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A Pregnant Woman with a Diagnosis of COVID-19 without Clinical Manifestations: A Case Report

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Abstract:

A 41 year old woman, 38 weeks and 3 days pregnant, without any past medical history and gravida (G) 4, parity (P) 2 and abortion (Ab) 2, gave birth by Cesarean section. The patient did not have any fever, cough, and dyspnea and did not report any close contact with COVID-19 patients. She was extubated post-surgery in the recovery room. She had oxygen saturation (SpO2) of 87-93% with face mask and was transferred to medical ward. Six hours later, she experienced dyspnea and her SpO2 fell down to 83%. Ten hours after surgery, due to worsening of her dyspnea and SpO2 of 78%, cardiology consultation was conducted and patient was admitted to the intensive care unit (ICU) with the diagnosis of pulmonary thromboembolism (PTE). Cardiac consultation and echocardiography excluded PTE. In the ICU, her chest computerized tomography scan (CT-scan) showed bilateral ground glass opacity in favor of COVID-19. Reverse Transcription-Polymerase Chain Reaction (RT-PCR) for COVID-19 was also positive. The baby was born with an Apgar score of 9, a normal physical examination and a positive PCR test for COVID-19.

Keywords: Pregnant; COVID-19; Intensive Care Unit

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1. Introduction

Since December 2019, new cases of coronavirus pneumonia, named COVID-19, were identified in Wuhan city, Hubei province in china. The disease has a high contagious potential and spreads out through person to person contact, mainly via aerosol, and respiratory droplets (1).

There is not much information available about presentation, severity and symptoms of COVID-19 during pregnancy, however, information on SARS, MERS and H1N1 could be helpful. The clinical outcome of Influenza among pregnant women in comparison with non-pregnant women is worse. Pregnant women are at higher risk of morbidity and mortality from Influenza (2). In J .Yan and colleagues study in 2019, COVID-19-associated **acute respiratory distress syndrome** (ARDS) during pregnancy did not enhance the risk of spontaneous abortion and preterm birth. No evidence is available on vertical transmission of virus to the fetus (3).

In a review study done by M.Zaigham and colleagues on 18 clinical trials, among 108 patients from December 2019 to April 2020, most of the reported symptoms were from mothers in their 3rd trimester including 68% fever, 34% cough, 59% lymphopenia, 70% c-reactive protein

(CRP) rise and 91% were in need for delivery through C-section. Three patients underwent ICU admission and there were no mortalities; one neonatal death and one intra uterine fatal death (IUFD) was also reported (4).
In a similar previous pandemic, clinical specialist were hesitant to vaccinate pregnant mothers due to its possible effects on the fetus's health (5). Chen's study showed that symptoms reported in COVID-19 pregnant women were similar to non-pregnant women. Fever, myalgia, cough, sore throat and weakness in 2 pregnant women and lymphopenia in 5 pregnant women were reported. The results of later studies showed that none of the patients needed mechanical ventilation and no mortality was reported. All cases gave birth to their infants with C-section and infants Apgar score was between 8-9 (6).
Our case was a 41 year old pregnant woman, whom after the C-section developed respiratory symptoms and dyspnea, which were developed rapidly. This article is written under CARE guideline and patient's consent was obtained.

