Postpartum Diagnosis of Coronavirus with Myopericarditis in a Patient with Pre-Existing Preeclampsia

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Abstract

We report a case of severe Coronavirus infection in postpartum period, with pulmonary and cardiac involvement, in a patient with pre-existing preeclampsia. The first cases of Coronavirus disease 2019 (COVID-19) were reported in December 2019, in Wuhan, China, rapidly spreading worldwide [1]. COVID-19 became a public health emergency, of international concern, and global pandemic was declared by the World Health Organization (WHO) on the 11th of March of 2020. Although clinical presentation in patients infected with SARS-CoV-2 is highly variable, ranging from asymptomatic to severe multisystemic disease, respiratory symptoms are the most common finding. Cardiac involvement (myocarditis) has been commonly described as a complication of COVID-19 infection and there is not enough data to ensure whether it is or not related with a worse prognosis. Some risk factors have been associated with a poor prognosis, such as pre-existing diabetes, hypertension, and obesity. No pregnancy-related risk factors have been yet associated with severe disease in pregnant patients. The association of severe preeclampsia with a more aggressive course of the disease needs to be investigated.

Keywords: COVID-19; Coronavirus; Pregnancy; postpartum; Myopericarditis; Preeclampsia

Introduction

We report a case of severe Coronavirus infection in postpartum period, with pulmonary and cardiac involvement, in a patient with pre-existing preeclampsia. The first cases of Coronavirus disease 2019 (COVID-19) were reported in December 2019, in Wuhan, China, rapidly spreading worldwide [1]. COVID-19 became a public health emergency, of international concern, and global pandemic was declared by the World Health Organization (WHO) on the 11th of March of 2020 [2]. Although clinical presentation in patients infected with SARS-CoV-2 is highly variable, ranging from asymptomatic to severe multisystemic disease, respiratory symptoms are the most common finding [3]. Cardiac involvement (myocarditis) has been commonly described as a complication of COVID-19 infection and there is not enough data to ensure whether it is or not related with a worse prognosis. Some risk factors have been associated with a poor prognosis, such as pre-existing diabetes, hypertension, and obesity. No pregnancy-related risk factors have been yet associated with severe disease in pregnant patients [4]. The association of severe preeclampsia with a more aggressive course of the disease needs to be investigated.

