

A Case of Postpartum Mortality Due to COVID-19 Infection

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Abstract

The current case report is presenting a post her third cesarean delivery COVID-19 infected woman who was 35years old, morbidly obese, and asthmatic. As coronavirus disease 2019 (COVID-19) is a new disease, its information is constantly being updated. Earlier reports of COVID 19 claims that pregnancy did not affect the progress of the disease severity. Recently, the Centers for Disease Control and Prevention (CDC) announced that pregnancy is a risk factor for COVID-19 severity. In the current case, her pregnancy may aggravate the criticality of COVID-19 infection in the addition to of her other risk factors (age, asthma, and obesity) up to death.

Keywords: COVID-19; pregnancy; peripartum; mortality; asthma; obesity

Introduction

Worldwide data claimed that the SARS-CoV-2 infection had a similar course in pregnant and nonpregnant individuals [1]. The frequencies of symptomatic disease and mortality were the same in pregnant and nonpregnant women [2,3]. Few reports suggested that the risk of critical illness may be greatest in the late pregnancy than the first and second trimesters [4]. The population most affected by the severe disease in older adults, particularly those with comorbidities. CDC updates expand the list of people at risk of severe COVID-19 illness.

Case Report

Thirty-five years old pregnant woman. She was third gravida (G3P2+0) with previous 2 cesarean deliveries. She is known to the case of asthma and hypothyroidism under treatment for both diseases. She is obese (BMI = 41.5) as her weight is 105 kg and height is 159 cm. She was booked for antenatal from 9 weeks of gestation with co-management with a pulmonologist for asthma. She was planned for elective cesarean section at 38 weeks gestation on June 23rd, 2020. Unfortunately, at 37 weeks and one day of gestation; she visited the ante-natal clinic with symptoms suspected of COVID-19 (serve cough with low-grade fever), so was referred to the pulmonology clinic. A nasopharyngeal swab was taken, and she was offered home isolation and medications according to our hospital protocol of management. At 37 weeks and 3 days of gestation; COVID 19 was

According to the CDC statement, obesity being one of the most common risk factors. The CDC also announced that asthma and pregnancy are other risk factors. CDC reports that "Pregnant women were significantly more likely to be hospitalized, admitted to the intensive care unit, and receive mechanical ventilation than nonpregnant women; however, pregnant women were not at greater risk for death from COVID-19" [5,6].

confirmed positives as per the RT-PCR test result. At 37 weeks and 4 days of gestation; she was admitted to the hospital for urgent cesareans delivery before the possible deterioration of her clinical COVID-19 severity. Pre-operatively, she had mild shortness of breath and her oxygen saturation on room air was 96%. Cesarean section under spinal anesthesia was done under complete PPE precaution in negative pressure operating room. The procedure was done with smooth uneventful complications. Post-operatively the patient was fully conscious, her oxygen saturation was 97% on room air and hemodynamically stable. The patient was transferred to the Intensive care unit (ICU) in isolation negative pressure room for monitoring and strict observations. On the first day post-cesarean delivery, she developed tachypnea, oxygen saturation between 90-92% on room

air, so nasal prongs oxygen therapy was started. Chest X-ray shows ground-glass opacities, bilateral extensive lung infiltrates, and consolidations.

On third day post-cesarean delivery, the patient respiration deteriorated aggressively that necessitated her intubation and mechanical ventilation. CT chest shows bilateral mosaic appearance, GGOs, and posterior lobes consolidations. She received a lung-protective strategy for COVID-19-induced acute respiratory distress syndrome (ARDS). After 3 days of mechanical ventilation, the patient developed convulsions and bilateral pneumothorax with pneumomediastinum as shown in CT chest. Her laboratory complete blood count revealed leukopenia, lymphopenia, and thrombocytopenia with normal kidney function, liver enzymes, and

Discussion

The spectrum of COVID-19 infection ranged from asymptomatic and progressive stages of symptoms. Symptomatic infection ranges from mild to critical [7]. There are three overlapping subsets of Covid-19 infection, the first and second subsets are triggered by the virus itself and the third by the host response [8]. Starting with the first viral response phase (from 1st–6th day after the start of symptoms), then pneumonia phase (from 6th - 10th day of symptoms) which may progress to acute lung injury and ARDS. The last is the hyperinflammatory phase which typically occurs after the 8th day of symptoms. This last phase is associated with severe ARDS, myocarditis, multiorgan dysfunction syndrome, and death [9].