2. Case presentation

A 41 year old pregnant mother with maternity age of 38 weeks and 3 days without any past medical history came to Laleh Hospital, Tehran, Iran, for baby delivery via C-section. Because of her hypertension in the last 2 weeks of pregnancy, she used methyldopa 250 mg twice daily. She had a history of 4 pregnancies, two healthy children and 2 abortions (G4-P2-AB2). In the last 2 weeks of pregnancy she did not mention any problems and her physical examination on admission were completely normal. Before transferring to the operating room her SpO2 was 98% and did not have any signs of dyspnea or fever. Patient's systolic blood pressure (BP) was 130 and her diastolic BP was 75 (BP=130/75mmhg). Her respiratory rate was 16 and her body temperature was 36.8 degrees Celsius.
In the operating room, general anesthesia was induced by 30 mg of atracurium, 500mg Na-thiopental and 200 mg fentanyl. Intubation was done by endotracheal tube size 7 and ventilator setting was TV=600, F=12 with intermittent positive pressure ventilation (IPPV) mode. After surgery, anesthesia was reversed by 3 mg of neostigmine and 1.5 mg atropine. Patient was extubated and SpO2 was between 87-93%. Patient's surgery took 3 hours and she was awake and oriented post-operation. She had spontaneous breathing and was transferred to regular ward. Six hours post- surgery she developed dyspnea and her SpO2 fell to 83%. At this time she received oxygen support via face mask. Ten hours after the surgery, she experienced respiratory distress and her SpO2 dropped to 78% and the patient was tachycardic. Due to the high risk of pulmonary thromboembolism (PTE), cardiac and intensive care consultation were requested. Her D-dimer was 3083 microgram/Liter and troponin was 15.1ng/ml. Based on cardiac consultation and echocardiography, PTE was ruled out. High-resolution computed tomography (HRCT) showed bilateral ground glass opacity which was in favor of COVID-19 pneumonia (figure 1 and 2). Furthermore, her RT-PCR test for COVID-19 was reported positive.
In her preoperative lab tests she had CRP level of 3.3, normal CBC and normal serum electrolytes. Her Ferritin level was 87. Neonate had Apgar score of 9 and her physical examination was normal, however, her COVID-19 PCR was reported positive.

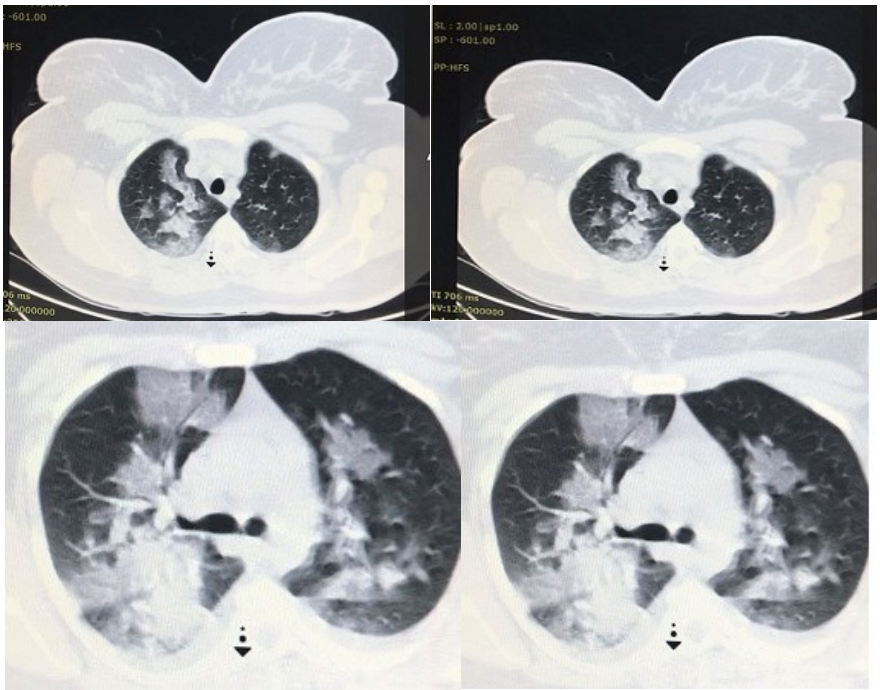

Figure 1. Chest computed tomography scan of patient on admission to the ICU

Figure 2. Anteroposterior *(*AP) view of Chest computed tomography scan

Mother went through respiratory support with reservoir bag oxygen face mask. Treatment with corticosteroid (8 mg dexamethasone twice a day) and 200 mg hydroxychloroquine twice a day was initiated. After four days, her spontaneous respiration was normal and she was discharged with outpatient medication. Moreover, patient was educated regarding self-isolation. Neonate was discharged after 72 hours with acceptable condition.

