CASE REPORTS

A CASE OF LATE ONSET NEONATAL COVID-19 INFECTION

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is a communicable illness which has become a global pandemic involving all the age groups. We report a case of neonatal SARS-CoV-2 infection in NICU of Pak Emirates Military Hospital Rawalpindi in a 26-day-old neonate who presented to us with fever and refusal to feed. Laboratory parameters revealed SARS-CoV-2 and typical CT-chest findings. Considering this scenario, we are of the opinion that the transmission of the virus was horizontal. Under the current circumstances, COVID-19 should be in the differentials while evaluating all the neonates presenting with fever.

Keywords: Coronavirus disease 2019 (COVID-19), Reverse transcription Polymerase chain reaction (RT PCR), Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2).

INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first documented in Wuhan, China, in December 2019. Since then, it has spread and involved almost the entire world in a relatively short period of time[1]. It has affected more than 7.5 million people worldwide and more than 140,000 people in Pakistan. This virus manifests with a range of clinical features from mild respiratory complaints to severe acute respiratory distress syndrome (ARDS) with bilateral severe pneumonia[2]. The disease involves all age groups, but clinical manifestations in children especially in neonates are mild and non-specific[3]. So far, there are few cases reported in neonates. Therefore, there are many unanswered questions regarding the clinical course of COVID-19 in neonatal population.

CASE REPORT

A 26 day old female neonate presented to PEMH Rawalpindi with two-day history of fever and reduced oral intake. She was delivered at 37 weeks via spontaneous vertex delivery at CMH Rawalpindi to a 27 year old mother, gravida 2 and para 1, without any significant antenatal or birth problems. Mother's SARS-CoV-2 screening was done on admission during delivery as per institutional guidelines which was negative. The neonate was sent home after routine postnatal examination. She was administered immunization from EPI center near the home town of Wah Cantt on 15th postnatal day. Baby was partially breast fed along with formula feeds. On examination, she was irritable, febrile with temperature of 100°F, pulse of 178 beats per minute, blood pressure of 81/45 mm Hg, respiratory rate of 62/minute, spo2 (preductal) of 95% in air and capillary refill time of less than 2 seconds. Respiratory system revealed bilateral harsh vesicular breathing. Rest of systemic examination was unremarkable. A clinical diagnosis of late onset neonatal sepsis was made. Complete blood count showed: Hb:13.3 g/dl; TLC:12.1x10^9/L (Neutrophils: 45%, Lymphocytes: 45%), Platelets: 336 x 10^9/L. CRP was 64.4 mg/L (<6 mg/L) and procalcitonin was 1.17 ng/ml (<0.15 ng/ml). She was placed on intravenous antibiotics. CSF routine examination was unremarkable and later CSF culture showed no growth. RT SARS-CoV-2PCR was sent as per hospital policy in all outdoor admissions. The report was received next day and was found positive; she was subsequently shifted to COVID-NICU of PEMH Rawalpindi. She was placed in

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incubator and all necessary standard precautions in nursing care were practiced. Renal function tests, liver function tests, serum electrolytes, PT, APTT, D-Dimers and Chest X-Ray (fig-1) were all within normal limits. Serum ferritin was 390 ng/ml (20-25 ng/ml) and LDH was 501 U/L (180-360 U/L). Blood culture showed coagulase negative Staphylococcus aureus; intravenous antibiotics were stopped after 7 days. She was given oral vitamin A, vitamin C, vitamin D and zinc supplementation. She developed mild cough at 6th days of admission. She was started on syrup azithromycin and tablet hydroxychloroquine on the same day and CT-Scan chest was performed which showed generalized ground glass haze predominantly in bilateral upper lobes which was suggestive of COVID-19 (fig-2). Screening of inflammatory mediators revealed serum ferritin increased to 888 ng/ml, troponin I was 1.80 µg/ml (<0.16 µg/ml); PT, APTT, D-Dimers, CBC and CRP were all within normal limits. IL-6 level was 4.5 pg/ml (<7 pg/ml).

Figure-1: CXR shows normal lung fields.

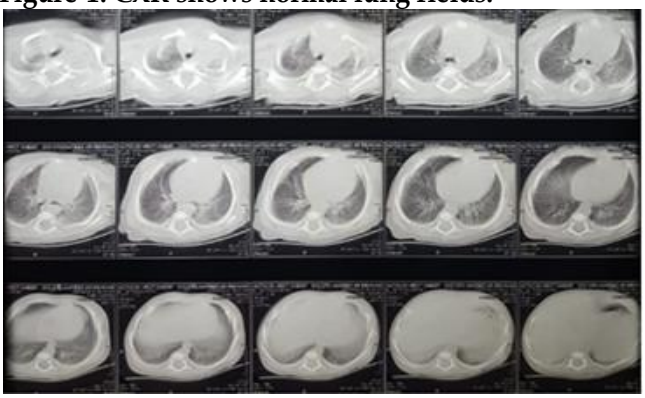

Figure-2: CT chest shows typicalground glass apperance predominantly in bilateral upper lobes.

Cough settled after 48 hours of treatment. She underwent RT PCR for SARS-CoV-2 (oropharyngeal and nasopharyngeal swabs) on 1st 3rd and 8th and 15th day of admission which were positive on all the occasions. Coronavirus Antibody (SARS-CoV-2) was nonreactive. Mean while, the parents were investigated and found negative for SARS-CoV-2 PCR and Coronavirus Antibody (SARS -CoV-2).

During the course of illness, the patient remained stable and never required any sort of respiratory support. On 16th day of admission baby was discharged since she was stable and asymptomatic.

DISCUSSION

Coronaviruses belong to subfamily Coronaviridae. COVID-19 has genera Beta Coronavirus having close resemblance to severe acute respiratory syndrome-related Coronaviruses (SARSr-CoV) and utilizes Angiotensin Converting Enzyme 2 (ACE-2) as entry receptors[4]. As per the current evidence, the mode of transmission of COVID-19 virus among human beings is via contact routes or respiratory droplets[5]. Vertical transmissions is still not established in neonates. The incubation period varies from 1 day to 14 days with an average of 5.2 days. Around 97.5% of the individuals will develop symptoms within 10.5 days of infection[6]. Neonates generally have milder symptoms including shortness of breath, feeding intolerance, fever and cough, with no fatal case reported to date[7,8]. There are various proposed reasons for the milder disease in neonates including the lack of maturity of ACE-2 receptors[9]. Management of neonates with COVID-19 is still evolving. There is currently no approved treatment for COVID-19 in neonates and different investigational drugs have been used in its management including azithromycin and hydroxychloroquine[10].

CONFLICT OF INTERSET

There was no conflict of interest to be declared by any authors.

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