

## Case Report

**A case report of a pregnant woman with coronavirus disease 2019 (COVID-19) and her live-born infant**

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(Received: September 2020      Revised: October 2020      Accepted: November 2020)

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**ABSTRACT**

In December 2019, an outbreak of coronavirus disease 2019 (COVID-19) occurred in Wuhan, China. The disease, which is now a global pandemic, is reportedly associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In this study, we report a case of COVID-19 in a 31-year-old pregnant woman who showed symptoms that included fever, a four-day history of dry cough, and myalgia. Real-time reverse transcriptase-polymerase chain reaction analysis of naso- and oropharyngeal samples was positive for the SARS-CoV-2. A cesarean section was performed during the acute phase of COVID-19; the full-term infant was isolated from his mother and underwent formula feeding. He was healthy and negative for the SARS-CoV-2. This report describes the clinical features, diagnosis, and treatment of the mother's illness and its effects on her live-born infant.

**Keywords:** Cesarean section; coronavirus infection; infant; pregnant women

**INTRODUCTION**

In Saudi Arabia, the infection of five pregnant women with the Middle East respiratory syndrome coronavirus (MERS-CoV) resulted in the deaths of two pregnant women during the disease and two perinatal deaths (1). Here, a woman subjected to cesarean section during the acute stage of coronavirus disease 2019 (COVID-19) recovered after delivering a healthy uninfected infant.

This is the first independent case report of a parturient with COVID-19 and her live-born infant from Kyrgyzstan. Herein, we describe the diagnosis, treatment, and clinical features of maternal severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and its effects on her live-born infant.

**CASE HISTORY**

A 31-year-old pregnant woman infected with the SARS-CoV-2 was symptomatic for COVID-19 during the 39<sup>th</sup> week of her third trimester (gravida 2, para 1). She had regular antenatal visits; overall, prenatal care had no major findings, except mild anemia. Upon admission to maternity hospital, her symptoms were fever, a four-day history of dry cough, and myalgia. She had no dyspnea and no comorbidities; cardiac auscultation showed normal fetal heart rate (120 beats/min). Physical examination showed a body temperature of 37.8°C and tachycardia (heart rate: 112 beats/min). Respiratory

findings were abnormal; notably, her breath sounds were coarse.

The initial examination included a complete blood cell count, coagulation test, and blood biochemistry panel. Results showed the presence of leukopenia, lymphopenia, and elevated C-reactive protein levels. A chest computed tomography (CT) scan showed bilateral multifocal ground-glass opacification in the patient's lungs (Fig. 1). Naso- and oropharyngeal samples were subjected to real-time reverse transcriptase-polymerase chain reaction (rRT-PCR) analysis; both respiratory samples were positive for the SARS-CoV-2. The same rRT-PCR analysis used the nasopharyngeal and oropharyngeal samples to detect several other viruses such as influenza, respiratory syncytial virus, adenovirus, and MERS-CoV to rule out the possible other viral etiology of the illness. Two days after admission, the patient was diagnosed with COVID-19 based on the clinical and laboratory findings mentioned above. She was treated symptomatically with 650 mg of acetaminophen and 6 L of normal saline, administered every four hours for four days after admission.



**Fig. 1:** A chest CT scan revealed bilateral multifocal ground-glass opacification in the patient's lungs

Over the next 7 days after admission, there were repeated fluctuations in a body temperature ranging from 36.8 to 38.2°C, anosmia, hypogeusia, fatigue, and tachypnea (respiratory rate: 29 breaths/min). She underwent epidural anesthesia (one-shot) with 10 mg, 100 µg, and 25 µg of bupivacaine, morphine, and fentanyl. A lower region cesarean section was conducted on the 8<sup>th</sup> day after admission during the disease's acute phase. A full-term infant was isolated from his mother and underwent formula feeding. At this point, the symptomatic management was changed to an antiviral agent - umifenovir (400 mg every 12 hours for one week) and high flow oxygen therapy. Postoperative pain was managed by epidural morphine (16 hours). The patient recovered with (respiratory rate - 15 breaths/min) and a temperature of 38.2°C.

The male infant was born at 39 weeks of gestation with a birth weight of 3050 g. He had a one-minute Apgar score of 8 and a five-minute Apgar score of 9. His complete blood count, coagulation test, and blood biochemistry panel were normal. Repeated SARS-CoV-2 testing of the newborn after 3 days also were negative. The mother recovered from COVID-19 after spending 17 days in the hospital, and both mother and infant were discharged one week after delivery. Both were healthy upon a post-discharge follow-up.

## DISCUSSION

In this study, we report the case of a 31-year-old parturient who was diagnosed with COVID-19 and showed symptoms that included fever, dry cough, and myalgia. Less information determined most parturients as showing mild symptoms of COVID-19, such as fever, cough, and tachypnea but reported only less critical cases (2, 3). The patient had leukopenia, lymphopenia, and elevated C-reactive protein levels. Evidence exists that leukocytes are attacked in COVID-19 patients, causing leukocyte counts to decline (4).

In one recent study, three out of four infants delivered by cesarean section to mothers with COVID-19 tested

negative for SARS-CoV-2 (5). The cesarean section was performed at 39 weeks of gestation during the acute stage of the disease, characterized by overt clinical (respiratory) symptoms and constitutional signs of systemic inflammation such as fever and malaise. The woman received a cesarean section because of the risk of vertical transmission to the child from passage through the birth canal. A recent study showed COVID-19 was linked with a significant rate of cesarean delivery (6).

The infant's birth weight of 3050 g was normal for his gestational age; rRT-PCR testing obtained during birth was negative for the SARS-CoV-2; the same testing after three days showed negative results declaring healthy.

In this study, rRT-PCR was performed as a standard diagnostic procedure for detecting SARS-CoV-2 in pregnant woman and newborn. Regarding the contrast of the sample the contrast in the operator's event, and the viral quantity, false negatives can be seen on the moment for oro- or nasopharyngeal swabs tests (7). However, there is a need for developing *in vitro* diagnostic assays that detect the SARS-CoV-2 in the early stages of infections.

In this study, a CT scan is used as the primary tool for diagnosing COVID-19, and a CT scan is crucial in detecting COVID-19 and dynamic monitoring, efficacy analysis, and characteristic imaging are important in the initial diagnosis of suspected or confirmed cases (8). In pregnant women with suspected COVID-19, a chest CT scan is taken as a primary tool for screening COVID-19 (9).

There is no proof that epidural anesthesia is contraindicated in patients with COVID-19. Epidural anesthesia is suggested during labor, pregnant women with COVID-19 (10). Actually, parturients with COVID-19 (86%) underwent epidural anesthesia suffered from low arterial blood pressure (11).

Based on this case study, we recommend umifenovir to treat COVID-19 patients soon after a newborn's birth. In a study, umifenovir presents advantages for ameliorating mild and moderate COVID-19 in patients who were symptomatic in combination with supportive treatment, and no side effects were reported (12).

However, many more case studies are required to determine the disease stage for which a cesarean section should be performed and improve the understanding of the clinical course's peculiar features in pregnant women infected with SARS-CoV-2.

## CONCLUSION

We conclude that pregnancy is not a risk factor for the development of severe COVID-19 if prompt therapeutic

measures are initiated on time. We recommend using a CT scan as a primary tool for diagnosis, epidural anesthesia during parturient cesarean delivery, and umifenovir for treating patients soon after the infant's birth. More studies are required on the effect of COVID-19 on pregnant women and the possibility of vertical transmission to newborn infants.

## CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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