

VERTICAL TRANSMISSION OF CORONA VIRUS - POSSIBLY FIRST CASE FROM PAKISTAN

Muhammad Aatif, Faisal Basheer*, Jawad Jalil**, Sundas Jahanzaib, Fatima Sharif Khan

Pakistan Naval Ship (PNS) Hafeez Hospital, Islamabad Pakistan, *Combined Military Hospital Bahawalpur Pakistan, **Combined Military Hospital/National University of Medical Sciences (NUMS) Rawalpindi Pakistan

ABSTRACT

On 26th Feb 2020, corona virus disease 2019 (COVID-19) caused by a novel corona virus also called severe acute respiratory corona virus 2 (SARS-CoV-2) first emerged in Pakistan. As the number of cases in Pakistan is increasing, cases are also being reported in pregnant women. Very rarely cases have also been reported in neonates. Possible mode of transmission from an infected mother to the neonate is through either intrauterine infection (by haematogenous spread through placenta, in utero aspiration or ingestion of amniotic fluid) or neonatal infection (by ingestion or contact with infected amniotic fluid or maternal secretions). No case of intrauterine transmission has been reported to date from Pakistan. We are reporting a case of possible intra uterine transmission in a neonate.

Keywords: COVID-19, Intrauterine transmission, Neonate.

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INTRODUCTION

In December 2019, infection by the novel corona virus, SARS-CoV-2 was first reported in Wuhan, Hubei Province China¹. Pakistan reported its first case on 26th Feb 2020². SARS-CoV-2 infection is mostly asymptomatic but can present as pneumonia³. Although all age groups are susceptible however mortality and morbidity increases with increasing age⁴. As the incidence of COVID-19 increases, cases of infections in pregnant ladies are also being reported. Very rarely there have been associated neonatal cases of COVID-19 infections. In neonates the mode of transmission from an infected pregnant mother to the neonate is through either intrauterine infection by haematogenous spread through placenta, in utero aspiration or ingestion of amniotic fluid or neonatal infection by ingestion or contact with infected amniotic fluid or maternal secretions⁵. Here we would like to report a case of neonatal COVID-19 infection where the most likely mode of transmission was intra uterine.

CASE REPORT

A 23 year old third gravida mother with a

history of two abortions and no live issues presented at 37 weeks of gestation with complaints of mild labour pains for one day. Her husband gave a history of contact with a confirmed case of COVID-19 one week ago. The pregnant mother also gave a history of fever and cough for the past 3 days. Apart from this she remained on regular ante natal follow ups with no co morbid conditions.

At presentation she was febrile (100°F) with a respiratory rate of 16 breaths/minute, SPO₂ of 97% in air with no respiratory distress. Examination of the chest was unremarkable. Her blood complete picture revealed a TLC of 5 × 10⁹/L with 65% neutrophils, 25% lymphocytes and 8% monocytes, Haemoglobin of 12.9 g/dL and a platelet count of 156 × 10⁹/L. Her CXR were unremarkable. Her liver and renal function tests, serum Ck-Mb, Lactate dehydrogenase and procalcitonin were all within normal limits. Nasopharyngeal swab for SARS-CoV-2 RT-PCR of both parents were immediately sent.

CTG monitoring showed foetal tachycardia with type II decelerations. Bishop was 3/15 with grade 3 meconium stained liquor. On the same day an emergency LSCS was performed in a negative pressure operation theatre.

Correspondence: Dr Muhammad Aatif, Paeds Dept, PNS Hafeez, Islamabad Pakistan (Email: aatif1156@hotmail.com)

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All health care professionals attending to the mother and baby wore level 2 PPE and the mother wore a standard N95 mask during the procedure. Immediately after birth the baby was shifted to a separate room with care taken to ensure no skin to skin contact or delayed cord clamping. A baby girl weighing 2800 grams was delivered with APGAR scores of 7/10 and 9/10 at 1 and 5 minutes respectively. After resuscitation, she was shifted to the COVID Neonatal Intensive Care Unit for observation.

At hour after birth the baby was noticed to have tachypnoea with a respiratory rate of 72 breaths per minutes with grunting. However her



Figure: Chest X-Ray AP view was unremarkable.

SPO₂ was 94% on head box oxygen and her umbilical cord did not show any meconium staining. Investigation done at that time revealed a blood sugar of 72 mg/dL. Her blood complete picture revealed a total leucocyte count of $19 \times 10^9/L$ (63% neutrophils, 22% lymphocytes and 10% monocytes), Haemoglobin of 16.7 g/dL and a platelet count of $190 \times 10^9/L$. C-reactive protein was less than 6 mg/dL. Portable CXR done 2 hours after birth as shown in figure-1 was unremarkable. She was kept on supplementary oxygen and supportive care. Intravenous antibiotics as per local hospital protocol were started.

Her respiratory distress subsided over the next 24 hours and oral feeding was introduced which was well tolerated. HRCT chest was not done as the child was asymptomatic and feeding

well after 24 hours of birth. At 24 hours, after both parents had tested positive for COVID-19 RT-PCR, oropharyngeal RT-PCR of the baby sent which also turned out positive. At 48 hours as the baby was asymptomatic and feeding well she was shifted with the mother in a separate room and breast feeding was started with parental consent.

On 7th day RT-PCR of both the mother and baby were repeated however both of them again tested positive. Rapid antibody testing done on 7th day of life was positive for IgM antibodies. RT-PCR of the mother and baby was again done on 14th day of life which came negative for the mother but positive for baby. After 4 days RT-PCR of the baby became negative and a final PCR 24 hour later as per policy guidelines was also negative. Both the baby and mother were discharged and advised follow up after 1 week.

DISCUSSION

A recent study in Wuhan, China reported a series of 33 cases of neonatal COVID 19 infection⁶. Most of the neonates had mild or no symptoms with favourable outcome. Only three of the neonates were symptomatic but their symptoms were attributed to prematurity, asphyxia or sepsis rather than COVID 19 infection. Similarly our case was only mildly symptomatic and recovered after 24 hours of supportive care. According to current data the major routes of transmission of COVID-19 are droplet, contact and aerosol transmission⁷. RNA of the SARS-CoV-2 has also been detected in the faecal samples of patients⁸.

In previous studies, samples of amniotic fluid, cord blood and breast milk from infected mothers were tested for SARS-CoV-2. As all samples tested negative for the virus, it was assumed that intra uterine transmission is unlikely⁹. Furthermore there have been no documented cases of intrauterine transmission occurring with SARS and MERS¹⁰. However a recent review of 70 newborns, born to mothers with proved SARS-CoV-2 infection from nine different studies concluded that intrauterine could not be excluded or was considered possible⁵.

In our case, the mode of delivery was a lower segment caesarean section and all measures to avoid mother to child droplet or contact transmission of the disease at the time of delivery were observed. More over all contacts during delivery and in the COVID Neonatal Intensive Care Unit were screened at 48 hours of birth and found to be negative on RT-PCR testing. Thus in the absence of any contact with an infected case, positive RT-PCR at 24 hours and persistence till 14th day in the baby of a pregnant mother with confirmed COVID-19 disease the most likely possible mode of transmission was intra uterine infection. Vertical transmission though rare is increasingly being reported and needs to be documented and studied as it will have important implications in establishing isolation protocols for infants born to COVID 19 positive mothers.

CONFLICT OF INTEREST

This case report has no conflict of interest to be declared by any author.

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