

## Seizure-Like Activity Due To a Panic Attack at the Time of Emergence from General Anesthesia: A Case Report

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### Abstract

Anxiety and stress are common among surgical patients in the preoperative period. We present the first case report of a panic attack at the time of emergence manifested in prolonged seizure-like activity. The anesthesia provider needs to be aware of symptoms and differential diagnosis in connection with stress in the perioperative period.

### Introduction

Having surgery can bring a lot of stress on patients. Overstress could present as a panic attack which is a period of intense fear accompanied by abrupt onset of cognitive and somatic symptoms. At the same time, recovering from general anesthesia often associates with inappropriate mental reactions ranging from lethargy and confusion to physical combativeness, thrashing and extreme disorientation [1,2]. We present a case of prolonged seizure-like movement activity during emergency from general anesthesia due to severe panic attack.

### Case Description

A 57 year old 83 kg healthy male presented for irrigation and debridement of a right ankle abscess. Preoperatively, the patient was pre-medicated with 2 mg of midazolam for mild anxiety. The procedure was performed under general anesthesia using a laryngeal mask airway (LMA). General anesthesia was induced using fentanyl 50 mcg and propofol 2 mg/kg, and maintained with 1 MAC of sevoflurane in O<sub>2</sub>/air, and supplemented with titrated doses of fentanyl as needed for a total of 200 mcg. The patient was stable throughout the 30 minutes-procedure. At the time of emergence and as the end tidal (ET) sevoflurane concentration dropped to 0.2%, the patient started to have generalized non purposeful clonic movements in all extremities in a seizure-like activity. He was unresponsive, hyperventilating, tachypnic, tachycardic with an oxygen saturation dropping to 90% on FiO<sub>2</sub> of 1. It was thought that the patient suffered from emergence delirium. As the patient condition did not improved over the next 5 minutes, help was requested, and the anesthesia was deepened with sevoflurane. Shortly after, the symptoms resolved and patient was extubated deep, symptoms resumed again after ET sevoflurane concentration fell to 0.2. The patient continued to be unresponsive for the next 10 minutes; his pupils were 4-5 mm in size and reactive. Arterial blood gas (ABG) was performed and showed mild respiratory alkalosis and mild metabolic acidosis with normal glucose and electrolytes.

The differential diagnosis at this time included seizure (less likely as there was no history of seizure with any rigidity and midline pupils). Emergence delirium or state 2 excitements is very common, but was less likely due to the length of the activity and the rhythmic and non purposeful nature of the movements. Paradoxical reaction to sedatives, anesthetics, or the possibility of recreational drugs intoxication or withdrawal; however there was no history to support this diagnosis. Metabolic abnormalities including severe hypoxia, hypercarbia, hypoglycemia or electrolyte abnormalities were ruled out by normal range laboratory values on the ABG. The possibility of a severe anxiety or panic attack, giving the emergence of symptoms as level of sevoflurane decreases.

Twenty minutes after the movement activities started, the patient started to respond to verbal commands with head movement confirming having difficulty with breathing and chest pain, this gave more cues for the likelihood of panic attack. Intravenous midazolam was titrated at this time till the symptoms resolved. Total of 4 mg of midazolam was administered over 5 minutes. The patient became more responsive and was transferred to the post anesthesia care unit in stable condition. The diagnosis was confirmed with the patient in the postoperative visit as he became more alert. The patient denied any recall of the procedure itself, but indicated that he was aware and remembered feeling choking upon awakening from anesthesia. He reported that he used to have panic attacks several years ago. The patient was reassured and was advised to follow up with his primary physician.

### Discussion

Panic attack is a period of intense fear or discomfort [3]. Panic attacks are quite common and 9% of general population has reported experiencing a full-blown panic attack [3]. Four or more of the following symptoms: palpitation, sweating, trembling or shaking, sensations of shortness of breath, feeling of choking, chest pain or discomfort, nausea or abdominal distress, dizziness, derealization, fear of losing control, fear of dying, paresthesias, and chills or hot flushes. The symptoms develop abruptly and reach a peak within 10 minutes and resolve within an hour [4].

Adverse psychological responses during awakening from general anesthesia are the most frequent cause of emergence reaction. For a short period after regaining consciousness, some patients appear unable to process sensory input appropriately. While many patients exhibit sluggish mental reaction, others experience wide emotional swings [2]. Panic attacks could be cued or uncued. Perioperative stress could generate severe anxiety that frequently manifested as chest pain or shortness of breath. The symptoms may result in extensive work up

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to rule out other etiologies. Recall of intraoperative events can generate panic and anxiety [5]. In our case, the patient denied any recall of the procedure until he started to emergence from general anesthesia with a perception of choking, which may triggered the panic attack.

In general, the differential diagnosis of panic attacks includes other mental and psychiatric conditions in addition to medical conditions, such as hyperthyroidism, pheochromocytoma, seizure disorders, electrolytes abnormalities, and drug intoxication such as amphetamine and cocaine, or withdrawal of depressant such as alcohol [4]. It should be kept in mind that perioperative medications such as sevoflurane, fentanyl, ketamine, and propofol have been reported to cause seizure like activity or induce seizure [6-9]. At the time of emergence the differential diagnosis should include medical emergencies such as hypoxia, airway obstruction, hypotension and hypoglycemia [2]. Medical emergencies should be ruled out before making the diagnosis of anxiety, pain or panic attack. Administration of sedatives or analgesic medications should only be attempted after ruling out life threatening conditions.

## Conclusion

Panic attack could present on emergence from general anesthesia. The anesthesia provider needs to be aware of symptoms in connection with stress in the perioperative period and with the clinical

manifestations of panic attack. She should be aware of other etiologies that could cause a similar clinical picture to provide adequate treatment.

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