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Case Report

Complicated Monochorionic-Monoamniotic Twin Pregnancy Associated with COVID-19: A Case Report

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Abstract: Coronavirus infection (COVID-19) has quickly emerged as a global pandemic leading to critical health complications. The possibility and risk of vertical transmission of this virus is still unclear, particularly as it relates to pregnant women and their fetuses. Regarding scientific data, there is insufficient research focused on COVID-19 infection complicated with hydrops fetalis and intrauterine fetal demise. In this study, we report an intra uterus fetal death due to hydrops fetalis and twin-to-twin transfusion syndrome (TTTS) in monochorionic–monoamniotic (MCMA) twin pregnancy associated with mild COVID-19 infection in a 33-week-pregnant woman.

Keywords: Corona Virus, Vertical Transmission, IUFD, Twin-to-twin Transfusion Syndrome, Hydrops Fetalis

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1. Introduction

Most studies during the covid pandemic have focused on evaluating the effects of this virus on the general population and there are insufficient data on its impact on pregnancy. It is reasonable to infer that pregnant women carrying COVID-19 might be at elevated risk for morbidity or mortality compared with non-pregnant women due to the physiologic changes in pregnancy (Juan, Gil et al. 2020). Current studies suggest that pregnancy and childbirth do not heighten the risk for contracting COVID-19 infection and do not exacerbate the clinical course of COVID-19 compared with non-pregnant in the same condition. However, some studies have shown that covid infection during pregnancy can cause miscarriage, premature birth, and intrauterine growth restriction (Selim, Mohamed et al. 2020). The possibility of transmission of this virus from mother to fetus has been raised, but it is still unclear (Salem, Katranji et al. 2021).On the other hand, twin-to-twin transfusion syndrome (TTTS) is a complication for monochorionic (MC) twin pregnancies associated with the high risk of mortality. During the COVID-19 pandemic, pregnancies complicated with TTTS had worse outcomes, and early diagnosis of this syndrome for diminishing fetal mortality to non-pandemic conditions is crucial (López-Briones, Villalobos-Gómez et al. 2022).

2. Case Presentation

A 27-year-old gravid 3 pregnant woman, at 33 weeks of gestation and mono-amnion and mono-chorionic twin pregnancy presented with fever and tachycardia that had appeared suddenly. She had a history of controlled gestational diabetes and mild left ureter hydronephrosis which had been treated by double-J stenting. Due to the sudden onset symptoms and low-grade fever with regard to pulmonary embolism (PE) she was admitted and the basic evaluations were done and PE was ruled out. In addition, a positive

rapid test for COVID-19 infection was confirmed by a PCR test. During the hospitalization, regular fetal heart rate (FHR) monitoring and pregnancy sonography were done, and both of them revealed no abnormality. After 6 hours of admission, one of fetus FHR was not detected with sonicate. Therefore, an emergency ultrasound was requested, which confirmed the intrauterine fetal death (IUFD) of one of the twins. Emergency cesarean section with appropriate preparation was performed in order to save the mother's and the other fetus's lives. The rescued baby was admitted to NICU for advanced care and hydrops fetalis was revealed in the deceased baby alongside skin edema and severe thoracic and abdominal effusion (Figure 1). After the surgery, a chest CT scan and further laboratory tests were conducted. Based on 10 percent of pulmonary infection and elevated C-Reactive protein, Remdesivir and Dexamethasone were prescribed for mother. But a few days later the mother developed a fever along with left flank pain. Urine analysis revealed microscopic hematuria and bacteriuria. Based on previous DJ stenting, appropriate antibiotic therapy was started and increased fluid intake was recommended. Following work up demonstrated no significant improvement in the mother's symptoms. Therefore, DJ stent removal following with trans ureteral lithotripsy was scheduled. With the disappearance of the mother's complaints, she was discharged.

Based on the living baby's appearance (Figure 2) and initial labratory tests (Hb:24 and Hct:80.1) twin-to-twin transfusion syndrome (TTTS) was diagnosed and 2 time partial blood exchange was performed which was following by intensive phototherapy due to elevated bilirubin level. After 10 days the baby was discharged following an acceptable physical examination and paraclinic data, and relevant advice was recommended.

Figure 1. Hydrops Fetalis

Figure 2. Living baby

3. Discussion

The majority of pregnant women who contract COVID-19 get infected in the third trimester (Salem, Katranji et al. 2021).A systematic overview of relevant data demonstrates that pregnant women who test positive for COVID-19 are often asymptomatic or mild-to-moderately symptomatic (Salem, Katranji et al. 2021). However, hospitalized pregnant women with COVID-19 infection had higher rates of premature labuor, preeclampsia, cesarean delivery, and perinatal death (Di Mascio, Khalil et al. 2020).The physiologic and immunologic changes of pregnancy as predisposing factors may make women vulnerable to maternal and fetal mortality and morbidity. The possibility of the vertical transmission of the virus during pregnancy still remains an issue under discussion (Babal, Krivosikova et al. 2021) which is probably caused by massive thromboembolic involvement of the placenta, a complication of COVID-19 in pregnancy (Marinho, Da Cunha et al. 2021). Moreover, there is insufficient data regarding the course and potential adverse effects of COVID-19 in various pregnancy trimesters (Sahin, Tanacan et al. 2022). One of the most adverse consequences of pregnancy in mothers with COVID-19 is intrauterine fetal death (IUFD) and patients who develop cytokine storm syndrome are at high risk of IUFD (Abbas, Moris et al. 2020). Based on the extremity of the infection, pregnant women may experience symptoms such as hypoxia, hypotension, and placental hypoperfusion, which can lead to fetal discomfort, preterm labour, abortion, or death (Malavika K 2022). IUFD still is a rare complication of pregnancy with COVID-19, since incidences of it compared to the pre-COVID pandemic period have not increased (Babal, Krivosikova et al. 2021).On the other hand, Twin-to-twin transfusion syndrome (TTTS) is one of the unfavorable complications of monochorionic twin pregnancies, with 9–15% incidence rate associated with a high risk of perinatal mortality and morbidity (Murgano, Khalil et al. 2020). During the recent pandemic, twin pregnancies affected by TTTS were evaluated at advanced stages and exhibited lower survival rates (López-Briones, Villalobos-Gómez et al. 2022). A contemporary study presented a transitory fetal skin edema accompanied with polyhydramnios which the fetus developed after the mother recovered from a mild COVID-19 infection and which disappeared spontaneously (Popescu, Cioca et al. 2021). Moreover, two cases of transient fetal skin edema, which were reported when the mother tested positive for Covid-19, were resolved when the maternal covid test became negative (Garcia-Manau, Garcia-Ruiz et al. 2020). The development of hydrops fetalis in the donor twin after the fetal death of the recipient twin has been described in case reports, but the pathophysiology remains unclear (Ries, Beinder et al.

1999). Similar to these studies in our case, hydrops fetalis was developed in the donor twin, but other twin survived due to an emergency caesarian section.

4. Conclusion

COVID-19 infection in pregnancy is characterized by a pattern of disease severity comparable to non-pregnant adults. However, literature has reported adverse pregnancy outcomes during the covid pandemic period. The correlation between COVID-19 and non-immune hydrops fetalis is still under investigation. Also, the true impact of the pandemic on twin pregnancies complicated with TTTS is still a dilemma. Future studies following and discussing the long-term outcomes is needed.

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