

Innate Covid 19 Infection Masquerading as Hydrops Fetalis: Revealing The Hidden Iceberg

Praveen Unki¹, Madhunandan Krishnegowda², Shreyas Vishwanath³,
Hemanth Kumar N⁴

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Abstract

Introduction: Portentous pandemic of COVID-19 chaos has caused incredulous insult on human race. COVID-19 infection in pregnant women is as same as other reproductive age group. Data is limited on perinatal COVID-19 transmission; in this study we report a case of innate COVID-19 infection in a neonate with post covid sequel.

Methodology: Prospective observational study conducted in a tertiary care centre.

Results: A 21 year old pregnant women at her 32 weeks of gestation was tested positive for COVID-19 (RT-PCR), she had asymptomatic course, delivered a baby with features of Hydrops fetalis. Baby showed elevated levels of anti SARS CoV antibodies. We hypothesise causality of Hydrops fetalis could be innate COVID-19 infection.

Discussion: Hydrops fetalis has classically been defined as the presence of extracellular fluid in at least two fetal body compartments. Across the globe there are two reported cases of Hydrops fetalis. In first case there was fetal demise at 13 weeks of gestation with changes of Hydrops fetalis, viral particle in placenta and amniotic fluid was demonstrated. In second case a preterm baby was delivered at 35 weeks of gestation with changes of Hydrops fetalis, where mother had recovered from COVID-19 infection during pregnancy.

Keywords: Hydrops fetalis; Covid-19; Infection.

Introduction

Portentous pandemic of COVID-19 chaos has caused incredulous insult on human race. Ranging from plethora of no symptoms to fully blown ARDS, from simple home isolation to prolonged ICU stay, from no medication to lung transplantation, from speedy recovery to sad demise. It infects all age groups

both children and adults, ab initio it was found that elderly and individuals with comorbidities have higher fatalities.¹ Of late, some studies have reported turbulent course of COVID-19 in children.²⁻⁴ There is a constant evolution of knowledge regarding the progression of COVID-19. COVID-19 infection in pregnant women is as same as other reproductive age group.⁵ Data is limited on perinatal COVID-19 transmission; in this study we report a case of innate COVID-19 infection in a neonate with post covid sequel.

Materials and Methods

This was a prospective observational study conducted in Neonatal Intensive Care Unit of Tertiary care hospital. Baby was enrolled in the study and worked up for possible cause of Hydrops fetalis. Patient was monitored for 10 days and discharged thereafter with follow-up advice.

Author Affiliation: ^{1,2,4}Assistant Professor, ³Junior Resident, Department of Paediatrics, Adichunchanagiri Institute of Medical Sciences, Mandya, 571448, Karnataka, India.

Corresponding Author: Madhunandan Krishnegowda, Assistant Professor, Department of Pediatrics, Adichunchanagiri Institute of Medical Sciences, Mandya 571448, Karnataka, India.

E-mail: madhunandangowda7@gmail.com

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Result

A 21 year old pregnant women at her 32 weeks of gestation was tested positive for COVID-19 (RTPCR), she had asymptomatic course. At 37 weeks of gestation she delivered a female child of birth weight 1970gram through lower segment caesarean section (LSCS), indication for LSCS was non reassuring fetal heart rate and in utero passage of meconium. Baby was separated from mother and admitted in neonatal intensive care unit in view of respiratory distress. Baby required nasal CPAP for the initial 4 hours then was subsequently tapered to room air. Physical examination revealed generalised edema from head to toe including the genitals, frank ascites was demonstrated and there was microcephaly and tongue tie.

There was notable chest wall edema and pericardial effusion in chest radiograph (Fig. 1).

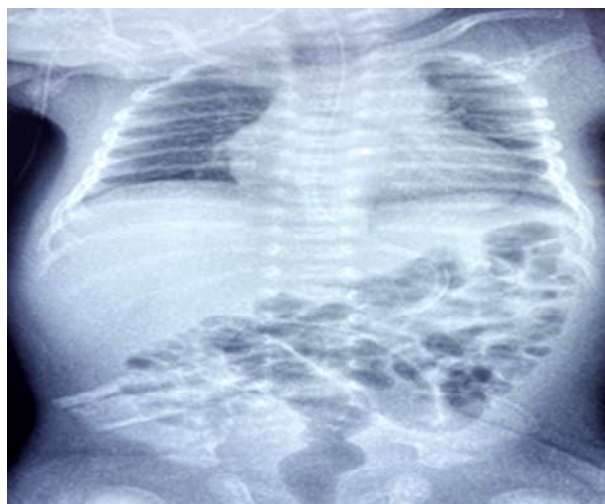


Fig. 1: Chest X-Ray(AP view) showing pericardial effusion and chest wall edema.

