J Bras Patol Med Lab. 2020; 56: 1-4.

10.5935/1676-2444.20200057

Coronavirus and the puerperium: a case report

Coronavírus e o puerpério: um relato de caso

Lucas R. Mostardeiro[1]; Luiza G. Schmitt[2]; Jady W. Xavier[3]

1. Universidade Católica de Pelotas, Pelotas, Rio Grande do Sul, Brazil. 2. Universidade Federal de Santa Maria, Santa Maria, Rio Grande do Sul, Brazil. 3. Hospital de Clínicas de Porto Alegre, Porto Alegre, Rio Grande do Sul, Brazil.

ABSTRACT

COVID-19 started in China on December 31, 2019 and has since been the subject of several studies in medical field. There is not much evidence about the pregnancy and puerperium with the susceptibility of coronavirus infection (COVID-19). The present work reports the laboratory and radiological aspects of a puerperium patient. A positive test for severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2) generally confirms the diagnosis of COVID-19, although false-positive and false-negative tests are possible. The test considered the gold standard for the diagnosis of coronavirus infection (COVID-19) is from *in vivo* or *post-mortem* polymerase chain reaction (PCR) sample. The purpose of the present case report is to demonstrate the case of a puerperium patient with an unfavorable clinical evolution, giving special attention to laboratory tests that were practically unchanged.

Key words: pandemics; postpartum period; coronavirus infections; hospital laboratories.

RESUMO

A COVID-19 teve início na China, em 31 de dezembro de 2019 e, desde então, tem sido alvo de diversos estudos na área médica. Não há muitas evidências sobre a relação da gravidez e do puerpério com a suscetibilidade da infecção pelo coronavírus. O presente estudo relata os aspectos laboratoriais e radiológicos de uma paciente no puerpério. Um teste positivo para a síndrome respiratória aguda severa-coronavírus 2 (SARS-CoV-2) geralmente confirma o diagnóstico de COVID-19, embora testes falso positivos e falso negativos sejam possíveis. O exame considerado padrão-ouro para o diagnóstico da infecção pelo coronavírus é a amostra in vivo *ou* post-mortem *por reação em cadeia da polimerase (PCR). O objetivo deste relato é demonstrar o caso de uma paciente no puerpério com evolução desfavorável do quadro clínico, dando atenção especial para exames laboratoriais que estavam praticamente sem alterações.*

Unitermos: *pandemias; período pós-parto; infecções por coronavírus; laboratórios hospitalares.*

RESUMEN

La COVID-19 se originó en China, el 31 de diciembre de 2019, y, desde entonces, ha sido objeto de varios estudios médicos. No hay evidencias sobre la relación del embarazo y del puerperio con la susceptibilidad a la infección por coronavirus. El presente estudio reporta aspectos de laboratorio y radiológicos de una paciente en puerperio. Una prueba positiva para el coronavirus del síndrome respiratorio agudo grave 2 (SARS-CoV-2) por lo general confirma el diagnóstico de COVID-19, a pesar de que falso positivos y falso negativos sean posibles. El método considerado el test de referencia para el diagnóstico de la infección por coronavirus es la muestra in vivo *o* post mortem *por reacción en cadena de la polimerasa (PCR). El objetivo de este reporte es demostrar el caso de una paciente en puerperio con evolución clínica desfavorable, poniendo especial atención a los análisis de laboratorio que estaban prácticamente sin cambios.*

Palabras clave: *pandemias; periodo posparto; infecciones por coronavirus; laboratorios de hospital.*

First submission on 07/13/20; last submission on 07/15/20; accepted for publication on 07/17/20; published on 10/19/20

INTRODUCTION

COVID-19 is a viral disease caused by the severe acute respiratory syndrome-coronavirus 2 (SARS-Cov-2) and was characterized as a pandemic by the World Health Organization (WHO) in March 2020, which caused severe socioeconomic disturbances worldwide[1].

The first case was found in China, on December 31, 2019[2], and since then, the disease has been the subject of studies in several areas of medicine, such as pregnancy and the puerperium.

This case report aims to present the laboratory and radiological aspects of a puerperium patient with COVID-19, as well as the evolution of the disease in individuals with this epidemiological profile, relating the data to the world literature.

