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## Case Report

# Incidental Finding in the Post Anesthesia Care Unit after a Post- Anesthetic Seizure - Ⓜ

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## ABSTRACT

**Objective:** This case demonstrates an incidental finding after a patient suffers a seizure in the Post Anesthesia Care Unit (PACU)

**Case report:** A 46-year-old African American male was scheduled for a right hip arthroplasty due to an osteoarthritic hip following a motor vehicle accident in 2007. This patient had no previous surgical history and no significant medical history. Moments after transfer to the PACU the patient flailed his arms above his head for a brief duration estimated to have lasted less than 15 seconds. The movements subsided without the requirement of anti-seizure medications.

**Conclusion:** The Computed Tomography scan (CT) demonstrated a large frontal mass (Figure 1). The patient started levetiracetam and was subsequently discharged home without sequelae the patient will be scheduled for surgery in the next upcoming months for removal of the meningioma.

## CASE DESCRIPTION

A 46-year-old African American male was scheduled for a right hip arthroplasty due to an osteoarthritic hip following a motor vehicle accident in 2007. This patient had no previous surgical history and no significant medical history. His pre-operative lab work included a Complete Blood Count (CBC) and Basic Metabolic Panel (BMP) that were within normal limits as per the FDA investigations operations manual 2015 <https://www.fda.gov/downloads/ICECI/Inspections/IOM/UCM135835.pdf>. Induction medication included 80 milligrams of lidocaine, 100 micrograms of fentanyl, 150 milligrams of propofol, and 120 milligrams of succinylcholine. After induction, 2 grams of Cefazolin and 1 gram of tranexamic acid was given over thirty minutes prior to the incision time. The patient was intubated without difficulty. Anesthesia was maintained with sevoflurane and nitrous oxide was used in combination for the last hour of the case. The time from induction to extubation was two hours and a total of 450 mL of blood loss was calculated. The patient was extubated at the end of the procedure when he resumed adequate spontaneous ventilation, and opened his eyes to command. He was transported to the PACU awake and alert. Upon arrival, vital signs were stable and the patient was responsive. The patient had been in PACU for approximately thirty minutes when nursing staff noticed that the patient sat up abruptly and flailed his arms above his head for a brief duration estimated to have lasted less than 15 seconds. The movements subsided without the requirement of anti-seizure medications. On examination the patient had an upward gaze, was breathing spontaneously, was unresponsive to commands and vital signs showed elevated systolic

blood pressure to 180 mmHg, and tachycardia to 120 bpm. Stat glucose finger stick was 111 ml/dl. Neurology was consulted, CBC, BMP, and non-contrast head CT were ordered. There were no electrolyte abnormalities revealed with the lab work. CT scan of the head displayed a 3.3 cm meningioma projecting from the inner table of the left frontal calvarium causing a mass effect upon the anterior left frontal lobe, while demonstrating vasogenic edema. While the CT scan was obtained approximately 15 minutes after the seizure occurred, his postictal state began to resolve approximately 40 minutes from the onset of the seizure. He began to follow commands and make purposeful movements, however he was not able to recall what had happened. Neurology recommended prophylaxis with a one gram loading dose of levetiracetam and 500 milligrams twice daily. EEG was ordered revealing a normal EEG with good variability and reactivity. Neurosurgery consult was obtained, recommending a Magnetic Resonance Imaging (MRI) of the head without contrast and a follow up appointment as an outpatient. The MRI was remarkable for a 4.2 x 2.9 x 5.0 cm left frontal meningioma displacing the anterior left frontal lobe with mild vasogenic edema.

## DISCUSSION

Seizures occurring after surgery may have various causes [1]. The anesthetic period in this patient was without hypotensive or hypoxic insults and was unremarkable. None of the anesthetics used was known to be seizurogenic. The patient's seizure occurred approximately thirty minutes into the PACU stay and there was no inciting medication given at that time.

