

CASE REPORT

COVID-19 Infection in a 8 Day Old Neonate: Report of the 1st Case in a Term Neonate in Special Care Baby Unit (SCABU) at Dhaka Shishu (Children) Hospital

Israt Jahan Zerín¹, M Monir Hossain², Md. Mahbubul Hoque³

Introduction

The human coronavirus MARS-COV, SARS-COV & SARS-COV-2, have been the causes of serious infections, in which the coronavirus infection disease 2019 (COVID 19) was responsible for an outbreak in Wuhan city, China and gradually became pandemic in early 2020.^{1,2} Most reported cases of the disease were in adults, but the disease has also been reported in children, including neonates.^{3,4} The important findings in neonate were fever and respiratory distress.^{5,6} There is limited data regarding the clinical features, morbidity and mortality of neonates suffering from COVID-19 and also about vertical transmission to fetus.⁷ A research conducted on PubMed database from December 2019 to April 27, 2020 revealed that, 25 neonates were affected by SARS-CoV-2.⁸

Our aim is to present the non specific clinical presentation of COVID-19 in neonates that should be picked up at earliest possible time to decrease the morbidity and mortality in neonates.

Case Report

A 4 day old neonate, 1st issue of her non consanguineous parents, got admitted in special care baby unit of Dhaka Shishu (Children) Hospital on 5 May 2020 with the complaints of respiratory distress since birth. She was admitted previously in a general hospital where she was delivered at 38 weeks of gestation by LUCS due to breech presentation and oligohydramnios. Mother, a 21 year old normotensive and non diabetic lady was on regular antenatal check

up. She had no history of fever, cough, sore throat, respiratory distress, GI symptoms or exposure to any suspected or confirm case of COVID-19 during her pregnancy period. Birth weight was 2600 gm with an APGAR score of 6/10 at 1 minute and 7/10 at 5 minute. The newborn received resuscitation with tactile stimulation, oropharyngeal and nasopharyngeal suction followed by oxygen inhalation. She was admitted in neonatal ward of Dhaka Shishu (Children) Hospital on her 1st day of life, supportive treatment was started with oxygen inhalation through facemask, infusion 10% dextrose in aqua and empirical antibiotics (Inj Ampicillin and inj Gentamicin). Initially she maintained SpO₂ 98% with 5L/min O₂. But at her 3rd day of age baby developed respiratory distress along with occasional grunting respiration. As the condition was not improving there, the neonate was transferred to special care baby unit for further evaluation and better management at her 4th day of life. On admission in SCABU, the neonate was lethargic, dyspnoeic, respiratory rate was 76/min, mild subcostal recession was present, temperature was 39^oC, heart rate 184/min, blood pressure 65/30 mmHg, SpO₂ 78% while breathing in room air. There was multiple maculopapular rash all over the body specially in chest and abdomen. Baby was given oxygen through headbox immediately and SpO₂ gradually increased up to 97% with 8 L/min oxygen. Tepid sponging with other supportive care started along with 10% dextrose in 0.225% NaCl solution (120mL/kg/day), injectable antibiotics (Ceftazidime

1. MD Neonatology Phase B Resident, Bangladesh Institute of Child Health (BICH), Dhaka Shishu (Children) Hospital, Dhaka.
2. Professor, Critical Care in Paediatrics, Bangladesh Institute of Child Health (BICH), Dhaka Shishu (Children) Hospital, Dhaka.
3. Professor, Department of Neonatal Medicine, Bangladesh Institute of Child Health (BICH), Dhaka Shishu (Children) Hospital, Dhaka.

Correspondence to: Dr. Israt Jahan Zerín, MD Neonatology Phase B Resident, Bangladesh Institute of Child Health (BICH), Dhaka Shishu (Children) Hospital, Dhaka. Cell: 01723415633, E-mail: jerin.mgcc@gmail.com

Received: 24 October 2020;

Accepted: 1 December 2020

and Amikacin). After sponging, temperature decreased to 37°C and rash disappeared after few hours. The neonate showed constant temperature spikes and these febrile spikes were often associated with maculopapular rash. The rash lasted for several hours after defervescence. Initial investigation sent on admission revealed Hb% - 18.6gm/dl, Hct- 54%, MCV - 94.3fl, WBC 11,500/cumm (N - 54%, L - 36%, M - 08%, E - 02%), CRP - 2.3 mg/L, Serum Na - 148 mmol/L, K - 5.1 mmol/L, Cl - 108 mmol/L, Serum Calcium - 2.6 mmol/L, Serum creatinine - 30 µmol/L, Serum albumin 28.5 g/dl. Arterial blood gas showed pH - 7.26, pCO₂ - 22.1 mmHg, PO₂ - 56 mmHg, HCO₃ - 10.6 mmol/L, B/E - 13.2 mmol/L. Her INR was 0.75, APTT - Control was 28 sec and test 38 sec. Chest X-ray revealed normal findings.