CASE REPORT

Primigravida patient, 31 years old, sought the emergency service of a tertiary hospital on the 5th day of the immediate puerperium, after discharge from the hospital after vaginal delivery. She presented with unverified fever, productive cough that started a day before and body pain. During the assessment by the physician on duty, she did not show any changes on physical examination. She was medicated and showed improvement, and fever related to the puerperium was suggested. Then she was released and instructed to return to the hospital, if necessary. After two days, the patient returned to the emergency room with dry cough, fever (38.7°C – measurement at home), and dyspnea. She denied nasal congestion or rhinorrhea. Chest radiography was performed (**Figures 1** and **2**). One tablet of Levofloxacin 500 mg once daily for seven days was prescribed. Soon after, she was released.

On the third day of levofloxacin use, the patient returned to the clinic with worsening dyspnea and an increase in dry cough. She reported that fever faded; however, she had intense night sweats. On physical examination, she had a decreased vesicular murmur bilaterally. For better clarification of the case, a new chest X-ray was performed, in which consolidation worsened in bilateral lower pulmonary lobes, was observed. O_2 supplementation by a nasal catheter was installed, with a consequent improvement in dyspnea.

After three days, the patient was received at the ward for better diagnostic clarification. At the time of the evaluation, she had productive cough, fever for nine days and was using levofloxacin for six days, with no improvement in clinical condition.

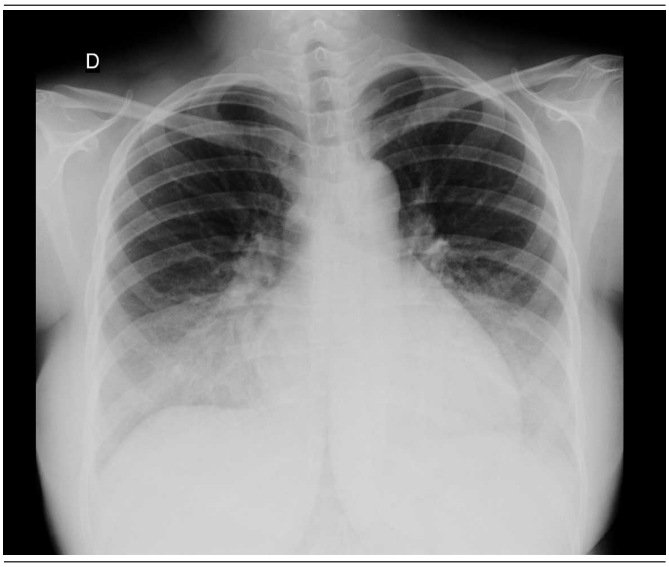

FIGURE 1 – *Posteroanterior chest view radiograph*
Pronounced radiopacity in bilateral lung fields.

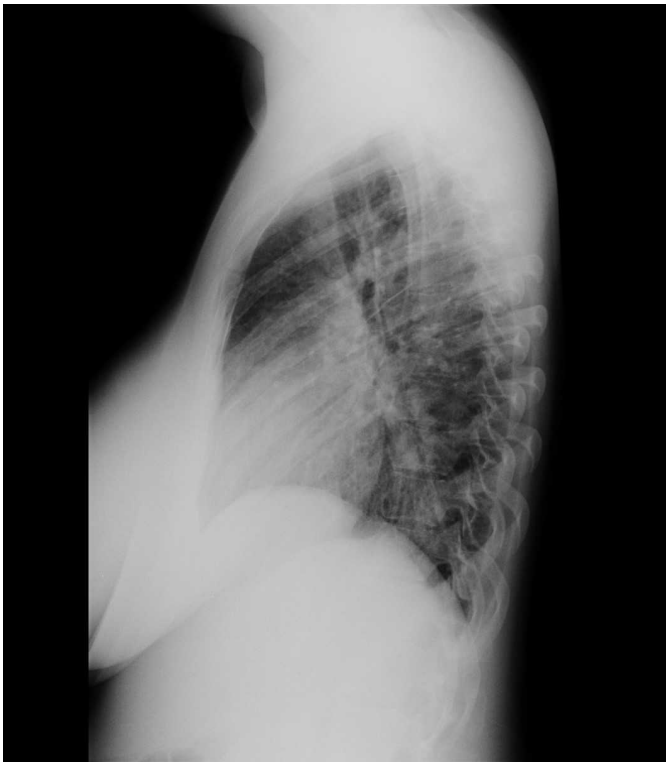

FIGURE 2 – *Lateral view of the chest radiograph*
Pronounced radiopacity in lower bilateral lung fields.

