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A Rare Case Report of Bilateral Neck Femur Fractures following GTCS in Chronic Kidney Disease Patient

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Abstract

Introduction: Bilateral fractures of the femoral neck are extremely uncommon, especially as a consequence of generalized tonic-clonic seizures (GTCS). Such fractures typically occurs due to intense involuntary muscle contractions during seizures rather than from direct external trauma. Fractures of the femoral neck most commonly arise from high-energy trauma in younger individuals or trivial falls in elderly patients with osteoporosis. Bilateral femoral neck fractures occurring as a direct consequence of generalised tonic–clonic seizures (GTCS), in the absence of external trauma, are exceedingly uncommon and frequently missed during initial evaluation.

Case Presentation: We describe a 54 year-old male with CKD, who presented with bilateral hip pain and inability to bear weight following a witnessed generalized tonic–clonic seizure at home. Imaging confirmed displaced bilateral femoral neck fractures. The patient underwent staged bilateral hip hemiarthroplasty with satisfactory recovery.

Discussion: This case emphasizes that patients with chronic kidney disease are vulnerable to non-traumatic fractures after seizures due to compromised bone strength, making early diagnosis and coordinated multidisciplinary management vital.

Conclusion: Bilateral neck of femur fractures following GTCS in a CKD patient is extremely rare and necessitates high clinical suspicion for prompt diagnosis and management.

Keywords: Generalized tonic–clonic seizure, Bilateral femoral neck fracture, Seizure-induced fracture, Total hip replacement

Introduction

Bilateral fractures of the femoral neck are infrequent and are typically associated with high-energy trauma or specific pathological conditions. Seizure-induced fractures are rare and are most often described in the humerus and vertebral column due to intense involuntary muscle contractions. Bilateral femoral neck fractures following seizures are exceedingly rare. Chronic kidney disease–associated mineral and bone disorder further predisposes patients to skeletal fragility. We report a rare case of bilateral femoral neck fractures occurring after a generalized tonic–clonic seizure in a patient with advanced chronic kidney disease.

Case Presentation

A 54-year-old patient was brought to the emergency department after a generalized tonic–clonic seizure witnessed at home. There was severe bilateral hip pain and inability to stand or move lower limbs following the events. (Fig. 1, 2, 3)

Clinical Findings

Vital signs stable

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Both hips in slight external rotation
Marked pain on passive movement of hips
Neurovascular status of lower limbs intact

Laboratory Tests

Elevated serum phosphate
Secondary hyperparathyroidism (elevated PTH)
Low vitamin D levels
Elevated Vitamin B12 levels
Radiographs: Anteroposterior pelvis showed displaced bilateral femoral neck fractures
CT scan: Confirmed fracture morphology and excluded additional pelvic injuries.

Preoperative Optimization

In view of the patient's underlying chronic kidney disease and associated metabolic bone disorder, thorough preoperative optimization was undertaken. This included correction of electrolyte imbalances, careful optimization of intravascular volume status, and close monitoring of renal parameters. A multidisciplinary approach involving nephrology, anesthesiology, and orthopedic surgery was adopted to minimize perioperative risk.

Surgical Intervention:

Following stabilization, the patient was planned for definitive surgical management of the bilateral femoral neck fractures. (Staged total hip replacement)

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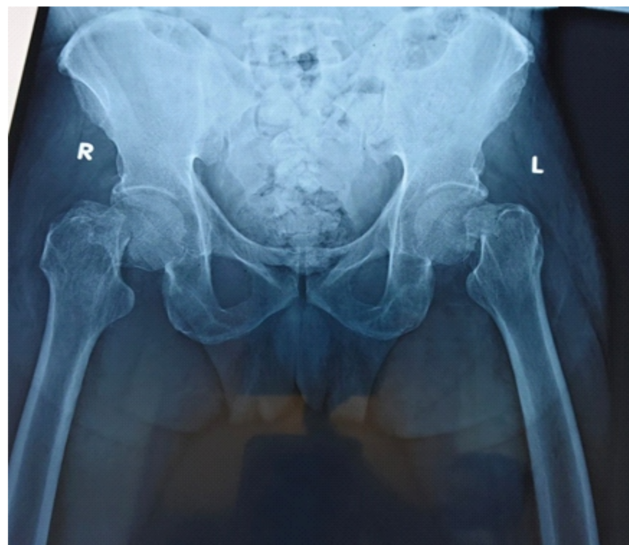

