

Bilateral Simultaneous Femoral Neck Fractures Secondary to Epileptic Seizure: Case Report

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ABSTRACT

Background: Musculoskeletal injury secondary to epileptic seizure can occur among patients during episode of seizure. It might be complicated with fractures or dislocations. Femoral neck fracture secondary to epileptic seizure has a rare incidence.

Objective: This was a case report which had bilateral femoral neck fractures secondary to epilepsy with delay presentation. Patient was treated with bilateral hemiarthroplasty.

Case report: 31 years old male smoker unemployed known to have epilepsy for 15 years using Valproic acid 500 mg BID with no complaint to his medication. He was complaining of bilateral hip pain with inability to bear weight that was missed by physicians at that time and the patient neglected his symptom. After more than 2 months, he came to Emergency Department with same symptoms where imaging showed bilateral femoral neck fractures.

Conclusion: Bilateral femoral neck fracture secondary to epileptic seizure has a rare incidence. Physicians whether emergency physicians or orthopedic surgeons should consider it if the patient has any symptoms or signs of femoral neck fracture to avoid any complications and delay of management.

Keywords: Epileptic seizure, Femoral neck fractures secondary.

INTRODUCTION

Bilateral fracture of the femoral neck secondary to seizure is a rare event, with few cases described in the literature ⁽¹⁻³⁾. The occurrence of these lesions is related to vigorous tonic-clonic muscular contractions, which generate fractures or dislocations of the proximal segments of the members ⁽¹⁾.

Bilateral femoral neck fractures, occurring simultaneously in epileptic patients, have been described in the literature. Osteosynthesis is the preferential therapeutic choice of surgeons. Total Hip Arthroplasty (THA) in such indication carries an elevated risk of instability when the neurological terrain is taken into account ^(4, 5, 6 and 7).

CASE REPORT

31 years old male smoker unemployed known to have epilepsy for 15 years using Valproic acid 500 mg BID with no complaint to his medication, patient in 14th of February 2022 had multiple episodes of tonic-clonic epilepsy 3 times without history of traumatic injury, in last episode of seizure patient brought to the hospital and managed with medical team then he was discharged, he was complaining of bilateral hip pain with inability to bear weight that was missed by physicians at that time and the patient neglected his

symptoms. After more than 2 months, he came to Emergency Department with same symptoms and imaging showed bilateral femoral neck fractures

On examination both lower limbs were in external rotation with limited range of motion to both hips, distal neurovascular examination was within normal. X-ray pelvis showed bilateral femoral neck fractures type IV displacement according to Garden classification with migration of proximal femurs. DEXA scan was performed and it showed normal result of bone density.

Patient admitted and planned for hemiarthroplasty (Bipolar) in 2 stages, started with right hip then left hip after 1 month. We selected cementless Stryker with head size 46 mm and stem size #4 for both hips with anterolateral approach. Intra-operatively, we found a lot fibrous tissue formation surrounding the neck of femur with migration of both trochanteric area to proximal. Acetabulum looked normal with no osteoarthritic changes.

Post-operatively patient was able to start weight bearing as tolerated. After 4 days, patient was discharged with Enoxaparin 40 mg SC for 1 month after each stage to avoid any incidence of deep vein thrombosis or pulmonary embolism as following the American College of Chest Physicians ⁽⁸⁾.

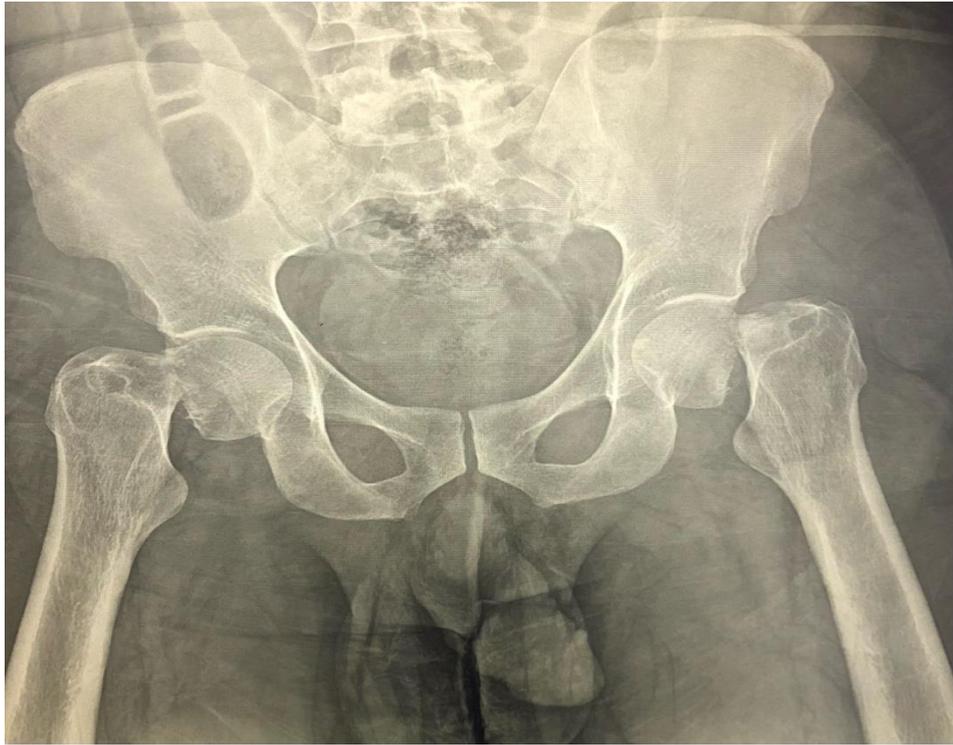


Figure (1): Anteroposterior X-ray showing bilateral femoral neck fractures.

