

# COVID-19 Positive Woman Presented with Preterm Labor: Case Report

Ibrahim A. ABDELAZIM<sup>1,2</sup>, Mohannad ABUFAZA<sup>2</sup>, Sulaiman AL-MUNAIFI<sup>3</sup>

Cairo, Egypt

## ABSTRACT

The novel coronavirus disease-19 (COVID-19) considered a global health problem. Pregnant women are considered a COVID-19 high-risk group.

A 26-years old woman, G2 P1+0, previous cesarean section, 31 weeks`+4 days, admitted with preterm labor, without fever, cough, and/or respiratory symptoms on admission. She presented to the emergency department with fever, and cough, 27 days before the current admission, she was referred to the Ministry of Health, and her COVID-19 PCR swab at Ministry of Health was positive.

She delivered by cesarean section, and the PCR swab of the studied woman taken on admission came positive for COVID-19. The delivered girl was admitted to the neonatal intensive care unit for 16 days. The PCR swab of the delivered girl came negative for COVID-19. This report highlights that the COVID-19 infection during pregnancy may increase the rates of preterm labor and cesarean section. There is no strong evidence of vertical COVID-19 transmission when the infection manifests during the 3<sup>rd</sup> trimester of pregnancy.

**Keywords:** COVID-19, Preterm labor, Report

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## Introduction

Pregnant women have considered a COVID-19 high-risk group and the effect of COVID-19 in pregnancy is still unclear. Yan, et al concluded that the COVID-19 is not associated with an increased risk of preterm labor (PTL) (1). Allotey, et al reported a systematic review that showed a 17%

rate of PTL (most of them were iatrogenic) and a 65% rate of cesarean sections (CSs) (2).

The COVID-19-Associated Hospitalization Surveillance Network study reported a 12.6% rate of PTL which is higher than the 10% rate of PTL observed in the general United States population (3). Although Vivanti, et al reported a case of transplacental transmission of COVID-19 (4). Others concluded that there is no strong evidence of COVID-19 vertical transmission when the infection manifests during the 3<sup>rd</sup> of pregnancy (1,5).

Therefore, this report highlights that the COVID-19 infection during pregnancy may increase the rates of PTL and CS. There is no strong evidence of vertical COVID-19 transmission when the infection manifests during the 3<sup>rd</sup> trimester of pregnancy.

## Case Report

A 26-years old woman, G2 P1+0, previous cesarean section (CS), 31 weeks`+4days, admitted with PTL.

On admission, the studied woman had no fever, cough, and/or respiratory symptoms and she had no travel history or contact with suspected or confirmed COVID-19 cases.

She presented to the emergency department (ED) with fever, and cough, 27 days before the current admission, and she was referred to the Ministry of Health (MOH) according

<sup>1</sup> Department of Obstetrics and Gynecology, Ain Shams University, Cairo, Egypt.

<sup>2</sup> Department of Obstetrics and Gynecology, Ahmadi Hospital, Kuwait Oil Company (KOC), Ahmadi, Kuwait.

<sup>3</sup> Department of Neonatology and Neonatal Intensive Care Unit (NICU), Ahmadi Hospital, Kuwait Oil Company (KOC), Ahmadi, Kuwait.


Address of Correspondence: Ibrahim A. Abdelazim  
Obstetrics and Gynecology, Ain Shams University, Cairo, Egypt and Ahmadi hospital, Kuwait Oil Company (KOC), Ahmadi, Kuwait.  
dr.ibrahimanwar@gmail.com

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ORCID IDs of the authors: IAA: 0000-0002-7241-2835

MAF :0000-0001-9589-7428, SAM: 0000-0003-4279-1456

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to the hospital protocol. Her COVID-19 PCR (polymerase chain reaction) swab at MOH was positive.

On admission, the cardiotocography (CTG) of the studied woman showed regular uterine contractions (3 contractions in 10 mins), each lasting for 30-40 seconds. The uterine cervix was 50 effaced (1 cm long), and 4-5 cm dilated. The fetal presenting part was breech at 0 station. She received Magnesium Sulfate (MgSO<sub>4</sub>), and dexamethasone (one dose) for induction of fetal brain, and lung maturity, respectively as per hospital protocol.

She delivered by CS (4-hours after admission), a baby girl 1.3 kg, APGAR score was 6, 7, and 7 at 1st, 5th, and 10th mins, respectively. The result of maternal PCR swabs taken on admission came positive for COVID-19.

