



Postpartum Collapse Subsequent to Catatonia in a Female with COVID-19 Infection: a Rare Entity Visited

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Abstract

Postpartum collapse is a life-threatening condition caused by obstetrical and non-obstetrical events. In this case report, we discuss a case of postpartum collapse in COVID-19-positive woman who required intensive care and mechanical ventilation for two days. After confusing collision of many provisional diagnoses soldiering for three days, she was ultimately diagnosed with malignant catatonia. Targeted therapy with lorazepam challenge resulted in drastic improvement, and she was discharged with her baby in healthy condition.

Keywords Postpartum · Collapse · COVID-19 · Depression · Catatonia

Introduction

Postpartum collapse is a catastrophic event associated with severe maternal morbidity and mortality. Few non-obstetrical causes can also cause postpartum collapse creating a diagnostic dilemma. Psychiatric disorders like psychosis and depression can present as catatonia in postpartum period. However, catatonia in the immediate postpartum period and leading to sudden collapse is not yet reported. With regard to COVID-19, now there are sufficient data to suggest that pregnant women with COVID-19 have an increased risk of adverse pregnancy outcomes [1, 2]. Although postpartum/maternal collapse has been reported in pregnant women with COVID-19, yet to the best of our knowledge, we report

probably the first case of catatonia following postpartum collapse in a patient with COVID-19 infection.

Case History

We received a 32-year primigravida at 39 weeks of gestation in active labor with a history of bronchial asthma. She had regular antenatal visits at a private hospital and was on beta mimetics for asthma. All antenatal investigations were within normal limits, and fetal growth scans revealed no abnormality. On detailed inquiry, it was revealed that she had intermittent episodes of unprovoked crying spells, especially when left alone and persistent sadness for the past two years, for which she had no psychiatric/medical consultation.

Her vitals were stable on admission with oxygen saturation of 98%, and general physical examination was unremarkable. Investigations on the day of admission are mentioned in Table 1. She tested positive for COVID RT-PCR test (done prior to admission) to the maternity ward and had to be shifted to the COVID-designated ward of our setup. Her labor progressed smoothly, and she entered into the second stage of labor within four hours of admission; she delivered a healthy baby with the help of outlet forceps. The results of her hematological, biochemical, and other investigations in the immediate postpartum period are mentioned in Table 1.

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Table 1 Investigations of the patient on day of admission and in the immediate postpartum period

Investigations	Day of admission	Immediate postpartum period	Reference range
Hemoglobin	14.5 g/dl	14.5 g/dl	12–18
Total platelet count	140 × 10 ³ /μl	180 × 10 ³ /μl	150–400 × 10 ³ /μl
Total leucocyte count	13	19.6	4–11 × 10 ³ /μl
S. Creatinine	0.6 mg/dl	0.8	0.5–1.2
S. Urea	11.0 mg/dl	11.2 mg/dl	10–50
S. Sodium	135 mmol/L	137 mmol/L	135–145
S. Potassium	4.2 mmol/L	4.3 mmol/L	3.5–5
S. Chloride	100 mmol/L	103 mmol/L	90–107
SGOT	21 U/L	22 U/L	2–40
SGPT	21 U/L	23 U/L	2–41
Alkaline phosphate	136 U/L	140 U/L	42–128
Total proteins/albumin	7.14/3.75 g/dL	6.06/3.36 g/dL	6.4–8.3/ 3.4–4.8
S. Calcium	9.4 mmol/L	9.9 mmol/L	8.8– 10.2
Acid–base gas analysis	Not available	pH- 7.4 O ₂ – 99 CO ₂ – 28 HCO ₃ – 19.7 Base deficit – 2.9	

Even though all these parameters were within normal limits, yet after one hour postpartum, she had vague movements of all limbs, suddenly became unresponsive and collapsed. Her vitals showed blood pressure of 80/60 mm of Hg, saturation 60%, respiratory rate 40/min, and heart rate 130/minute. She had to be immediately intubated and ventilated with FiO₂ = 100% by an intensivist and started on inotropic support (noradrenaline 0.2mcg/kg/min). Acid–base gas analysis showed severe metabolic acidosis, while blood glucose, electrolytes, and serum calcium were in the normal range. The differentials of rupture uterus, eclampsia, thromboembolism, exacerbation of asthma underlying heart disease, or event related to COVID-19 infection were considered, and all of these possibilities were ruled out step by step by relevant investigations. Detailed clinical examination, ultrasound of abdomen and lung, ECG, chest X-ray, and two-dimensional echocardiography did not reveal any significant findings. Computed tomography pulmonary angiography (CTPA), computed tomography angio-venography of the brain, and electroencephalogram (EEG) revealed normal findings that ruled out the likely possibility of cerebral venous thrombosis, seizures, and pulmonary thromboembolism.