2D echocardiography showed pericardial effusion. Abdominal ultrasonography revealed ascites. Neurosonography was normal. Baby had leucopenia and thrombocytopenia. Liver function test showed elevated SGOT 335 U/L and SGPT 297 U/L and renal function test was normal. Blood and urine cultures were negative for bacterial growth. Baby was tested for TORCH infections which was negative. Fundoscopy showed bilateral retinal haemorrhage (Fig. 2). There was no blood group incompatibility. Considering COVID-19 positivity in mother at her 32nd weeks of gestation, baby was subjected for testing of anti SARS CoV-2 antibodies to spike protein; we found elevated levels of antibodies (20.45 U/ml), suggesting intrauterine COVID-19 infection. When placenta was subjected to histo-pathological examination it showed

fibrinoid necrosis. We hypothesise causality of Hydrops fetalis could be innate COVID-19 infection.

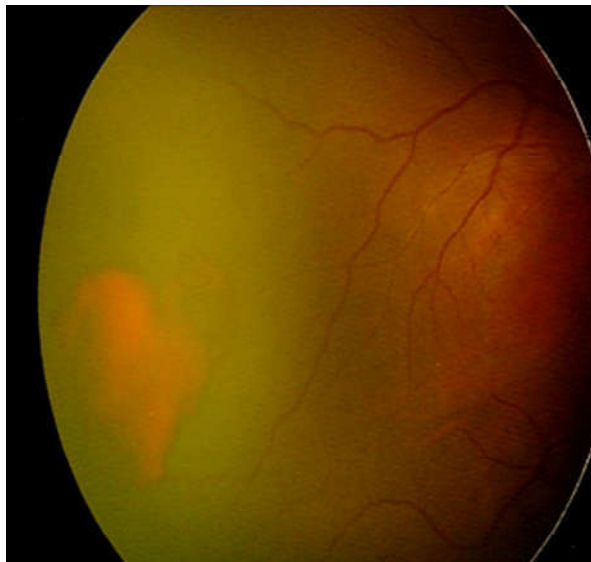


Fig. 2: Fundoscopy showing retinal hemorrhage.

Discussion

Hydropsfetalis has classically been defined as the presence of extracellular fluid in at least two fetal body compartments.⁶ Causes of Hydrops fetalis can be immune and non-immune, non-immune causes constitutes significant number in modern day medicine.⁶

Few authors have reported the rare possibility (1-3%) of vertical transmission of COVID-19.^{7,8} Mechanism of vertical transmission is favoured by detection of SARS-CoV-2 in placenta by immunohistochemistry or other molecular methods.^{7,9} Human placenta has shown to express ACE2 receptor which could be the portal of entry for COVID-19 virus.¹⁰ Another possible explanation for intrauterine SARS-CoV-2 infection is via maternal immune cells or, less commonly, during vaginal delivery.¹¹

Across the globe there are two reported cases of Hydrops fetalis. First case was reported by Shinde et al¹², where the pregnant woman was tested positive for COVID-19 at 8 weeks of amenorrhoea and had asymptomatic course for the same. When she underwent routine ultrasonography 5 weeks later then it showed fetal demise with changes of Hydrops fetalis. They demonstrated viral particle in placenta and amniotic fluid.

Second case was reported by Krasniqi F et al¹³, where a pregnant lady with 35 weeks of gestation delivered a baby with Hydrops fetalis. They ruled

out common causes of Hydrops fetalis but all the results were negative. They also found that mother had recovered from COVID-19 and concluded that possible cause of Hydrops fetalis is COVID-19. Antibodies in baby or viral particles in placenta were not demonstrated. Baby was discharged from the hospital in stable condition.

To the best of our knowledge, our case is the third case reporting association of Hydrops fetalis and COVID-19, wherein we found the baby to have features of Hydrops fetalis along with that baby had microcephaly, retinal hemorrhage and tongue tie. Placenta was found to have fibrinoid necrosis. Anti SARS CoV-2 antibodies to spike protein was elevated levels of antibodies 20.45 U/ml.

Conclusion

Studies have shown the evidence of in utero COVID-19 infection but causal association of COVID-19 disease and Hydrops fetalis has not been established. Though two other cases have reported COVID-19 infection and Hydrops fetalis, it needs to be confirmed by further studies. We hypothesise from the observation made by our team that causality of Hydrops fetalis could be innate COVID-19 infection.

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