

Clinical Pearl:

Aspects of Care of Newborns Born to Mothers with Suspected/Confirmed Coronavirus-19 (COVID-19) Disease

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In our May issue, a number of clinically helpful articles were presented, including a practical guide for the neonatologist by Smith and Sharma (1-4). I presented a summary of some very recent data about moms and their newborns (2), and Liu and Stovall presented a premature infant who acquired COVID-19 nosocomially in the neonatal intensive care unit (NICU) (3). Ma, Zhu, and Du reviewed aspects of neonatal management in China, including a clinical summary of 6 term neonates with confirmed COVID-19 disease, all of whom had a relatively mild illness, did not require intubation and fully recovered (Table) (4). Levine and Goldstein further updated some of the recommendations for the management of mothers and their newborns in the delivery room, mother-baby unit, and the NICU (5). To further update our readers, I will try to answer some questions about the clinical aspects of COVID-19 infection in pregnant women and newborns.

How common is COVID-19 infection in asymptomatic pregnant women presenting to Labor and delivery for childbirth?

Earlier in the pandemic in New York City (March 22-April 4, 2020), 13.7% of 210 women who presented for childbirth with universal

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screening with nasopharyngeal swabs (np) and quantitative polymerase-chain-reaction tests (PCR) (6). In contrast, from April 2-April 29, 2020, all patients admitted for childbirth to 3 Yale-New Haven hospitals in southern Connecticut without a COVID-19 infection diagnosis were also screened, first with clinical questions, then with np swabs and PCR testing (7). In this series of 365 asymptomatic patients from April 2-15, 2 (0.5%) were positive; 20/405 (4.9%) were positive from April 16-29, 2020 (7). In a personal communication from Dr. Allison Bartlett, Hospital Epidemiologist and pediatric infectious disease specialist

TABLE. Clinical Characteristics of 6 Covid-19 Neonatal Cases in China

PATIENT/ CITY	AGE	CLINICAL PRESENTATIONS ^a	MOTHER SARS- COV-2RNA RESULT	HEST RADIOGRAPH/ CT SCAN	PHARYNGEAL/RECTAL SWAB FOR SARS- COV-2	GESTATION	OUTCOME
1/Wuhan ^{b,c}	30 h	Poor feeding, fever, vomiting	+	-/-	+/-	Term	Full recovery
2/Wuhan ^b	18 d	Vomiting, lethargy	-(with typical clinical and CT findings)	-/-	+/-	Term	Full recovery
3/Wuhan ^b	12 d	Sneezing (mild), vomiting, diarrhea	+	-/nonspecific lung markings	+/+	Term	Full recovery
4/Wuhan ^b	3 d	Fever, lethargy	+	-/nonspecific lung markings	+/-	Term	Full recovery
5/Wuhan ^b	36 h	Poor feeding, lethargy	+	Pneumonia/ GGO	+/-	Term	Full recovery
6/Xinyang ^d	5 d	Fever	+	-/not done	+/-not done	Term	Full recovery

CT=computed tomography; GGO=ground glass opacity; plus (+) sign=positive; minus (-) sign=negative.

^aNone of the patients required intubation.

^bFrom Xiaoyuan et al. (9)

^cFrom Wang et al. (10)

^dFrom news media of hospital report.

Table from Ma X., Zhu J, Du L. Neonatal management during the Coronavirus disease COVID-19 outbreak: The Chinese experience. *NeoReviews* 2020;21(5): e293-e297, with permission

at Comer Children's Hospital at the University of Chicago, she reports that ~10% of asymptomatic pregnant women presenting for childbirth were COVID-19 + at the height of the peak (April 15-May 15). However, the rate has been 0 since May 24, 2020. The universal COVID-19 screening recommendation is from the Illinois Department of Public Health Perinatal Advisory Committee as universal COVID-19 testing is left to the discretion of the individual institutions. This morning I found another update by Rasmussen and Jamieson in JAMA, which outlines suggested management of pregnant women with suspected/confirmed COVID-19 and their newborn infants (8). These recommendations are based on the information and expert opinion from the American Academy of Pediatrics (AAP) (8,9), Centers for Disease Control and Prevention (CDC) (8,10), and the American College of Obstetrics and Gynecology (ACOG) (8,9).

Is there any new evidence for vertical transmission of COVID-19 from Mother to Infant? How about COVID-19 (SARS-CoV-2) virus in maternal breast milk?

In a paper by Kirtsman and colleagues, a 40-year-old woman with familial neutropenia and confirmed COVID-19 infection delivered an infant at 35 weeks 5 days by cesarean section with intact membranes. There was no delayed cord clamping, skin-to-skin contact, and the infant was taken to a resuscitator 2 meters away in the same room, did not require resuscitation, and had Apgar scores of 9 and 9 at one and five minutes of age. A nasopharyngeal swab from the neonate obtained on the day of birth was positive by reverse transcription-polymerase chain reaction (RT-PCR) prior to any contact with the mother (11). The clinical course of the mother is detailed as well as samples from the placenta, serial nasopharyngeal samples, and a blood and stool sample from the infant, which were also positive for COVID-19 (SARS-CoV-2) (11). This case is labeled as a probable congenital SARS-CoV-2 infection because of the lack of detection of the SARS-CoV-2 gene targets in the umbilical cord tissue and the lack of availability of cord blood for SARS-CoV-2 testing (11). Also, of note, the mother's breast milk was positive, but the baby's nasopharyngeal swab was obtained prior to breastfeeding contact (11), and contamination of the breast milk cannot be ruled out, although breast hygiene was and cleaning was utilized (11). Gross and colleagues report evidence of SARS-CoV-2 by RT-PCR in the breast milk of 2 mothers with SARS-CoV-2 infection post-delivery (12).

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