3. Discussion

Respiratory complications and issues related to ventilation after anesthesia is common in patients, with a rate of 0.8% to 6.9% (7). On the other hand, aspiration has been considered a risk factor in pregnant women. For the first time in 1946, Mandelson reported aspiration pneumonia in women with natural delivery which had been anesthetized with Ether and Nitrogen Oxide. 5.1% of women who had aspirated had not been intubated. Women who had aspirated beverages, had variety of symptoms including dyspnea, cyanosis and tachycardia, which is known as Mandelson's Syndrome (8). In some studies, evidence of covid-19 infection was demonstrated in CT-Scan of 60%-93% of patients before they have positive RT-PCR (9).

In young patients without underlying diseases, aspiration pneumonia and airway obstruction should initially be considered as anesthesia's complication (2). Because our patient was a pregnant woman without any underlying diseases these complications were assessed and ruled out, since patient had tachypnea (RR=38) and respiratory distress with marked decline in SpO2. Her SpO2 was maintained above 90% by administrating oxygen using face mask with reservoir bag. Subsequently, an ABG and a chest CT-Scan -were ordered which showed bilateral lung involvement and severe pneumonia.

According to RECOVERY trial, in severe noncritical patients who ought to receive supplemental oxygen without invasive mechanical ventilation, dexamethasone administration has been shown to decrease 28-day mortality significantly (10). Although, pregnancy and breastfeeding were not excluded from this trial, oral prednisolone or intravenous hydrocortisone are preferred in this population based on recent guidelines (11).

Another study conducted by Saad, Antonio F et al, recommends a four-dose course of dexamethasone over 2 days with the aim of both fetal lung maturity and SARS-CoV-2 infection, during pregnancy in COVID-19 patients. However, due to the limited data on dexamethasone use after delivery and its effect on breastfeeding infants, it is been suggested that dexamethasone be replaced with methylprednisolone to complete a 10-day course (12).

Since, in this study, the patient did not breastfeed, neonatal drug exposure was not of any concern.

Based on recent meta-analyses, hydroxychloroquine have no benefit over standard care in COVID-19 patients and its use should be limited to clinical trials. Moreover, the effect of this drug in special population, including pregnancy and breastfeeding is not yet well understood (13).

Recent studies suggest prophylactic dose of anticoagulants during hospitalization for postpartum patients with severe/critical COVID-19 infection, if not contraindicated. Postpartum anticoagulation is not recommended in asymptomatic or mildly symptomatic COVID-19 patients who are hospitalized for reasons other than COVID-19, for instance delivery, unless they have other thrombotic risk factors (14).

Limited data are available on vertical transmission of COVID-19. COVID-19 related ARDS during pregnancy has not been associated with higher risks of spontaneous abortion nor preterm labor. There is not any strong documentation for mother-to-fetus transmission ARDS in 3rd trimester. Also, in a study on 31 pregnant women infected with COVID-19, fetuses were not infected, however, there was a higher risk for occurrence of pneumonia complications in the mothers (15).

4. Conclusion

With the current data, we can come to this conclusion that extra caution must be practiced with pregnant woman since COVID-19 lung involvement might be present without any symptoms during pregnancy and delivery. During a pandemic, it is necessary that all of the healthcare providers have personal protective equipment; however, the neonate with positive test is a carrier of the disease, hence protecting other neonates and mothers is crucial in the neonatal wards.

Pregnant women, which go to the hospital for delivery, should be triaged before admission. Also, these tests could help find the best treatment option for the patient and her family, obstetricians and healthcare providers.

Abbreviations

ARDS: **acute respiratory distress syndrome**
SpO2: oxygen saturation
CRP: c-reactive protein
ICU: intensive care unit
IUFD: intra uterine fatal death
BP: blood pressure
IPPV: intermittent positive pressure ventilation
PTE: pulmonary thromboembolism
HRCT: High-resolution computed tomography
G: gravida
P: parity
Ab: abortion
CT-scan: computerized tomography scan
RT-PCR: Reverse Transcription-Polymerase Chain Reaction

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Conflict of interest

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