The neonate's condition was static even after 2 days of admission. Fever spikes with evanescent rash continued to appear. The temperature never touched the baseline since admission. At 3rd day of admission, her oxygen demand increased up to 10L/min with increasing respiratory distress with moderate retraction. Repeat CXR was done and revealed nonspecific streaky infiltrates on whole of the right lung field (Fig. 1). Blood Culture sent on admission revealed no growth.

At 4th day of admission, neonate's condition deteriorated. She developed profuse bleeding through nasogastric tube along with mottled skin (CRT 3 sec). Infusion normal saline 20mL/kg bolus given. Inj. Vitamin K, Inj Omeprazole and Inj. Dopamine (7.5ug/kg/min) were added. Fever and rash continued to appear. CRP was increased to 8.5 mg/L (normal <5 mg/L). Nasal swab was obtained from the neonate for the detection of SARS-COV-2 and the test was positive for COVID-19 on his 8th day of age. All the supportive care were continued. The neonate developed sudden desaturation and cardiac arrest at 9th day of life. CPR and bolus adrenaline were given but we failed to resuscitate the neonate. She was declared dead after 20 minutes of resuscitation according to protocol.

As both of the parents and caregivers were asymptomatic, so none of them were tested. As well as breast milk sample, cord blood nucleic acid test were not done due to unavailability in our country.



Fig 1 Chest x ray revealed nonspecific streaky infiltrates on whole of the right lung field.

Discussion

The important findings in our neonate consistent with the other studies, were the presence of fever & respiratory distress.^{5,6} But our case had no cough, rhinorrhea or any GI symptoms. Mottling was reported in a previous study but evanescent rash was not reported in any other neonatal case.⁶ We suspect this is a case of nosocomial transmission as both of the parents and caregivers were asymptomatic and absence of skin to skin contact at birth. Throughout her admission in hospital, it seems that, the neonate was infected by nosocomial spread of aerosolized virus or by infected health workers. Although the caregivers used surgical mask at the bedside and personal protective equipment were used by all the health care workers presented in SCABU. Breastfeeding was excluded as a route of transmission as the neonate was on IV crystalloid solution throughout the course of admission. But still vertical transmission cannot be excluded due to lack of antenatal and perinatal evaluation.

This case strongly influenced the need for collaboration between the obstetricians and neonatologists along with establishment of COVID dedicated maternal and neonatal ward as well as NICU for a secure and isolated environment. Proper guideline and clear protocol should be developed

for not only the pregnant women and neonates but also for the screening and management for all parents, caregivers and staff entering the SCABU and NICU.

This case suggests that, the neonates infected with SARS-COV-2 might be susceptible to severe disease with clinically significant morbidity and mortality. Although all the reported cases throughout the world had stable vitals and no serious complication were reported. So, proper recognition of illness in this population in earliest possible time and clear protocol is essential to reduce the morbidity and mortality in severe SARS-COV-2 infected neonates with or without associated morbidity.

Conclusion

Although there are several hypothesis explaining the reasons for neonates being at lower risk for severe COVID-19, our case appeared to be an exceptional one. Therefore larger cohorts are required for more insight in neonatal COVID-19. As fever is one of the main presenting symptoms, testing should be considered in a febrile neonate for prompt recognition of this illness and for better prognosis.

References

1. Dumpa V, Kamity R, Vinci A. Neonatal coronavirus 2019 (COVID-19) infection: A case report & review of literature. *Cureus* 2020;**12**:e8165.
2. Duran P, Berman S. COVID-19 & newborn health: Systemic review. *Rev Panam Salud Publica.* 2020;**44**. Available at: <http://doi.org/10.26633/RPSP.2020.54>.
3. Piersigilli F, Carkeek K. COVID-19 in a 26-week preterm neonate. *Lancet Child Adolesc Health* 2020;**4**:476-78.
4. Wang S, Guo L, Chen L. A case report of neonatal 2019 coronavirus disease in China. *Clinical Infectious Disease* 2020. Doi: 10.1093/cid/ciaa225.
5. Coronado A, Nawaratne U. Late onset neonatal sepsis in a patient with COVID-19. *New England Journal of Medicine* 2020. Doi: 10.1056/NEJMc2005073.
6. Aghdam M, Jafari N. Novel Coronavirus in a 15 day old neonate with clinical signs of sepsis - A case report. *Infectious Diseases* 2020;**40**:1462-69.
7. Bernardo G, Giordano M. The clinical course of SARS-COV-2 positive neonates. *Journal of Perinatology* 2020;**40**:1462-69.
8. Alzamano MC, Paredes T, Caceres D, Webb CM, Valdez LM, Rosa ML. Severe COVID-19 during pregnancy & possible vertical transmission. *Am J Perinatol* 2020;**37**:861-65.