SARS-COV-2 infection during pregnancy, a risk factor for eclampsia or neurological manifestations of COVID-19? Case report.

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Case Report

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Abstract

Background: There are no published cases of tonic-clonic seizures and posterior bilateral blindness during pregnancy and SARS-COV-2 infection. We do not just face new and unknown manifestations, but also how different patients groups are affected by SARS-Cov-2 infection, like pregnant women. COVID-19, preeclampsia, eclampsia and posterior reversible leukoencephalopathy share endothelium damage and similar pathophysiology.

Case presentation: We present a case of a 35 years old pregnant woman, who comes to our hospital because of tonic-clonic seizures at home and SARS-COV-2 infection. After Caesarean section, we initiate antihypertensive treatment with labetalol, amlodipine and captopril. Few hour after C-section, she develops blindness with total recuperation after 72 hours, normal brain CT scan and normal CT angiography. She had normal pregnancy control and no other symptoms before tonic-clonic seizures development.

Conclusion: SARS-COV-2 infection could promote brain endothelial damage and facilitate neurological complications during pregnancy.

Background

The vast majority of patients affected by SARS-Cov–2 infection present flu-like symptoms[1,2]. However, as the pandemic evolves, a broader, diverse and unknown spectrum of symptoms can be seen. An increasing number of patients with neurological symptoms have been reported[3–6]. These manifestations can go from mild and common symptoms like anosmia or ageusia, to severe ones and less common like a cerebrovascular accident[3–6]. Symptoms of extrapulmonary disease could be explained by the damage of the endothelial tissue caused by the virus[7].

With this new virus, we do not just face new and unknown manifestations, but also how different patients groups are affected by SARS-Cov–2 infection, like pregnant women. That is the reason why we present a case report of a pregnant woman infected with coronavirus disease (COVID–19) who shows seizures and sudden blindness.

Case Presentation

We described 35 years old pregnant women with just hypothyroidism treated with thyroxin 88 µg every 24 hours as personal background and good blood pressure control during pregnancy, in her 40 weeks and 6 days of gestation. Pregnancy has been controlled by hospital protocols with no evidence of obstetric risk factors.

The only incidence to highlight during gestation is the diagnosis of SARS-Cov–2 infection the day of the caesarean section, confirmed by nasopharyngeal PCR of the virus. The patient stays healthy, showing no

symptoms, and the only abnormal results in the blood test at arrival to the hospital were LDH of 336 UI/l and D-Dimer of 5781 ng/ml.

With no clinical manifestations the previous days, the patient is brought to our hospital due to generalized tonic-clonic seizures at home. The first suspicion is of eclampsia, and that is why an emergent caesarian section is performed. The procedure is carried out with general anesthesia. Induction is made with propofol 200 mg and rocuronium 100 mg. After birth, we start fenatyl 300 µg and sevoflurane for maintenance of the anesthesia without complications, completing postoperative care in the intensive care unit. After C-section, we initiate treatment with intravenous magnesium sulfate aiming levels between 4 to 6 mg/dl, intravenous labetalol 60mg every hour for tensional control, lowering dose progressively until suspension. After that, we introduce oral treatment with labetalol 100 mg every 12 hours, captopril 25mg every 12 hours and amlodipine 5 mg every 12 hours. 24 hours after caesarean section, the risk index sFlt-1/PIGF is 51.4988.

Few hours after C-section, the patient shows sudden blindness without other neurologic symptoms. Regarding to visual acuity: She can appreciate lights and shadows, being impossible with her degree of vision loss to achieve a low vision testing such as counting fingers or notice moving objects with both eyes. Also, she presents absence of bilateral menace reflex (blink reflex to threat). The rest of the cranial nerves and neurological exam show no pathological findings.

Due to these findings, a brain ct scan and ct angiography are performed, existing no anomalies in these tests. We notify the case to the Neurology department that suspects posterior reversible leukoencephalopathy as a primary diagnosis, although there is no nuclear magnetic resonance confirmation. Because of this suspicion, we begin treatment with enoxaparin 40mg every 24 hours.

The patient's vision recovers progressively during the first 48 hours and the next day she is moved to a COVID-19 hospitalization area with antithrombotic and antihypertensive treatment.

