

The Twilight Zone: A Case Report of Delayed Emergence after General Anesthesia for a Routine Cystoscopy

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Background

- Delayed emergence (DE) is a well-known phenomenon in the field of anesthesia. Typically, emergence from anesthesia should occur within 60-90 minutes following even long periods of time under an anesthetic.
- While pharmacologic causes are the most common cause of delayed emergence, metabolic derangements and neurological causes also play an important role. While even less common, there are unexplained and unusual causes of DE that can present as difficult to diagnose clinical scenarios.
- The goal of this case report is to present an usual case of delayed emergence and to aid anesthesiologists in their approach to the slow to wake patient (1,2,3,4,5).

Case Presentation

- Female patient presented for scheduled routine cystoscopy with lithotripsy. Her medical history includes chronic lymphocytic leukemia, arthritis, COPD, depression, T2DM, GERD, hypertension, chronic pain, dyslipidemia.
- Her home medications prior to the procedure included diphenhydramine 25 mg, Ibrutinib140 mg, Cyclobenzaprine 5 mg, Prazosin 2 mg, alprazolam 1 mg, zolpidem 10 mg, ropinirole 1 mg, Quetiapine 100 mg.
- The patient was seen and evaluated in the preop area, vitals were stable and the patient was alert and oriented x 4. Induction was performed with propofol, fentanyl, rocuronium and maintenance with sevoflurane.
- The patient remained hemodynamically stable throughout the case and received 50 mcg of fentanyl for narcotic based analgesia throughout the entire case.
- She was reversed appropriately with Sugammadex with qualitative TOF showing 4 twitches without fade prior to extubation.
- She was taken to the PACU and had no immediate postoperative complications.
- At around 75 minutes post extubation it was brought to our attention that there was no clinical improvement with the patient's mentation.
- A peripheral nerve stimulator was obtained in the recovery bay and the patient demonstrated 4 twitches at the site of the adductor pollicis muscle.
- Gag reflex was absent, however corneal reflexes were intact.

Category	Causes	Key Features
Pharmacologic	Residual anesthetics, opioids, benzodiazepines, incomplete neuromuscular blockade, polypharmacy	Slow breathing, pinpoint pupils (opioids), muscle weakness, response to reversal agents
Metabolic	Hypoglycemia, hypercarbia, hypoxemia, electrolyte imbalance, hypothermia	Low glucose, hypoventilation (high EtCO ₂), metabolic derangements, shivering, bradycardia
Neurologic	Stroke, seizures (postictal), intracranial hemorrhage, increased ICP	Focal deficits, confusion, abnormal CT/MRI, papilledema
Endocrine	Adrenal insufficiency, hypothyroidism (myxedema coma)	Hypotension, hyponatremia, hypothermia, bradycardia, altered mental status
Psychiatric	Pseudo-coma (conversion disorder, malingering), catatonia	Normal reflexes, resistance to passive movement, normal EEG

Figure 1: Approach to the differential diagnosis of Delayed Emergence

Interventions and Outcome

- IV 0.4mg of Narcan x 2 was administered without any clinical improvement.
- Labs obtained including BMP, ABG, TSH were unremarkable.
- At this time, the patient was taken to the emergency department in order to obtain an emergent noncontrast CT head to rule out CVA, where she spontaneously returned to baseline prior to entering the CT scanner.
- Ultimately, noncontrast CT head was unremarkable and the patient was discharged in stable condition with return to baseline.

Discussion

- Delayed emergence is a common occurrence in the perioperative setting, the utilization of standard tools such as emergency manuals allows anesthesiologists to efficiently and effectively improve patient safety.
- Emergency manuals have been used in the clinical setting for many years and this case report further supports the evidence that evidence-based standardized clinical guidelines can be appropriately used in critical, emergent and stressful situations with positive patient outcomes.
- Our suspicion is that this patient may have suffered delayed emergence secondary to residual effects of volatile anesthetics or potentially secondary to a psychiatric disorder related to a catatonic response.
- Figure 1 displays a broad range of differential diagnoses to keep in mind when encountering a patient with DE.

References

- Tzabazis A, Miller C, Dobrow MF, Zheng K, Brock-Utne JG. Delayed emergence after anesthesia. J Clin Anesth. 2015 Jun;27(4):353-60. doi: 10.1016/j.jclinane.2015.03.023. Epub 2015 Apr 23. PMID: 25912729.
- Berg SM, Braehler MR. The Postanesthesia Care Unit. In: Gropper MA, Eriksson LI, Fleisher LA, Wiener-Kronish JP, Cohen NH, Leslie K, ed. Miller's Anesthesia; Ninth Edition; Philadelphia, PA. Elsevier; 2020: 2586-2613.
- Stanford Ether. Delayed Emergence from Anesthesia. Link. Published 2022. Accessed 08/01/2022.
- Yonekura H, Murayama N, Yamazaki H, et al. A case of delayed emergence after propofol anesthesia: Genetic analysis. AA Case Rep. 2016; 7 (11):243-6. PubMed
- <https://web.stanford.edu/dept/anesthesia/em/epic-manual.pdf>
- Schneck HJ, Rupreht J. Central anticholinergic syndrome (CAS) in anesthesia and intensive care. Acta Anaesthesiol Belg. 1989; 40(3): 219-28. PubMed

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Figure 2: The cover of the Stanford Anesthesia Cognitive Aid. This manual can easily be accessed in PDF form on mobile devices