Her hemogram, liver function, serum calcium, magnesium, electrolytes, cortisol levels, ACTH, D- dimer level, CKMB, and procalcitonin were also within normal limits, which further ruled out the diagnosis of any electrolyte disturbances, hypocalcemia, cardiac insult, or adrenal insufficiency. Due to poor oxygen saturation, she had to be continued on mechanical ventilation with supportive management and was extubated after 48 h. However, after 6 h of extubation, abnormal movements of all four limbs were observed associated with abnormal posturing. She was observed to

be in a semi-conscious state (Glasgow—E2V1M3) with a heart rate of 130/min, saturation 92%, and respiratory rate of 36/min.

Repeat blood investigations to check for any electrolyte abnormality just after the abnormal body movements event (sodium, potassium, calcium, magnesium, and phosphate) were found to be within normal limits, ruling out the possibility of any organic etiology. Neurology and psychiatric evaluation were conducted. Based on the findings of abnormal gaze, stupor, mutism, rigidity withdrawal, negativism with autonomic dysregulation, a diagnosis of catatonia was considered; Bush-Francis Catatonia Rating Scale Score (BFCRS) was 16. She was planned for the lorazepam challenge test keeping ICU backup ready. Almost all the catatonic symptoms resolved within 30 min of administering 1 mg intravenous lorazepam and she started to speak. The psychiatric team performed a detailed psychiatric workup, which revealed symptoms suggestive of major depression over the last 2 years and treatment for the same was started. She was started on escitalopram 10 mg and lorazepam 1 mg BD. Her mood and sensorium gradually improved over a period of 10 days, developed bonding with her baby, started breastfeeding the baby, and had no recurrence of catatonic symptoms thereafter.

Discussion

Malignant catatonia is a potentially lethal form of catatonia manifesting in the form of behavioral changes, autonomic dysregulation, and movement disturbances. This has been usually reported in the setting of underlying

neuro-psychiatric or medical illness, i.e., schizophrenia, bipolar disorder, depression, toxic, or metabolic derangements. Diagnosis is often confusing, difficult, and delayed due to its rarity and mainly clinical after ruling out all possible organic causes as in the index case [3]. The reported mortality is very high up to 50%, and most of them respond well to the benzodiazepines (lorazepam) challenge.

LCT is a bedside test that has been shown to validate a diagnosis of catatonia in suspected patients with catatonic signs and symptoms (mutism, starrng, posturing, echolalia, negativism, etc.) or to determine lorazepam sensitivity to catatonic symptoms [4]. In this test, one or two doses of 1 mg lorazepam are administered intravenously and the patient is reassessed for catatonic signs and symptoms after 5 min. In case of at least 50% reduction in the catatonic signs and symptoms (from baseline score on Bush-Francis Catatonia rating scale or any standardized rating scale for catatonia), the LCT is considered to be positive, and the patient is re-administered 1–2 mg lorazepam intravenously [4]. LCT is a widely accepted bedside test and is routinely used in clinical practice/emergency settings in suspected cases of catatonia due to any cause (psychiatric illness related or organic) [4]. The index patient responded quickly to the lorazepam challenge test (LCT) with a rapid resolution of symptoms. Electroconvulsive therapy is the treatment of choice in catatonia in those who are non-responsive to LCT after ruling out all organic possibilities.

The occurrence of this event in the immediate postpartum period has several implications. First, we found that this would be the only case reported in the literature so far where malignant catatonia presented as collapse in the immediate postpartum period. Second, we had to rule out several differential diagnoses. Many causes can cause cardiovascular instability in a postpartum woman, which needs to be ruled out urgently as they can cause sudden death. A multidisciplinary approach with proper investigations at each step resulted in a favorable outcome.

During pregnancy, mental health disorders are often underdiagnosed, and perinatal mental health issues are often ignored. These are usually attributed to pregnancy-related changes in mood or hormonal imbalance. This case report further highlights the importance of screening of common mental disorders during antenatal visits. Patients with mental health issues, particularly those suffering from major depressive episodes with catatonia, should be routinely followed until the resolution of symptoms. Proper psycho-education

of the patient and family members regarding need of medications and social support should be stressed in each follow-up visit. Long-term recommendations on whether to continue or discontinue the medications depend on the severity and chronicity of the underlying psychiatric illness.

Lastly, although our patient was asymptomatic for COVID-19, her nasopharyngeal swab at admission came positive for COVID-19 RT-PCR; it could be an incidental finding or this may be a yet-undiscovered neuropsychiatric aberration caused by COVID-19 infection.

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Declaration

Conflict of interest None.

Informed Consent Informed consent was taken from patient for publication.

Research involving Human Participants and/or Animals Yes.

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