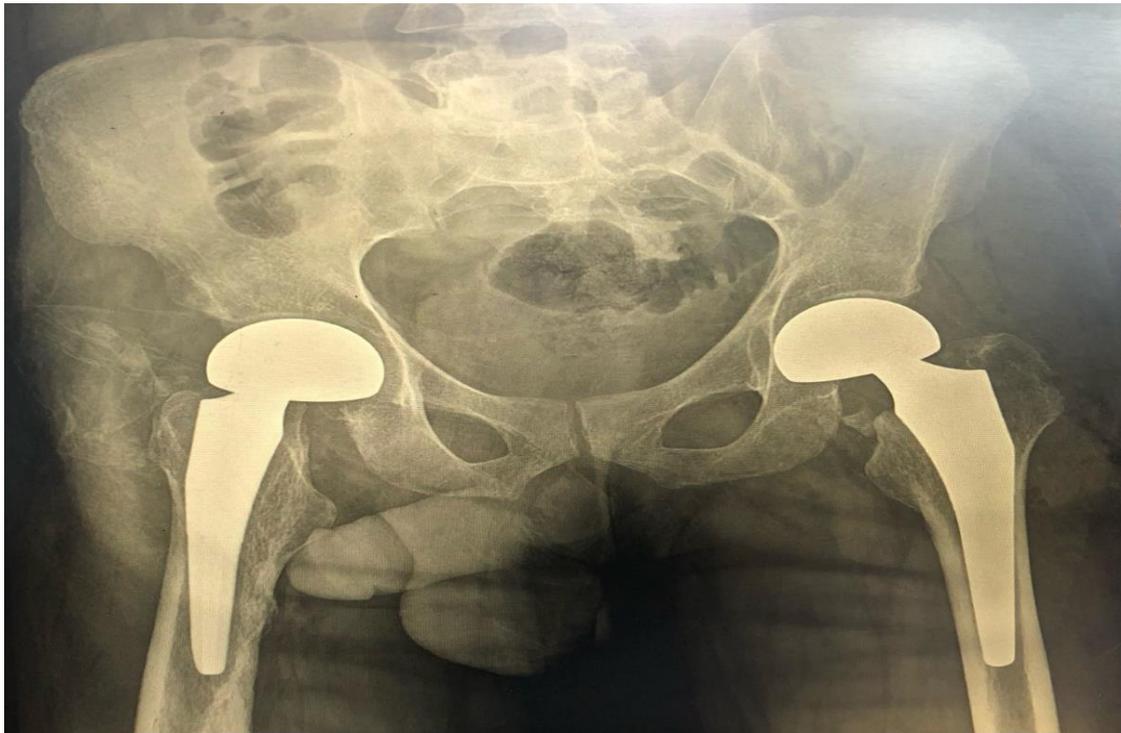


Figure (2): X-ray anteroposterior for post-operative 2nd stage bilateral hemiarthroplasty.

DISCUSSION

Femoral neck fracture can result of high energy trauma in young adult or low energy trauma in elderly people. Also, it can occur in other medical conditions such as severe osteoporosis or metastatic lesion. Fractures are present in 1.1% of all cases secondary to epilepsy⁽⁹⁾. In general, the risk of skeletal injuries with patients having epilepsy is two to six times higher than normal people⁽¹⁰⁾. The mechanism of injury in such cases is due to violent muscle contractions in proximal thigh during seizure⁽¹¹⁾. Incidence of femoral neck fracture has been reported before with different types of management. **Grimaldi *et al.***⁽¹⁾ reported a case with bilateral femoral neck fractures due to convulsion and managed with bilateral total hip arthroplasty in one stage. **Cagirmaz *et al.***⁽¹²⁾ reported 24 years old with bilateral femoral neck fractures followed grand mal epilepsy managed with 3 screws fixation. **Vanderhoof and Swiontkowski**⁽¹³⁾ reported bilateral femoral neck fractures following grand mal seizure managed with reduction, capsulotomy, and screw fixation. **Marsh *et al.***⁽¹⁴⁾ reported bilateral femoral neck fractures after seizure managed with 1 stage bilateral uncemented monopolar hemiarthroplasty.

The usual management when patient present with femoral neck fracture is urgent reduction and internal fixation. Some factors play role for operative decision, our patient had a delay presentation, and uncontrolled seizures, the reasonable operative option was arthroplasty due to high incidence of non-union and avascular necrosis with internal fixation^(15, 16). We planned for bipolar hemiarthroplasty to decrease risk of dislocation^(16, 17) and we did our approach as anterolateral approach also to decrease risk of dislocation⁽¹⁶⁾. the goal of treatment for our patient was to restore normal daily activity.

CONCLUSION

Bilateral femoral neck fracture secondary to epileptic seizure has a rare incidence. Physicians whether emergency physicians or orthopedic surgeons should consider it if the patient has any symptoms or signs of femoral neck fracture to avoid any complications and delay of management.

Conflicts of interest: None

Ethical approval: Not applicable

Funding: None.

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