She denied travel abroad or contact with individuals with COVID-19 symptoms. She was eupneic with a nasal catheter. Pulmonary examination showed diffuse snores and decreased vesicular murmur globally.

Laboratory tests resulted in: hemoglobin (Hb) – 15.2 g/dl; leukocytes – 15,120 thousand; band neutrophils – 300; erythrocyte sedimentation rate (ESR) – 21 mm/h; potassium (K) – 4.23 meq/l; sodium (Na) – 137 meq/l; urea – 18 mg/dl; creatinine – 0.6 mg/dl; blood glucose – 98 mg/dl; C-reactive protein – 21.4 mg/l.

Due to the diagnostic hypothesis of pneumonia and COVID-19, the patient was kept in respiratory isolation. Computed tomography (CT) of the chest and oral swab were performed to confirm COVID-19. We chose to start antimicrobial therapy with piperacillin/tazobactam. On the second day of hospitalization, the patient evolved with general malaise, fever (38.2°C) uncontrolled with medication, oxygen saturation of 86% by 2 l/min; tachypnea (37 bpm); tachycardia (122 bpm); and blood pressure: 120/70 mmHg. She still had crackling rales that were diffuse on respiratory auscultation. The electrocardiogram (ECG) showed no signs of ischemia; the laboratory tests collected concomitantly with the ECG showed: Hb – 14 g/dl; leukocytes – 15,190 thousand; platelets – 130 thousand; PCR – 26 mg/l; creatinine – 0.6 mg/dl; Na – 136 meq/l; K – 4.3 meq/l; D-dimer – below 500 ng/ml; lactate dehydrogenase (LDH) – 117 UI/l; troponin – 1.2 ng/l; creatine phosphokinase (CPK) – 42 U/l.

After formulating the diagnostic hypotheses of sepsis with pulmonary focus or COVID-19 infection, the medical team opted for obtaining a definitive airway with orotracheal intubation. Due to hemodynamic instability, the patient was kept waiting for a place in the intensive care unit (ICU). Chest CT (**Figure 3**) showed consolidations accompanied by ground-glass opacities, which were extensive in both lungs, with predominance in the lower lobes. It was not possible to rule out the viral etiology. The oropharyngeal swab was negative for COVID-19.

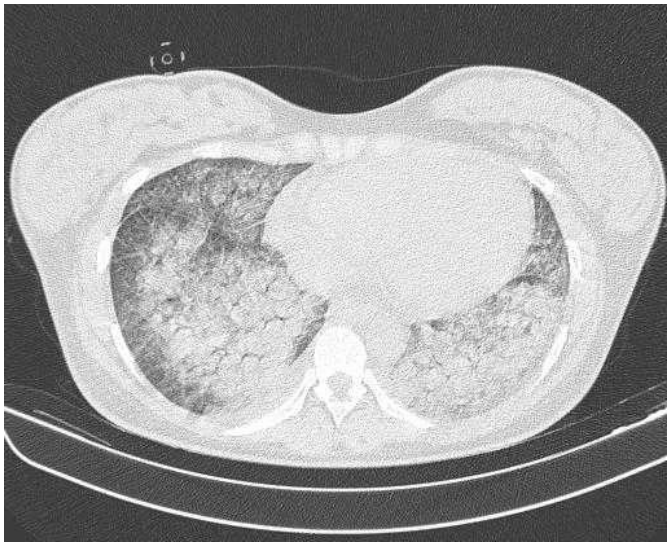

FIGURE 3 – *Chest CT*

Chest CT showing extensive ground-glass opacity in both lungs, with lower lobes involvement; consolidations with air bronchograms are noted, suggesting an inflammatory/infectious process.

CT: computed tomography.