Differential diagnosis of a seizure in the PACU includes cerebrovascular accident, CNS infection, drug effect, epilepsy, withdrawal from substance abuse, brain tumor/trauma, eclampsia, metabolic derangement such as hypoglycemia, hyponatremia and uremia [1]. There are also other events that can mimic a seizure such as syncope, and psychogenic nonepileptic attacks, and movement disorders [2]. Supportive care and prompt diagnostic evaluation must be undertaken to avoid adverse sequelae. The first step is to make sure the patient has stable vital signs and provide supportive care as needed using ACLS protocol [3]. A blood glucose reading is essential and can be obtained quickly. Labs should also be drawn to rule out any metabolic derangements such as hyponatremia or uremia. A CT scan is also warranted in a patient with new onset of seizures to rule out any intracerebral cause.

This patient's MRI was remarkable for a 4.2 x 2.9 x 5.0 cm left frontal meningioma displacing the anterior left frontal lobe with mild vasogenic edema. He was started on levetiracetam by neurosurgery and underwent craniotomy for resection of the mass about two months later. He was also counseled prior to the craniotomy that



**Figure 1:** Frontal meningioma found on Computed Tomography a mass approximately 3.3cm in diameter.



he should not drive, swim while alone, not stand in places that are elevated, etc to prevent him from being harmed if another seizure would occur.

## CONCLUSION

In the United States, approximately 150,000 individuals will present with new onset of seizure annually, and over a lifetime, seizures will affect approximately eight to ten percent of the population [1,4]. Seizures occurring after surgery are uncommon, but it is paramount to perform an appropriate evaluation in a timely manner to avoid detrimental outcomes [5].

An acute onset of a transient neurologic event in the post-op period, possibly representing a seizure, must be differentiated from transient ischemic attack or stroke, syncope, medication side effects, metabolic derangement, migraine, movement disorder, narcolepsy with cataplexy, panic attack, and psychogenic nonepileptic seizure [6].

Initial misdiagnosis of seizure may result in inadequate management, harm to the patient, and unneeded medical costs [7].

Our patient underwent right hip arthroplasty with no known complications and was following commands after extubation. He was transferred to the Post-Anesthesia Care Unit (PACU) in stable condition. Approximately 30 minutes later, patient had an abrupt clinical onset of flexion of trunk and bilateral abduction of upper extremities with right upward gaze deviation and inability to follow commands. Event duration was an estimated fifteen seconds followed by confusion resolving within minutes.

Immediate evaluation following a transient neurologic event begins with a primary survey assessing airway, breathing, and circulation. Once stabilized, a focused neurologic examination should be performed. This includes determining Glasgow Coma Scale (GCS), pupil size and reaction to light, gaze deviation, weakness, and potential sensory level [3]. Findings such as unilateral weakness, hyperreflexia, and extensor plantar response would raise concern for pathology involving the contralateral cerebrum [3].

According to the American Academy of Neurology Guideline for evaluating a patient with an apparent unprovoked first seizure, blood glucose, blood counts, and electrolyte panels may be helpful in specific situations, but overall there was insufficient data to support or refute a universal recommendation. Brain imaging with either CT or MRI

is recommended as 10 percent of cases will reveal findings, such as tumor, vascular abnormality, or infection, which will change patient management [1]. EEG is also recommended as the yield is substantial and is known to help determine the risk for seizure recurrence [1].

This patient's MRI was remarkable for a 4.2 x 2.9 x 5.0 cm left frontal meningioma displacing the anterior left frontal lobe with mild vasogenic edema. EEG was unremarkable and showed normal brain activity. A neurology and neurosurgery consult was placed and patient was started on levetiracetam due to increased risk of seizure recurrence. Emphasis was placed on educating patient on seizure precautions, including but not limited to: driving restrictions, water and height precautions, and potential triggers such as sleep deprivation [8].

This case illustrates the importance of recognizing a transient neurologic event that could represent seizure, importance of neurological exam, EEG, and imaging to provide high quality patient care [3].

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