



Multidisciplinary team management and cesarean delivery for a Jordanian woman infected with SARS-COV-2: A case report

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ABSTRACT

The SARS-COV-2 virus appears to have originated in Hubei Province in China towards the end of 2019 and has spread worldwide. Currently, there is little literature on COVID-19, and even less on its effect on pregnant mothers and infants. At this time, there are no clear recommendations specific to pregnant women with COVID-19. We report the multidisciplinary team management of a cesarean delivery for a woman infected with SARS-COV-2, including her pre-delivery care, intraoperative considerations, and post-delivery recommendations for the mother and baby. We also discuss the currently available recommendations and guidelines on the management of such cases.

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1. Introduction

The SARS-COV-2 virus appears to have originated in Wuhan, the capital of Hubei Province in China, towards the end of 2019. The World Health Organization declared the virus outbreak a pandemic on March 11, 2020 [1,2]. The COVID-19 virus is primarily transmitted between people through respiratory droplets and contact routes. However, other routes of transmission, including vertical transmission, are currently being studied [3,4].

There is little literature on COVID-19, and even less on its effect on pregnant mothers and infants. At this time, there are no clear recommendations specific to pregnant women with COVID-19. To the best of our knowledge, this is the first reported cesarean delivery for a woman infected with SARS-COV-2 in Jordan and the Arab world.

2. Case Presentation

A 30-year-old woman, gravida 4 para 3, was admitted at 36 weeks of gestation in March 2020 after her nasopharyngeal swab tests came back positive for SARS-COV-2 using a rapid PCR technique. She complained of mild dry cough, runny nose, episodes of chills and headache three days

prior to admission. She had no shortness of breath, no chest pain, and no muscle ache.

On admission her vital signs were stable and she had no fever. Oxygen saturation in room air was 98%. Regarding this pregnancy, she mentioned having regular antenatal care.

She reported that she had attended a social event a few days prior to presentation. Two days later, she started to have symptoms. She initially thought they were not significant but she sought medical advice many days later when a person at the same event had tested positive for SARS-COV-2. Before admission to the hospital she was living with her 2 children and husband.

She was given hydroxychloroquine 400 mg twice daily for a total of 9 days. Her symptoms were mild. Her blood tests were unremarkable except for mild elevation of D-Dimer 0.65 micrograms/ml (0.1–0.5 micrograms/ml). An ultrasound scan showed appropriate baby growth for age, with average liquor and upper placenta. The mother reported good fetal movement. On the night of her second day of admission, she started to complain of abdominal pain. Upon assessment she was found to be in labor.

Her obstetric history included uncomplicated full-term vaginal delivery of her first daughter. Her second pregnancy was complicated by placental abruption and a cesarean section was done at 35 weeks of gestation. Her third pregnancy ended with a stillborn infant delivered vaginally and was complicated by severe postpartum hemorrhage requiring massive blood transfusion and surgical exploration under

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general anesthesia. Moreover, multiple cervical and vaginal tears were found and repaired.

The decision was made to perform a cesarean section on the third day of her admission, based on patient request and maternal indications, given that she already had a cesarean section scar and that her last vaginal delivery was complicated by severe postpartum hemorrhage. Currently, there is no evidence to support one mode of delivery over another in SARS-COV-2-positive mothers.

An urgent multidisciplinary meeting was held and included obstetric, neonatology, anesthesiology and infection control teams along with a well-qualified midwife and neonatal nurse. The decision was taken to prepare an isolated operating room for her, since the infection control team recommended against using a regular cesarean theatre.

To reduce the risk of transmission of SARS-COV-2 to the medical team and the baby, certain precautions and recommendations were followed. The procedure was done under regional (spinal) anesthesia, the number of staff in the theatre was minimized and all were wearing appropriate PPE, including a filtering facepiece level 3 (FFP3) mask. An N95 mask was used by the patient throughout the procedure.

A vigorous baby girl was born, weighing 2.5 kg; her APGAR score was 8 at 1 min and 9 at 5 min. No resuscitation was needed at any stage. Immediately after delivery the baby was kept in a separate room and a one-to-one nurse was assigned to bottle-feed and look after her. Nasopharyngeal swabs were taken from the baby on three different occasions (at birth, and after 72 h and 6 days of life) and the rapid PCR was negative on all three occasions. The baby was discharged home 7 days after the mother's admission.

The mother remained in a stable clinical condition throughout her 11 days of hospital stay and was discharged home after having a nasopharyngeal swab negative after 6 days of treatment. Both the mother and the baby were still doing well at the time of writing. After a breast-milk test was negative for SARS-COV-2, the baby was allowed to breastfeed from the mother.

The mother and family were instructed to follow the recommendations of the American Academy of Pediatrics' Committee on Fetus and Newborn for the management of infants born to mothers with COVID-19.

3. Discussion

Although there are no reports of the SARS-COV-2 virus having been detected in amniotic fluid, placental fluid or cord blood [5,6] emerging evidence suggests that vertical transmission is possible. There are at least two reports of IgM for SARS-COV-2 in neonatal serum at birth. This was attributed to a neonatal immune response to in utero infection, since IgM does not cross the placenta [7,8].

Currently, no teratogenic effects of the virus have been reported and there is no evidence that COVID-19 infection increases the risk of miscarriage or second-trimester loss. Case reports from early pregnancy studies with SARS and MERS do not convincingly demonstrate a relationship between infection and increased risk of miscarriage or second-trimester loss [9]. However, in other types of coronavirus infection (SARS, MERS), the risks to the pregnant woman appear to increase in particular during the last trimester of pregnancy [10].

There are a few reports of preterm labor in COVID-19-positive mothers but we are unsure whether these preterm deliveries occurred due to COVID-19-related events or due to obstetric indications [11].

Neonates can acquire SARS-COV-2 from infected mothers after birth and this may raise the concern of severe illnesses that may occur due to their immature immune system. Hence, newborns should be separated from infected mothers when possible. Mothers choosing to room-in with newborns should be informed about the potential risks to the baby and educated about the appropriate precautions [12].

Since there is still no evidence of SARS-COV-2 expression in the breast-milk of mothers with COVID-19, the breast-milk expressed by infected mothers can be given to the baby by a caregiver [12].

Upon discharge, infected mothers need to keep 6 ft away from the baby and use a face mask and hand sanitizers when taking care of the baby [12].

4. Learning Points

- There is literature worldwide on the risk of vertical transmission of COVID-19 during pregnancy, delivery and the neonatal period, and it is absent in the Arab world. More reports and studies are needed to reach conclusions about these aspects of COVID-19.
- It is essential to prepare the maternity ward and the operating rooms with protocols and well-trained personnel to deal with elective and emergency cases of delivery in mothers with COVID-19.
- The mother with COVID-19 should be instructed to follow the appropriate medical recommendations such as those of the American Academy of Pediatrics' Committee on Fetus and Newborn for management of infants born to mothers with COVID-19.
- We encourage all health sectors in the Arab world to report similar cases, in order to help the WHO and other health committees to produce evidence-based protocols for dealing with this major health problem as soon as possible.

Contributors

Laila A AlZaghal contributed to the design and drafting of the case report.

Najwa AlZaghal contributed to reviewing the literature and writing the paper.

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All authors contributed to revision of the article.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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