On the third day of hospitalization, the patient was sedated, on mechanical ventilation. Maintenance antibiotic therapy associated with hemodynamic monitoring was chosen. The ICU bed was made available, but the patient died at the time of admission due to acute respiratory failure. COVID-19 was confirmed by polymerase chain reaction (PCR), with a sample collected *post-mortem*.

DISCUSSION

COVID-19 appears in pregnant women in a similar way to non-pregnant women. Symptoms such as fever, cough and dyspnea may raise the suspicion of coronavirus infection. A positive SARS-CoV-2 usually confirms the diagnosis of COVID-19, although false-positive and false-negative results are possible[3]. In the case presented, the patient was in the immediate postpartum period during the evaluation. Data in the literature related to specific manifestations of COVID-19 during this period were not found; therefore, it cannot be stated whether the severity of the case was related to the puerperium.

In areas of high prevalence of infection, we believe that it is necessary to test all patients after labor, if possible and test are available[4]. A study conducted in a city with a high prevalence of COVID-19, a considerable percentage of asymptomatic patients (13.5%) admitted for delivery had a positive result[5]. These data have clinical implications in the postpartum period, such as clinical isolation measures. In the present scenario, we observed a situation in which, due to the lack of resources and the availability of testing, it was not possible to routinely screen for coronavirus.

Pregnancy does not seem to be related to the increase in susceptibility to infection; however, it is noted that women who are pregnant or in the puerperal period may be at increased risk of serious illness, requiring ICU care and mechanical ventilation. Cases of maternal deaths associated with pregnancy and the puerperium were found in the literature, but the data were not superior to those of non-pregnant women[6].

People of all ages can be infected by the COVID-19 virus, although the literature reports that adults aged 50 years and older are the most affected. Characteristics associated with severe presentation include some medical comorbidities and laboratory

changes (elevation of D-Dimer, LDH, troponin, and CPK)[7]. In this study, we observed a slight increase in troponin T titers as the only laboratory change; this shows that laboratory tests can often not raise the suspicion of COVID-19, which is, as in the present case, mostly unchanged.

The exam considered as the gold standard for the diagnosis of coronavirus infection is the *in vivo* or *post-mortem* PCR sample. The oropharyngeal swab test has high specificity, however, it has been associated with several false-negative results[8]. In the case presented, even after a negative result from oropharyngeal swab, the diagnostic hypothesis of COVID-19 infection cannot be ruled out.

CONCLUSION

COVID-19 is a respiratory tract infection that can be fatal. Because it has characteristics similar to other infections, it requires a wide variety of differential diagnoses. The aim of this study is to present the case of a puerperium patient who evolved to death. In the literature, not many cases have been described regarding the involvement during the postpartum period; therefore, we cannot assert whether this period would actually be a risk factor for the evolution of the disease. The PCR sample almost always provides a definitive diagnosis and is very useful especially in the period when the pandemic is emerging.

REFERENCES

1. World Health Organization. Director-general's remarks at the media briefing on 2019-nCoV on 11 February 2020. Available at: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020. [accessed on: February 12, 2020].

2. ACC Clinical Bulletin Covid-19 Clinical Guidance For the CV Care Team. [Internet] Available at: https://www.acc.org/~/media/665AFA1E710B4B3293138D14BE8D1213.pdf.

3. Ellington S, Strid P, Tong VT, et al. Characteristics of women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status-United States, January 22-June 7, 2020. MMWR Morb Mortal Wkly Rep. 2020; 69: 769.

4. CDC. Recommendations for patients with suspected or confirmed coronavirus disease 2019 (Covid-19) in healthcare settings. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html.

5. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal screening for SARS-CoV-2 in women admitted for delivery. N Engl J Med. 2020; 382: 2163.

6. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (Covid-19) outbreak in China: summary of a report of 72 314 cases from the Chinese center for disease control and prevention. JAMA. 2020.

7. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with Covid-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020; 395: 1054.

8. Rente A, Uezato JD, Uezato KMK. Coronavírus e o coração: um relato de caso sobre a evolução da Covid-19 associada à evolução cardiológica. Arq Bras Cardiol [Internet]. 2020; 114(5): 839-42.

CORRESPONDING AUTHOR

Lucas Rodrigues Mostardeiro ID 0000-0003-4232-3070
e-mail: most-l@hotmail.com