In a report from New York City, 10 of 14 patients who were asymptomatic on admission for an obstetric indication and found to be SARS-CoV-2-positive went on to develop symptoms during their delivery admission or postpartum. Of the 14 initially asymptomatic patients, 4 remained asymptomatic, 8 developed mild symptoms, and 2 developed severe/critical disease [12]. However, a surveillance report of over 90,000 COVID-19 cases in the United States from the Centers for Disease Control noted that pregnant women were more likely to be admitted to the intensive care unit (1.5 versus 0.9 percent) and receive mechanical ventilation (0.5 versus 0.3 percent) than nonpregnant women after adjusting for age, underlying medical conditions, and race/ethnicity [1]. The reasons for the discordancy from previous data are unclear. A study of 37 cesarean and 41 vaginal deliveries in COVID-19 patients, cesarean deliveries were associated with an increased risk for maternal clinical deterioration (22 versus 5 percent) [6]. In another systematic review including 538 pregnancies, 15.0 % of patients had severe disease and 1.4 % had a critical disease. Maternal ICU admission occurred in 3 % of cases (8/263) [19]. In pregnant women who develop COVID-19 pneumonia, there appears

Conclusion: Multiple risk factors were present in the current COVID-19 infected pregnant case report. She was 35 years old, obese, and asthmatic. We think that pregnant ladies with multiple comorbidities and COVID-19 infection late in pregnancy should be

electrolytes profiles. Her D-dimer was 2.2 mcg/mL. Her ECG, cardiac enzymes, and echocardiography were unremarkable. The patient received dexamethasone, and 800 mg intravenous tocilizumab (actimera), together with medications for asthma and hypothyroidism. Despite mechanically ventilated, her ARDS was not improving as shown in the chest X-ray that shows bilateral extensive lung infiltrates, ground-glass opacities, and right intercostal tube drainage for pneumothorax. She started to have clinical signs of sepsis and severe thrombocytopenia. On tenth day post cesarean delivery, the patient developed severe hemodynamic instability not responding to vasopressors then arrested, CPR done but the patient did not revive and expired.

to be an increased risk of cesarean delivery [8,17,20]. Several maternal deaths from cardiopulmonary complications, sometimes with multiorgan failure, have been reported in women who were generally healthy prior to the SARS-CoV-2 infection [17,18,21-23]. COVID Surg Collaborative reported that Postoperative pulmonary complications occur in half of the patients with perioperative SARS-CoV-2 infection and are associated with high mortality [24]. Recently, the Centers for Disease Control and Prevention (CDC) updated the list of the medical diseases that tend to increase the risk of severe illness. CDC stress that who are obese, are pregnant, have sickle cell disease or have asthma are at a greater risk of suffering from a severe SARS-CoV-2 infection. The combination of pregnancy, obesity, asthma, and COVID-19 pneumonia can synergistically increase the burden on the lungs [5].

An et al presented 3 peripartum COVID positive patients who had done cesarean deliveries. All of them recovered and were discharged home in fair general condition. They did not comment in their cases reports if the 3 cases had any risk factors for COVID severity of comorbidities [16].

In the current case report, she has three risk factors for getting severe COVID-19 clinical presentation in addition to her pregnancy and childbirth events. she was 35 years old, BMI of 41.5 (obese), asthmatic, and turned COVID 19 positive infection late in pregnancy. She was delivered by cesarean section. There is no clear evidence to prove or deny the effect of late pregnancy, cesarean delivery, or post-partum period on the criticality of her COVID-19 infection. More studies are needed to assess if late pregnancy, mode of delivery, and immediate postpartum period can aggravate the COVID-19 severity and criticality up to mortality.

managed as critical cases.

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