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Obstetrics

SARS-CoV-2 congenital infection and pre-eclampsia-like syndrome in dichorionic twins: A case report and review of the literature

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Although the route of transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is mainly respiratory, vertical transmission seems possible.[1] We report the case of a woman with a dichorionic diamniotic twin pregnancy admitted to Hospital Clínico Universitario Lozano Blesa at 38^{+4} weeks of gestation due to severe pre-eclampsia in the context of a SARS-CoV-2 infection (positive nasopharyngeal PCR; Viasure, CerTest Biotec., Zaragoza, Spain) with a probable transplacental transmission of the virus to both twins.

The patient presented with fever and high blood pressure (160/90 mmHg). Evolution of laboratory parameters is shown in Table 1. Given the diagnosis of severe pre-eclampsia, the patient underwent an emergency cesarean section due to breech presentation of both babies, who were immediately handed to pediatricians in a separate room and admitted to the neonatal intensive care unit. Apgar scores were 6/4/8 and 2/3/8 at 1, 5 and 10 min, cord blood pH was 7.18 and 7.22, and birthweight was 2820 and 2845 g. Nasopharyngeal PCR for SARS-CoV-2 was performed in each twin, and both tested positive. Chest X-ray of each twin was normal, and they remained asymptomatic. PCR for SARS-CoV-2 was also performed in two swabs taken deep in the thickness of both placentas, both resulting in positive results (cycle threshold 16.7/19.1 and 16.7/19.1).

Following delivery, the mother required treatment with oxygen and dexamethasone due to mild dyspnea. Chest X-ray showed bilateral interstitial infiltrates. On the following day, blood parameters worsened and were compatible with HELLP syndrome (hemolysis, elevated liver, low platelets) (Table 1). The mother and babies were discharged 9 days after delivery.

Although this is a single case report and the amniotic fluid was not tested, the mother had no contact with the newborns after the cesarean section, making horizonal transmission unlikely.

We found 41 studies reporting infected neonates born to infected mothers. Among 95 cases identified, only 24 were delivered via cesarean section to mothers who tested positive for SARS-CoV-2 and were immediately separated at birth. Two of these reported placentas with a positive test result for SARS-CoV-2 with inflammatory histologic changes that were not found in noninfected controls.[2,3] Moreover, further studies have described the presence of intervillositis in the placentas of infected mothers, which is associated with adverse perinatal

TABLE 1 Analytical and microbiological parameters in the mother and twins

Parameter	Delivery	Day 1	Day 2	Day 5	Day 8
Analytical findings (mother)					
Blood pressure, mmHg	160/90	106/75	111/74	125/76	120/88
Temperature, °C	38.0	36.3	36.0	36.0	36.4
Creatinine, mg/dl	1.19	1.34	0.85	0.77	0.67
AST, U/L	43	80	67	30	33
ALT, U/L	12	24	30	17	22
LDH, U/L	443	670	578	339	398
CRP, mg/L		70.7	37.4	3.0	27.9
Hemoglobin, g/dl	12.0	10.6	10.7	7.1	8.9
Hematocrit, %	34.8	31.5	32.0	20.9	26.1
Leukocytes, per mm^3	5400	19 200	32 400	14 800	8600
Neutrophils, per mm^3 (%)	4400 (80.7)	15 900 (82.6)	27 200 (83.9)	11 400 (76.2)	6200 (72.7)
Lymphocytes, per mm^3 (%)	700 (12.4)	2400 (12.5)	3200 (10.0)	2400 (15.9)	1600 (19.1)
Platelets, per mm^3	59 000	79 000	172 000	184 000	270 000
Ferritin, ng/ml		992	1585	692	547
D-dimer, µg/L		3964	1072	1283	1639
Proteins in urine, g/L	>2		0.16		

Parameter	Delivery	Day 2	Day 3	Day 8	Day 19
Microbiological findings (mother)					
Nasopharyngeal PCR (CT)	Positive (21.3/18.7)			Positive (33.5/34.3)	
Anti-SARS-CoV–2 IgM (index)				Positive (64.7)	Positive
Anti-SARS-CoV–2 IgM (index)		Negative (0.01)		Negative (1.1)	Positive (9.0)
Microbiological findings (first twin/second twin)					
Nasopharyngeal PCR (CT)	Negative/ negative	Negative/positive (27.3/30.6)	Positive (30.2/30.7)	Positive (19.5/19.2)/ positive (17.7/17.4)	
Anti-SARS-CoV–2 IgM (index)		Negative (0.02)/ negative (0.02)			
Anti-SARS-CoV–2 IgG (index)		Negative (0.01)/ negative (0.01)		Negative (0.01)/ negative (0.01)	Positive (6.0)/ positive (6.0)

Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase; CRP, C-reactive protein; CT, cycle threshold; IgG, immunoglobulin G; IgM, immunoglobulin M; LDH, lactate dehydrogenase; PCR, polymerase chain reaction.

outcomes such as severe pre-eclampsia, fetal growth restriction, and miscarriage.[4]

It is important to highlight the maternal clinical features in the present case. All data led to a diagnosis of severe pre-eclampsia. However, there is the possibility of a pre-eclampsia-like syndrome caused by SARS-CoV-2, which has been previously described.[5]

To our knowledge, this is the first case of probable vertical transmission of SARS-CoV-2 to both twins. Moreover, the possibility that the mother could have developed a pre-eclampsia-like syndrome makes this case unique.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest.

AUTHOR CONTRIBUTIONS

NAC, SRM, and CP wrote the article. MRS and PMA critically reviewed and corrected the article. MFE critically reviewed and corrected the analytical findings. RBR and JBS provided and reviewed

the microbiological parameters. PVF provided, reviewed, and corrected the article.

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Successful extracorporeal cardiopulmonary resuscitation for a puerpera with amniotic fluid embolism

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Amniotic fluid embolism (AFE) is one of many high-mortality maternal complications, with approximately 50% of patients with AFE suffering cardiac arrest.[1] Additionally, 89% of deaths in cases of AFE are caused by cardiac arrest, and there are no statistical data for refractory cardiac and respiratory arrest.[2]

A 35-year-old woman with autoimmune diseases presented to our hospital for an elective cesarean delivery. The patient was treated with hydroxychloroquine, methylprednisolone, and clexane before her pregnancy. She had regular prenatal care and her routine prenatal screening tests were normal. Written informed consent was obtained from the patient for publication of this study.

The patient was diagnosed with placenta previa and underwent a cesarean delivery. Ventricular fibrillation was detected during cesarean delivery, which rapidly progressed into pulseless electrical activity. Cardiopulmonary resuscitation (CPR) was immediately started. As this was unsuccessful, we opted for open chest CPR (OC-CPR) due to severe obesity (body mass index 35.2 kg/m^2).

There was no detectable heart rate within 15 min of OC-CPR; therefore, extracorporeal cardiopulmonary resuscitation (ECPR) (BioConsole™ 560; Medtronic) was initiated with an initial flow rate of 3.1 L/min. Due to surgical bleeding and disseminated intravascular coagulation caused by AFE, we did not administer any anticoagulation therapy