Orthopaedic Science, vol. 12, no. 3, pp. 308–310, 2007.

10. C. J. J. M. Sikkink and A. Van Der Tol, “Unilateral transverse acetabular fracture with medial displacement of the femoral head after an epileptic seizure,” Journal of Trauma, vol. 48, no. 4, pp. 777–778, 2000

11. K. J. Song and K. B. Lee, “Generalized tonic-clonic seizure following myelography with Iohexol (omnipaque): a case report,” Journal of the Korean Orthopaedic Association, vol. 39, no. 5, pp. 586–588, 2004.