Case Presentation

A 41-year-old primigravida, at 38+3 weeks of gestation, was referred to our Emergency Department on the 25th of February 2020. She presented with oliguria, mildly elevated blood pressure (140/90 mmHg) and severe edema of the lower limbs. Her pregnancy was achieved by IVF cycle using donor oocytes. Her Body Mass Index (BMI) was 30.67 kg/m². Advanced maternal age, obesity and gestational hypothyroidism were her only medical concerns. At admission, her medical tests revealed elevated protein creatinine index (0.49), elevated alkaline phosphatase (248 U/L), normal platelets (166.000/µL), normal plasma creatinine (0.86 ml/dl) and mild lymphopenia (1.1 × 1000/µL). A diagnosis of severe preeclampsia was established and decision to induce labor was made. After six hours, oliguria persisted and blood tests revealed renal function deterioration (creatinine 1.08 mg/dl) and consequently a Cesarean Section (CS) was performed. A healthy female of 2500 grams, with Apgar score 7/9 and venous umbilical cord pH 7.34, was delivered. Anatomopathological examination of placenta revealed lesions consistent with preeclampsia (areas of placental infarction and thrombosis). On the immediate postpartum period, she required antihypertensive treatment with labetalol (200 mg/8 hours) and thromboprophylactic enoxaparin regime. On the 3rd day of puerperium, she underwent a nephrologist examination because of persistent severe edema of the lower limbs as well as high blood pressure, but no other pathological findings were revealed. On the 4th post-operative day, she started with fever (38°C) and general discomfort. Obstetric examination was performed showing no abnormal findings. On the 6th day after CS, she developed dry cough and odynophagia. Oxygen saturation dropped to 88% to 90%. Exertional dyspnea with no tachypnea (18 breaths per minute) was observed, so oxygen supply by nasal cannula was initiated. An internist was consulted, and clinical examination was performed revealing bibasal crackling sounds in cardiopulmonary auscultation. Chest x-ray showed bilateral multilobar infiltrates suggestive of viral pneumonia and enlarged cardiac silhouette (Figure 1). Blood test results revealed elevation of ALT (38 U/L), AST (55 U/L), C Reactive Protein (3.85 mg/l), lymphopenia (0.5 × 1000/µl), (Troponin T hs (38 ng/L), CK (162) and NT-proBNP (3093 pg/mL). Arterial Blood Gas (ABG) showed partial respiratory insufficiency (pH 7.51, pO2 59 mmHg, pCO2 30 mmHg, HCO3 24.5 mmol/l, Lactate 0.8 mmol/l).
Cardiology specialist was consulted and an echocardiogram was performed revealing pericardial effusion with preserved ventricular function. Electrocardiogram (ECG) showed no abnormalities. With those findings, viral pneumonia in association with viral myopericarditis were suspected. Treatment with Colchicine was initiated (0.5 mg/24 hours) and maintained for a week. Broad antibiotic spectrum (cefepime 1 g/12 h and linezolid 600 mg/12 h) together with Oseltamivir 75 mg/12 h were initiated. A general respiratory virus panel (Influenza, Respiratory Syncytial virus) and SARS-Cov-2 Polymerase Chain Reaction (PCR) nasopharyngeal swab were collected. PCR returned positive for SARS-COV-2 on the 7th post CS day. Consequently, treatment with Lopinavir/Ritonavir (400/100 mg/12 h) and Interferon Beta (250 mcg/ml/48 h) was initiated, and Oseltamivir was discontinued. Strict respiratory isolation was established for the mother, and the baby was transferred to transition ward, resulting positive in PCR SARS-CoV-19 determination. Patient general condition kept worsening 48 hours after the diagnosis, developing Acute Respiratory Distress Syndrome (ARDS) and being transferred to Intensive Care Unit (ICU) on the 8th day after CS. She required prolonged orotracheal intubation, and a tracheostomy was performed sixteen days after ICU admission. She was discharged from ICU after nineteen days and from hospital thirty-four days after SARS-CoV-19 diagnosis.

Discussion

We report a case of myopericarditis associated to SARS-CoV-19 infection, diagnosed during postpartum period, in a patient with severe preeclampsia. ARDS was the major concern, with a rapid general condition deterioration, that required prolonged respiratory support. Cardiac involvement has been described in up to one third of critically ill patients with COVID-19 [5]. Cardiomyopathy is the main finding, but pericarditis has also been described, as in our case [6,7]. Whether cardiac involvement is more frequent in pregnant critically ill population needs to be investigated, as pregnancy itself is a known risk factor for cardiac dysfunction due to volume overload. Other pregnancy related conditions such as preeclampsia may also play a role in a more aggressive course of the disease. Preeclampsia involves endothelial dysfunction which may aggravate respiratory and cardiac symptoms, so it needs to be regarded as a potential risk factor in pregnant patients with COVID-19 [8]. Preeclampsia patients may benefit of being under close monitoring, at least until more data is available. In this case cardiac involvement did not determine the aggressive course of the disease, and there was no need of intensive pharmacologic therapy. Nevertheless, it might have been a marker of severe disease, being potentially a severe complication in other pregnant patients, as already has been described in literature [7]. We would like to emphasize the need to rule out cardiac complications, in cases where severe symptoms like dyspnea and tachypnea are present, as they can respond to both pulmonary and cardiac disease. ECG and echocardiogram should be performed if suspected. Additionally, myocardial damage markers can be used to assess the severity of the process. More data are needed to establish a relationship between preeclampsia and a more severe course of COVID-19 disease. The relevance of cardiac involvement in pregnant patients, including incidence and severity, needs further investigation and should not be underestimated.

References


Figure 1: Chest x-ray performed on the 6th day after CS shows bilateral multilobar infiltrates and enlarged cardiac silhouette.