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CASE REPORT

Hemorrhage Accompanying Psychogenic Nonepileptic Seizure During Cesarean Section: A Case Report

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Introduction: Psychogenic nonepileptic seizures (PNES) during the perioperative period remain an underrecognized and under-investigated phenomenon. This type of disorder is characterized by sudden and short-lived convulsions, but they are which triggered by psychological factors. In cases of lack of experience, PNES is prone to be identified as epilepsy. Correct identification and proper treatment can more effectively protect patient safety.

Patient Concerns: A pregnant woman, with a history of two miscarriages, developed unexplained convulsions after gynecologic surgery two years ago. The current plan is to perform a cesarean section under subarachnoid anesthesia. One hour after the fetus was delivered smoothly, when she was about to be transferred to the ward, a large amount of vaginal bleeding was found. The patient was reoperated on to control the bleeding immediately, during reoperation, she got a series of convulsions, charactered by involuntary head swaying and involuntary twitching of both upper limbs. The patient remained conscious and no symptoms such as staring with both eyes or foaming at the mouth were observed.

Main Diagnoses, Interventions, and Outcomes: After the convulsions occurred, the patient was subjected to general anesthesia with tracheal intubation. After the operation, the patient was transferred to the intensive care unit for observation. Based on the patient's clinical manifestations and past medical history, the final diagnosis was PNES. On the fifth day after the operation, the patient was discharged safely.

Conclusion: PNES are an important differential diagnosis for perioperative convulsive seizures. Patients often suffer from anxiety, depression or other mental disorders or stress. During an attack, it is often manifested as involuntary left and right swaying of the head and upper limbs, without loss of consciousness.

Keywords: psychogenic nonepileptic seizure, PNES, convulsion, postpartum hemorrhage, cesarean section, differential diagnosis, case report

Introduction

Psychogenic nonepileptic seizures (PNES), are symptoms similar to epilepsy triggered by psychological factors such as trauma, anxiety, and stress, but without abnormal discharges of brain neurons.[1] PNES is a well-known disease in neurology, but it is a niche issue and rarely reported during the perioperative period.[2,3] Therefore, convulsive events that occur during the perioperative period are prone to be diagnosed as epilepsy.[4,5] Early and correct diagnosis and intervention can prevent complications caused by improper treatment and reduce resource waste.

We report a case of suspected epileptiform seizure in a parturient with massive hemorrhage during cesarean section, which was subsequently diagnosed as PNES.

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Case Report

A 30-year-old pregnant woman scheduled for a cesarean section due to amenorrhea of 38+6 weeks, gestational diabetes and a previous history of "convulsions". The last time the patient experienced convulsions was two years ago, during the recovery period in the post-anesthesia care unit (PACU) after laparoscopy and hysteroscopy under general anesthesia. The specific circumstances are unknown. Given this medical history, neurologists and anesthesiologists were invited for preoperative consultation. After assessment, no active neurological contraindications for subarachnoid anesthesia or elective cesarean section were identified at that time.

The patient was smoothly anesthetized under subarachnoid block, but a massive uterine hemorrhage occurred at the end of the operation. Subsequently, the patient experienced two convulsions within 30 minutes, each lasting 1 to 2 minutes and then resolving on its own. These symptoms are manifested as involuntary head swaying and involuntary twitching of both upper limbs. The patient remained conscious and no symptoms such as staring with both eyes or foaming at the mouth were observed. Videos S1 and S2 provide video recordings documenting two of the patient's seizure episodes). After the senior physician arrived, the tracheal intubation under general anesthesia was changed for the patient, and 20mg of etomidate and 40mg of rocuronium were used for induction. A mild convulsion occurred again after extubation after the operation. Sedation was administered with 2mg of midazolam. Subsequently, the patient was transferred to the ICU for further observation (Table 1).

The neurologist's consultation indicated that the patient had no previous history of epilepsy and considered that this seizure might be related to surgical factors. It was recommended to conduct brain magnetic resonance imaging, serological tests such as anti-epileptic antibodies (such as NMDA-R antibodies) and GAD antibodies, but the patients all refused. Only the electroencephalogram showed slight abnormalities. The patient's remaining hospital stay remained stable. The patient was transferred back to a regular ward the day after the operation and was discharged on the fifth day.

