

# Nontraumatic Bilateral Neck of Femur Fracture in Elderly Male Post-seizure Attack

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## ABSTRACT

Among the femoral neck fractures, unilateral injury is the most common presenting feature.<sup>1</sup> In the younger population, it is a result of high energy trauma from road traffic accidents or falls from height.<sup>1,2</sup> In the elderly population, a simple fall results in a fracture of the osteoporotic bone.<sup>3</sup> But a patient sustaining a bilateral neck of femur fracture without any trauma is a rare occurrence.<sup>4</sup> We recently received a 78-year-old male patient who sustained a nontraumatic bilateral neck of femur fracture following a single episode of a generalized tonic-clonic seizure. He is a known chronic obstructive pulmonary disease patient and recovered from COVID pneumonia 6 months back. The patient underwent modular cemented bipolar hemiarthroplasty for both hips as a staged procedure, and the patient was made for walking full weight-bearing from the second postoperative after the second hip was operated.

**Keywords:** Aged, Bilateral, Bipolar hemiarthroplasty, Proximal femoral neck fracture, Osteoporosis.

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## INTRODUCTION

Hip fractures in the elderly are one of the common fractures presented to the orthopedic department.<sup>3</sup> Femoral neck fractures are seen in young adults following high energy trauma and are common injuries in the elderly population secondary to osteoporosis.<sup>1-3</sup> Most of these injuries are usually unilateral. But a patient sustaining bilateral femoral neck fracture is a rare occurrence, and only a few cases have been reported in the literature.<sup>4</sup> These fractures occur as a result of high-velocity injury or a fall from height.<sup>4</sup> Bilateral femoral neck fracture of nontraumatic causes are even rarer, and the causes include chronic kidney disease, rheumatoid arthritis, pregnancy, chronic steroid intake, antiepileptic use and following the epileptic attack, electric shock or electroconvulsive therapy.<sup>5,6</sup> We recently treated a 78-year-old male who has sustained bilateral femoral neck fracture following a generalized tonic clinic seizure.

## CASE REPORT

A 78-year-old gentleman presented in the emergency department with complaints of bilateral hip pain and was unable to bear weight in both lower limbs for the past 1 day. The patient's attenders gave a history of one episode of seizure in his home, following which the patient was not able to bear weight and complained of pain in the bilateral hip region. After clinical and radiological examination, he was diagnosed to have bilateral garden type 4 femoral neck fracture (Fig. 1). MRI brain was done as advised by the neurologist, and it turned out to be normal. He was diagnosed with COVID-19 infection 6 months back (Fig. 2) and treated accordingly. The patient is a known case of the chronic obstructive pulmonary disease for 5 years on irregular treatment. The seizure episode was a generalized tonic-clonic seizure, and the patient had not experienced any similar episode in the past. The initial plan was to do hemiarthroplasty on both sides, considering the fracture pattern and the patient profile. The dilemma was whether to operate in a single sitting or as a staged procedure and whether to do a cemented or uncemented hemiarthroplasty. We did a literature

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search, and the literature evidence showed both uncemented and cemented hemiarthroplasty showing similar results, and early mobilization was better with cemented hemiarthroplasty.<sup>7</sup> General anesthesia was deferred by the anesthesia team due to respiratory complications and the risk of a patient getting intubated post-surgery. Similarly, the regional anesthesia dose and time of surgery are to be reduced owing to respiratory complications of the patient. So we decided to do bipolar cemented hemiarthroplasty as a staged procedure with a gap of 5 days between each procedure. Right hip modular cemented bipolar hemiarthroplasty was performed first, and the intraOp period was uneventful. The patient was stable, maintaining saturation using nasal prongs with 2 liters of oxygen. There was a fall in the saturation on the second postoperative day. The patient was suspected of having developed pulmonary embolism, but the CT pulmonary angiogram (CTPA) turned out to be normal. He was diagnosed with aspiration pneumonitis and managed with non-invasive ventilation and intravenous antibiotics. The general condition of the patient improved, and on the 9th postoperative day, the patient underwent left hip cemented bipolar hemiarthroplasty. Intraoperatively the patient had one episode of bradycardia following cementing, which was managed appropriately. The postoperative period was uneventful. Figure 3 shows the postoperative X-ray after bilateral



Fig. 1: X-ray pelvis with both hips showing bilateral neck of femur fracture



Fig. 3: Postoperative x-ray of a pelvis showing bilateral hip bipolar modular hemiarthroplasty

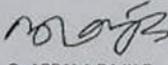
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**MICROBIOLOGY**

Lab Ref No : 21M019635 ICMR No: 223769987 Page: 1 of 1  
Name : ██████████ Age: 77 Yrs / M Reg.No : O13043135  
Sample Coll on : 26/03/21 15:05 Dept/Unit: RM / /  
Reported on : 26/03/21 17:10  
Address : ██████████

Test Name	Result	Reference Range
*SARS-CoV-2 (Realtime RT-PCR)		
SPECIMEN	NASOPHARYNGEAL & OROPHARYNGEAL	
Interpretation	POSITIVE FOR SARS COV-2	NEGATIVE
N Gene	DETECTED	
ORF Gene	DETECTED	

End of the Report

   
Dr. APPALA RAJU B  
PROFESSOR

**Interpretation guidance:**

- \* Testing of referred clinical specimens was considered on the basis of request/referred received from/through State Surveillance Officer (SSO) of concerned State Integrated Disease Surveillance Programme (IDSP)/any other health care facility affirming requirements of the case definitions.
- \* A single negative test result, particularly if this is from an upper respiratory tract specimen, does not exclude infection\*.
- \* Repeat sampling and testing of lower respiratory specimen is strongly recommended in severe or progressive disease. The repeat specimens may be considered after a gap of 2-4 days after the collection of the first specimen for additional testing if required.
- \* A positive alternate pathogen does not necessarily rule out either, as little is yet known about the role of coinfections.

Fig. 2: RTPCR report showing COVID-19 positive

bipolar hemiarthroplasty. We mobilized the patient from the first post-op day full weight-bearing with walker support (Fig. 4). As the general condition of the patient was stable, he was discharged from the hospital and advised for regular follow-ups.

## DISCUSSION

Bilateral femoral neck fracture following convulsions is rare and occurs mainly in patients with osteoporosis and osteomalacia. The incidence of fractures following seizures is around 1%.<sup>8</sup> The common injury being described post seizures

are shoulder fracture-dislocation and vertebral fracture. The powerful and violent contraction of the muscles that occurs during convulsions results in a fracture with osteoporosis as contributing factor.<sup>9</sup> The fractures following seizures are significantly more comminuted due to osteopenia and decreased bone mineral density.<sup>10-12</sup> Our patient is an elderly male who developed a nontraumatic bilateral femoral neck fracture following an episode of a generalized tonic-clonic seizure.

Sakai et al. has reported two cases, one due to tetany and the other due to hypomagnesemia.<sup>13</sup> Taminiou et al. reported two cases of bilateral neck fracture due to violent muscle spasm



**Fig. 4:** The patient mobilized using walker support on post-op day 2 of left hip hemiarthroplasty

following myelography.<sup>14</sup> Ribacoba et al. reported a patient who sustained simultaneously hip dislocation and contralateral femur neck fracture following a seizure episode.<sup>15</sup>

Concluding the bilateral femur neck fracture of nontraumatic origin is a rare case scenario. The incidence of fractures following seizures is around 1.1%.<sup>16</sup> Hence the treating doctors must have in mind the possibility of fractures following such events.

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