The delivered girl was admitted to the neonatal intensive care unit (NICU), received one dose of surfactant, connected to mechanical ventilation (MV), and disconnected from MV after 10 hours to continuous positive airway pressure (CPAP). The PCR swab of the delivered girl came negative for COVID-19. Intravenous antibiotics were given to the delivered girl according to the culture, and sensitivity (C&S) taken as part of the hospital sepsis screening protocol.

On the 4<sup>th</sup> day of NICU admission, the delivered girl echocardiography showed normal findings for premature babies (small PFO 3-4 mm), cranial ultrasound was normal. She was on room air alternating with nasal CPAP, oral feeding started, and increased gradually.

On the 16<sup>th</sup> day of NICU admission, the delivered girl was 2.1 kg, on room air, complete oral feeding, and discharged from the NICU, for follow-up in the outpatient department.

This report was approved for publication by the ethical committee of the Obstetrics and Gynecology department of Ahmadi hospital (OB\_1208\_20) on 12 August 2020 and informed written consent was taken from the studied woman to publish her data in accordance with the Declaration of Helsinki.

## Discussion

The studied woman, admitted with PTL, and no fever, cough, and/or respiratory symptoms. She presented to ED with fever, and cough, 27 days before the current admission, she was referred to the MOH, and her COVID-19 PCR swab at MOH was positive.

Yan et al studied 116 COVID-19 pregnant women, and they found that 23.3% of the studied women presented with symptoms and the most common symptoms were fever (50.9%) and cough (28.4%) (1).

Allotey, et al's systematic review (>11,000 pregnant

women with suspected or confirmed COVID-19 included) showed that the most common symptoms were fever (40%), cough (39%), dyspnea (19%), loss of taste (15%), myalgia (10%), and diarrhea (7%) (2). Besides, they found 7% of the women screened for COVID-19 during pregnancy were positive (82% asymptomatic and 18% symptomatic) (2).

The study of five hundred and ninety-eight (598) hospitalized pregnant women with laboratory-confirmed COVID-19 in the United States showed that 55% (326/598) of the studied women were asymptomatic and 45% (272/598) of them were symptomatic (3).

The studied woman presented with PTL diagnosed by regular uterine contractions (3 contractions in 10 mins), each lasting for 30-40 seconds. The uterine cervix was 50 effaced (1 cm long), and 4-5 cm dilated. She delivered by CS and the result of maternal PCR swab taken on admission came positive for COVID-19.

Preterm labor and CS rates have been increased in many COVID-19 studies, but not all (4). Fever and hypoxemia may increase the risks of PTL and abnormal fetal heart rate patterns (5).

Di Toro, et al's meta-analysis showed a high frequency of PTLs and CSs with COVID-19 and they concluded that it is unclear, whether the COVID-19 is the direct cause of PTL or the COVID-19 infection during pregnancy induces an abnormal response to an opportunistic bacterial infection that might lead to PTL (6).

The PTL in COVID-19 can be explained by the severe inflammatory state that occurs following viral infection (7). A recent study suggests that COVID-19 infection is associated with increased cytokine production (8), which can intensify the maternal immune response (9) resulting in contractions, rupture of membranes, and PTL (10). Moreover, COVID-19 maternal pneumonia is commonly associated with premature rupture of fetal membranes and PTL (11).

Although, Allotey, et al's systematic review reported a 17% rate of PTL (most of them were iatrogenic and only 6% were spontaneous PTL) and a 65% rate of CSs (2).

The COVID-19-Associated Hospitalization Surveillance Network study reported a 12.6% rate of PTL which is higher than the 10% rate of PTL observed in the general United States population in 2018 (3) and concluded that symptomatic women had a 3-fold increase in PTL compared with asymptomatic women (23% versus 8%) (3). The overall rate of CSs was 33% (42% in symptomatic and 29% in asymptomatic) (3).

Besides, Gao, et al's meta-analysis concluded that the rate of PTL is higher among pregnant with COVID-19 than normal pregnant women (12).

The delivered girl was admitted to NICU received one

dose of surfactant, connected to MV, and disconnected from MV after 10 hours to CPAP. The PCR swab of the delivered girl came negative for COVID-19.

Although Vivanti, et al reported a case of transplacental transmission of COVID-19 with a neurological manifestation of COVID-19 in the neonate (4). Yan, et al and Berghella, et al concluded that there is no strong evidence of COVID-19 vertical transmission when the infection manifests during the 3rd trimester of pregnancy (1,5).

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*This report highlights that the COVID-19 infection during pregnancy may increase the rates of PTL and CS. There is no strong evidence of vertical COVID-19 transmission when the infection manifests during the 3rd trimester of pregnancy.*

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