Discussion And Conclusion

The main manifestation of COVID-19 is influenza-like symptomatology but there are others like anosmia or ageusia. Not much has been said about different affectations in pregnant women or if this virus has any impact on the fetus. But it is important to have in mind that other coronavirus like SARS or MERS seems to increase complications like preeclampsia[8].

In this case, we have a pregnant woman with positive COVID-19 RT-PCR that shows severe neurological symptoms. At first, the suspicion was eclampsia missing a diagnosis of preeclampsia during pregnancy, even when she had all the usual controls of pregnancy done and correct. The patient did not present any blood pressure alterations during those controls or in the ultrasound of the placenta. Also, she did not present any other suggestive clinic of preeclampsia. 24 hours after c-section a risk index sFlt-1/PIGF is requested resulting high (51.4988) for diagnosis of preeclampsia in the next four weeks, but low for an imminent complication. The half-life of sFlt-1 is estimated in 1,4 days, while the half-life of PIGF is 3,7[9],

therefore the risk would not change. We also have the suspicion of neurological manifestations of COVID–19, where seizures are present in 0,7% of the cases[10], but she had not any other neurological symptoms of COVID–19 like headache, ageusia or anosmia. Seizures are associated with previous history of cognitive impairment, older age, higher Creatine Kinase levels and higher C-reactive protein[10].

Coronavirus has been identified in brain endothelial cells[3]. Eclampsia, posterior reversible leukoencephalopathy and COVID–19 share a common pathophysiology affecting endothelial tissue[11,12]. Therefore, we consider that SARS-Cov–2 infection during pregnancy could increase the risk of suffering posterior reversible leukoencephalopathy or preeclampsia-eclampsia.

To conclude, we believe SARS-COV–2 infection could promote brain endothelial damage, triggering the neurological complication in our patient. To our knowledge, this is the first report of a patient with COVID–19 presenting preeclampsia associated with eclampsia versus posterior reversible leukoencephalopathy without alarm signs or symptoms. We consider further studies are needed to confirm that SARS-COV–2 infection is a risk factor to develop neurological complications of the pregnant woman during pregnancy.

Abbreviations

COVID–19: Coronavirus disease 2019

CT: computed tomography

PCR: polymerase chain reaction

LDH: Lactic Acid Dehydrogenase.

SARS: Severe acute respiratory syndrome

Cov: Coronavirus

MERS: middle east respiratory syndrome.

RT: Rapid test

C-section: Caesarean section.

sFlt–1: Risk index Soluble Fms-Like Tyrosine kinase–1

PLGF: Placental Growth Factor

Declarations

Competing interest: The authors do not have any conflict of interest and this publication does not have any funding. Consent for publication: Written consent was obtained from the patient for publication of the case. Methods: The patient is included in other multicentre studies as patient with COVID-19, same as the rest of patients with COVID-19 in our hospital. But there is no report or description of this particular case submitted. Availability of data and materials: Data are available on request due to privacy or other restrictions. The data that support the findings of this study are available on request from the corresponding author SMC. The data are not publicly available due to them containing information that could compromise research participant privacy/ consent. Funding: None. Acknowledgements Not applicable. Author information: Author contributions AGR contributed to data collection, follow up and writing of the manuscript. SMC contributed to data collection, follow up and writing of the manuscript. CFF was the obstetrician of the patient and contributed to data collection. SMFM was the anesthesiologist of the patient during the C-Section. JMMV and FDB were the anesthesiologist at critical care department, contributed to data collection and writing of the manuscript. MCRG was the neurologist who contribute to the diagnosis. All autor shave read and approved the final manuscript. Affiliations: Department of Anesthesiology and Critical Care, University Complex Hospital of Leon, 24071 Spain. Sergio Marcos Contreras, Alejandro Garcia Rodriguez, Santiago Fernandez Manovel, Jose Miguel Marcos Vidal and Fernando Diez Buron. Department of Obstetrics and Gynecology, University Complex Hospital of Leon, 24071 Spain. Camino Fernandez Fernandez. Department of Neurology. University Complex Hospital of Leon, 24071 Spain. Maria del Carmen Riveira Gonzalez.

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