Figure 1: Pre op X-ray of Pelvis with Both Hip Joints

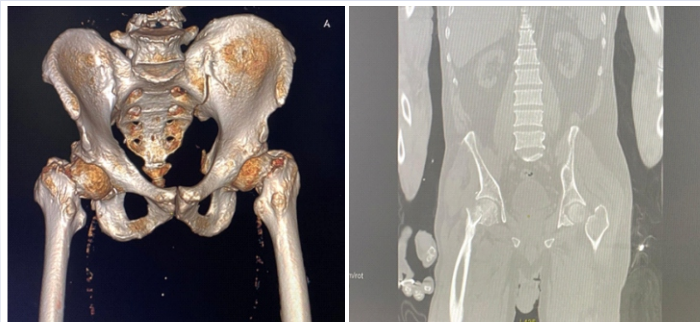

Figure 2: CT Scan Done

Discussion

Bilateral femoral neck fractures secondary to seizures are rare, particularly in patients with CKD, where renal osteodystrophy further compromises bone strength. Seizure-induced fractures often occur without external trauma, highlighting the need for high clinical suspicion when patients present with hip pain after seizures. Multidisciplinary perioperative management is critical to reduce morbidity and mortality. Early surgical intervention, along with renal stabilization and careful postoperative monitoring, improves outcomes.

This unusual fracture pattern requires a high index of clinical suspicion, particularly in patients with CKD who experience seizures. Early recognition is critical, as delayed diagnosis can lead to complications such as avascular necrosis, nonunion, and severe functional impairment. Imaging studies, including plain radiographs or CT scans, are essential for confirming the diagnosis and guiding surgical planning.

Management of such cases is particularly challenging due to the combined effects of seizure activity, metabolic bone disease, and renal dysfunction. A multidisciplinary approach involving nephrologists, orthopedic surgeons, anesthesiologists, and rehabilitation specialists is indispensable. Preoperative optimization of renal function, correction of electrolyte imbalances, and careful cardiovascular assessment reduce perioperative risks. Surgical intervention, whether through internal fixation or arthroplasty, should be performed promptly to restore mobility and prevent secondary complications. Postoperative care must focus on renal stabilization, pain control, prevention of infections, and early physiotherapy to enhance functional recovery. (Fig. 4)

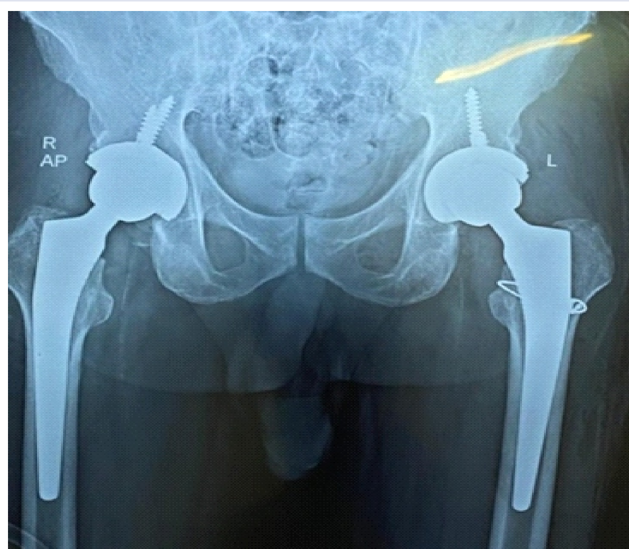

Figure 3: Post Op X-ray

Conclusion

Bilateral femoral neck fractures following seizures in patients with chronic kidney disease (CKD) are rare.These injuries can occur without trauma, necessitating high clinical suspicion when CKD patients present with acute hip pain post-seizure. Prompt imaging, perioperative stabilization, and correction of metabolic disturbances are critical. Multidisciplinary management involving nephrologists, orthopedic surgeons, anesthesiologists, and rehabilitation specialists optimizes outcomes. Early surgical intervention and structured postoperative care help restore mobility, minimize complications, and improve recovery, emphasizing the importance of coordinated care in this vulnerable population.

Figure 1: Management of such cases is particularly challenging due to the combined effects of seizure activity, metabolic bone disease, and renal dysfunction. A

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Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the Journal. The patient understands that his/her name and initials will not be published, and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

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