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Contents lists available at ScienceDirect

Asian Journal of Surgery

journal homepage: www.e-asianjournalsurgery.com

Letter to Editor

Analysis of the sampling results in both the neonate and an asymptomatic pregnant female with novel coronavirus pneumonia



Keywords:

COVID-19
Maternal and fetal safety
Mother-to-child vertical transmission
Neonate
Sampling analysis

To the editor,

Since its initial outbreak, novel coronavirus pneumonia (COVID-19) has spread across the world. As a population, pregnant females are in a special immune state during pregnancy. The maternal immune system protects the fetus from rejection by the mother through a complex set of immune responses and a series of changes. Therefore, these women are susceptible to the novel coronavirus.^{1,2}

The patient is a 27-year-old female who tested positive for the novel coronavirus at a gestational age of 32⁺⁶ weeks, using nucleic acid detection. Owing to the lack of symptoms, such as cough, expectoration and fever, and given her positive test for the novel coronavirus, the patient was considered to have an asymptomatic infection. At a gestational age of 40⁺⁵ weeks, the patient was admitted to our hospital, owing to threatened labor, and gave birth naturally. She delivered a live baby. Sampling analysis was conducted on the mother using a nasal swab, throat swabs, placental lobules, amniotic fluid, and the umbilical cord, and also from the cord blood

Table 1

The results of the nucleic acid detection for the novel coronavirus and antibodies in the patient and neonate.

	Nucleic acid detection	Antibodies
Patient		
Vaginal secretions	-	+
Cord blood	-	+
Peripheral blood	-	+
Anal swab	-	+
Placental lobules	Single-gene +	+
Fetal membrane	+	+
Breast milk	-	+
Neonate		
Peripheral blood	-	+
Anal swab	-	+
Nasal swab	-	+
Throat swab	-	+

in the neonate. Because the patient had been infected with the novel coronavirus, the placenta was sent for pathology. The vaginal secretions, umbilical cord blood, peripheral blood, anal swab, placental lobules, and fetal membranes were tested using the nucleic acid detection test for the novel coronavirus and antibodies. The neonatal peripheral blood, anal swab, nasal swab, and throat swab were tested in the same way, and so was the breast milk (Table 1).

After the patient was cured of COVID-19 and discharged, the results of the nucleic acid test were negative. After the present admission, the results of the nucleic acid test were negative, except for the positive result on the single gene in the placental lobule and the positive result in the fetal membrane. Because it was not possible that the placenta and the fetal membrane were positive from the original infection, these results were considered to be the remnants of the nucleic acid fragments of the novel coronavirus that died in the blood during the previous infection. It had no significance for the current COVID-19 infection.³

The neonatal nucleic acid results were all negative, and the blood antibodies were all positive. This was considered to be the protective antibodies from the maternal blood entering the fetal blood through the placental barrier after the recovery from COVID-19, rather than the infant's own antibodies caused by infection. The question of whether the fetus healed spontaneously after the intrauterine infection can only be answered by examining more cases during pregnancy. In short, there was no evidence that there existed mother-to-child vertical transmission in the present case.^{4,5}

Currently, the results are still inconclusive relating to whether mother-to-child vertical transmission exists in COVID-19. More sample types and greater sample numbers are still needed for further research. It is also necessary to identify if there is transmission during delivery or perinatal transmission, in addition to mother-to-child vertical transmission. For this reason, further research, tracking, and follow-up are still necessary.

Declaration of competing interest

The authors declare that they have no competing interests.

Acknowledgements

We are particularly grateful to all the people who have given us help on our article.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.asjsur.2021.06.047>.

Funding

This study was funded by the Initiation Fund of Disciplinary Leader in Obstetrics and Gynecology (No.Y2021-0316).

Ethics approval and consent to participate

The study was conducted in accordance with the Declaration of Helsinki (as was revised in 2013). The study was approved by Ethics Committee of the Third People's Hospital of Shenzhen. Written informed consent was obtained from the patient.

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22 June 2021
 Available online 24 July 2021

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