Discussion

After discussion by the doctor, the case ruled out organic causes such as generalized tonic-clonic seizures (GTCS) and severe eclampsia through clinical symptoms. The intraoperative blood gas analysis results also do not support that it was caused by internal environmental disorders. The 30-year-old woman got pregnant twice after getting married at the age of 26, but both pregnancies ended in miscarriage two months later. Having undergone gynecological surgeries (adhesion removal and Transcervical Resection of Uterine Septum) four and two years ago could have contributed to underlying psychological stress. In this context, the acute stress of an emergency repeat laparotomy coupled with massive intraoperative hemorrhage likely acted as the immediate triggers for the PNES episode. Therefore, this case is likely to be diagnosed as PNES.

A background of psychiatric disorders is common and may include depression, anxiety, somatoform disorder, borderline, narcissistic and histrionic personality disorders, as well as a history of sexual and/or physical abuse.[6,7] A synthesis of evidence from a systematic review indicates that PNES can be reliably distinguished from epileptic seizures by a constellation of signs, including prolonged and fluctuating episodes, asynchronous motor activity (eg, pelvic thrusting, side-to-side movements), ictal eye closure, vocalizations like crying, experiential phenomena such as memory recall, and a lack of postictal confusion.[8,9] The diagnosis of PNES is one of exclusion, and the gold standard diagnostic tool appears to be simultaneous recording of seizures on video tape and electroencephalogram(EEG) recording.[10–12]

Table 1 Timeline of Events

Time	Event
14:04	The fetus is delivered.
14:40	A large amount of vaginal bleeding was found
15:00	Re-opening the abdomen revealed a significant amount of bleeding
15:26	The patient experienced the first convulsion, was conscious and had stable vital signs
15:34	Convulsions occurred again, and then tracheal intubation and general anesthesia were changed for the patient
16:52–17:00	After the tracheal tube was removed after the operation, there were intermittent mild twitching reactions
17:30	The patient's condition improved and was transferred to ICU for continued monitoring

Most cases of epileptiform symptoms in parturients during the perioperative period may be due to eclampsia.[13,14] However, when considering the important differential diagnosis for this group of patients, psychogenic non-epileptic seizures (PNES) should also be taken into account, especially in the context of acute psychological stress. For instance, Ribeiro et al reported a case of a woman with a suspected history of eclampsia who experienced recurrent seizures during a subsequent cesarean section; continuous electroencephalogram (EEG) during the event did not show epileptic-like activity, leading to a diagnosis of PNES.[15] Similarly, Devireddy and Sharma described a pregnant woman who experienced recurrent and persistent non-reactive periods; normal EEG and MRI results, along with identified psychosocial stressors, supported the diagnosis of PNES.[16] These reports emphasize that PNES can mimic eclampsia or other organic epileptic seizures during the perinatal period and highlight the crucial role of EEG monitoring and comprehensive psychological-social assessment in achieving an accurate diagnosis.

In our case, the parturient had normal blood pressure in the past, and during the attack, there was no loss of consciousness, proteinuria and edema. This is the first reported case of PNES occurring specifically during a cesarean section and being acutely triggered by massive intraoperative hemorrhage. When symptoms occurred, we were temporarily unable to quickly determine the patient's diagnosis. Therefore, our anesthesia management promptly provided tracheal intubation and general anesthesia to ensure the airway safety of the parturient. This case can provide more experience for obstetricians, gynecologists and anesthesiologists to handle similar events that occur during the perioperative period.

Abbreviations

PNES, Psychogenic nonepileptic seizures; PACU, post-anesthesia care unit; ICU, intensive care unit; GTCS, generalized tonic-clonic seizures; EEG, electroencephalogram.

Study Approval Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of The Third Affiliated Hospital of Zunyi Medical University. The committee also approved the release of this anonymized case report, including its detailed information. The ethical approval number is (2025)-1-796.

Consent to Publish Statement

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors have no conflicts of interest to declare for this work.

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