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LETTER TO EDITOR (VIEWERS CHOICE)

SARS-COV-2 INFECTION IN NEONATES PRESENTING AS SEPSIS WITH DERANGED INFLAMMATORY MARKERS

Ambike Deepali, Sayyad Rijwana.

Department of Pediatrics, Postgraduate Institute & Yashwantrao Chawan Memorial Hospital, Pimpri, Pune, Maharashtra, India.

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Symptomatic coronavirus 2019 (COVID-19) disease due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in neonates is rare.[1] Neonates may acquire infection either by vertical transmission from mother or by horizontal transmission.[2] We report two term babies with SARS CoV-2 infection who presented as sepsis.

Case 1 was a female preterm neonate born at 34 weeks of gestation with birth weight 1.70 kg referred from a private hospital neonatal intensive care unit (NICU) on day 12 of life in April 2020. Mother was not tested for Covid-19 before delivery. SARS CoV-2 was positive by RT-PCR on oropharyngeal and nasal swab in both neonate and mother; hence baby was shifted to our NICU. On admission, baby was maintaining oxygen saturation of 100% at room air, there was no respiratory distress, but suck was poor. All serial laboratory parameters are depicted in Table 1. White cell counts were high with high CRP titre though chest X-ray was normal. Blood culture grew Klebsiella Pneumoniae. Treatment was initiated as per Maharashtra Covid-19 Task force recommendations[3] with oral azithromycin and oral oseltamivir. Intravenous antibiotics as per NICU protocol was given (table 1). She also received packed red blood cell (PRBC) and platelet transfusion d-dimer which was high on admission came down to normal after injectable dexamethasone (0.1 mg/kg/day) for 5 days. Baby was discharged after 14 days and was stable and accepting feeds. Case 2 was a

Table 1. Serial laboratory parameters of both patients.

Investigations	Case 1					Case 2			
Days after birth	Day 12	Day 14	Day 15	Day 19	Day 24	Day 2	Day 3	Day 9	Day 19
Hemoglobin (g/dl)	10.7	12.1	13.8	-	15.0	15.6	15.3	16.7	-
Hematocrit (%)	42.4	38.9	35.0	-	47.3	48	51.4	51.6	-
Total leucocyte count (cells/cumm)	29,200	13,100	13,700	-	11,500	18,600	12,600	10,400	-
Neutrophil to Lymphocyte Ratio	0.7	0.43	0.4	-	0.3	1.6	1.2	0.37	-
Platelets (cells/cumm)	27,300	144,000	142,000	-	270,000	196,000	198,000	216,000	-
Fibrinogen (Normal 2.7-2.8 g/l)	3.1	3.2	-	2.9	-	2.82	1.8	-	-
D-dimer (Normal 0.1-0.5 mg/l)	0.6	0.6	0.1	0.1	-	0.7	0.4	0.4	-
C-reactive protein (Normal 0-0.6 mg/dl)	-	15				67	45	1.9	1
Blood culture	*Klebsiella Pneumoniae*					No growth			
Antibacterial agents	Inj meropenem & metronidazole. Inj ceftazidime added as per blood culture sensitivity report.					Cefotaxime & Amikacin for 7 days and Piperacillin added on Day 8 empirically as baby deteriorated clinically.			
Urine routine	Normal					Normal			
Baby RT PCR for COVID-19	Positive (day 11)			Negative (day 21)		Negative		Positive	Negative

Address for Correspondence: Dr Deepali Ambike, Professor & Head, Department of Pediatrics, Postgraduate Institute & Yashwantrao Chawan Memorial Hospital, Pimpri, Pune, Maharashtra, India.
Email: ambikedeepa@gmail.com

male child born at full term by normal vaginal delivery with birth weight of 3 kg to a COVID-19 infected mother in our hospital. He developed tachypnea after 24 hours of life. At birth RT PCR for SARS CoV-2 was negative in the baby by oropharyngeal and nasal swab. Baby was given oxygen by continuous positive airway pressure (CPAP). Serial laboratory parameters are depicted in Table 1.After 8 days of admission, tachypnea still persisted and baby started coughing. Repeat oropharyngeal and nasal swab were positive for SARS CoV-2 by RT-PCR, but chest X-Ray was normal. Treatment as per Maharashtra Government Covid-19 Task force guidelines[3] was initiated along with injectable dexamethasone 0.1 mg/kg/day for 5 days to which the patient responded, and patient was discharged on Day 19 of life.

Late neonatal SARS-CoV-2 infection with clinically significant hypoxemia without overt signs of respiratory distress that required oxygen therapy was reported by Mariateresa Sinelli et al.[1] The mode of transmission of SARS-CoV-2 in our patients could not be determined. We had not done an RT-PCR for SARS-CoV-2 virus on cord blood and placenta of our patients to determine whether it was intrauterine transmission.[3] Horizontal transmission cannot be ruled out in our patients similar to study by James cook et al.[2] Since both the babies were detected to be COVID-19 infected after 8-12 days of life, it is possible that transmission occurred after birth. Both our patients had normal chest X-ray. However, In the Wuhan study[4], 12 out of 13 neonates presented with radiological features for pneumonia, 1 with occasional cough similar to our case 2. Recent literature shows that d-dimer, fibrinogen, CRP values are often increased in patients with COVID-19 similar to our cases, which was reported to be 44.9% in a meta-analysis[5] even in patients with milder forms, and therefore, d-dimer measurement may be associated with a worsening clinical picture. The role of steroids and antivirals in neonatal covid was still not established when these patients presented, however in view of hyperinflammatory response involved, we tried short-term dexamethasone therapy for the elevated CRP and d-dimer levels and worsening hypoxemia[6,7] to which our patients responded.

Compliance with Ethical Standards
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