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CASE REPORT

Termination of Pregnancy in a Woman with COVID-19: Case Report

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ABSTRACT

Background: The present paper aims to describe the case of a 28-year-old pregnant woman infected with COVID-19 who underwent hysterectomy following uterine rupture.

Case presentation: A 28-year-old pregnant woman (24 weeks) was admitted with the chief complaint of abdominal and pelvic pain, fever, and cough. The ultrasound assessments revealed a significant decrease in fetal movement. PCR test confirmed that she was positive for COVID-19. The patient was treated with intravenous Vitamin C, intravenous Ceftriaxone, and oral Azithromycin. During this time, a decrease in hemoglobin level and severe oligohydramnios forced surgeons to decide in favor of pregnancy termination. Misoprostol (100 µg/3h up to three doses) was given sublingually. After the third dose, she presented with abdominal pain, nausea and vomiting, she also developed tachycardia. Free intraperitoneal fluid was detected in ultrasonography, and ultrasound examination revealed the strong possibility of uterine rupture. She was taken to the operating room immediately for an emergency laparotomy. An intact amniotic sac with fetus and placenta, separated from the uterus, was extracted from the abdominal cavity. Because of heavy bleeding, a hysterectomy was performed. The patient was transferred to the covid-19 unit for further support.

Conclusions: It seems in our case that the combination of pregnancy with COVID has led to an uncontrolled situation for physicians, and COVID has deteriorated the circumstances. It needs further research to prove whether there is a correlation between COVID-19 and uterine rupture in pregnant women.

Keywords: COVID-19, Misoprostol, Pregnancy Complications, Uterine Rupture

1. INTRODUCTION

The coronavirus disease 2019 (COVID-19) is a highly infectious disease caused by severe acute respiratory syndrome coronavirus (1, 2). his pandemic has confronted physicians with several challenges in treating and managing diseases and health conditions such as pregnancy(3). Although Current estimates are that most individuals with mild to moderate respiratory signs have recovered from COVID-19 infection, patients with a history of diseases such as cardiovascular disease, diabetes, chronic respiratory disease, cancer, and also elderly and pregnant women are at a high risk of becoming critically ill (4-6). During pregnancy, because of immunological and physiological changes, women are more susceptible to infection with COVID-19 than others(7, 8).

It is mainly related to the fact that during COVID-19 infection immune system is affected by hormonal and chemical changes that lead to positive effects on COVID-19 disease progression(8). However, there is not enough data to determine the impact of covid-19 infection on the fetus. At the beginning of the COVID-19, there was debate about the transmission of the virus from infected mother to fetus. But further research has highlighted that Placental inflammation during the viral infection can affect the fetus and give rise to abortion(9). Recent studies have shown that adverse outcomes such as maternal mortality, preeclampsia, and preterm birth in pregnant women without COVID-19 are significantly less than in those with COVID-19 (10). The present paper aims to describe the case of a 28-year-old pregnant woman infected with COVID-19 who underwent hysterectomy following uterine rupture.

2. PATIENT INFORMATION

A 28-year-old pregnant woman at 24 weeks of gestation, who was gravid 5, living child 3, para 2 (Parity Index –G5P2L3) was admitted to Shahid Beheshti Hospital, Obstetrics, and Gynecology Center, Isfahan, Iran, on 8th December 2021. She had no history of disease, smoking, or alcohol use, but she had one abortion (G5L3ab) in the past, and all three children were born by natural delivery (ND). The first patient's symptoms were severe abdominal and pelvic pain, fever, and cough. Written informed consent was obtained from the patient to publish clinical data.

3. CLINICAL FINDINGS and DIAGNOSTIC ASSESSMENT

Abdominal and pelvic ultrasounds were performed immediately after admission to assess any complications. The ultrasound assessments showed a significant decrease in fetal movement (FM). On top of that, the Amniotic Fluid index was about 1.5 cm, and free intraperitoneal fluid (hydroperitoneum) was also seen. The polymerase chain reaction (PCR) test was conducted, and she was positive for COVID-19. A chest X-ray was performed on admission day and it was normal. At the time of admission, blood tests including CBC, BUN, Cr, PT, PTT, IN, and inflammatory markers such as Erythrocyte Sedimentation Rate (ESR), and C-reactive protein (CRP) were also measured (Table 1). ESR was more than 18 (mm/hour), and CRP was 78 mg/L. These tests were checked daily from December 8th to December 9th, 2021.

4. THERAPEUTIC INTERVENTION

The patient was treated with intravenous Vitamin C (200mg/kg), intravenous Ceftriaxone (1g/12 hour), and oral Azithromycin (500 mg /day). Within a short time after admission, the hemoglobin

level was decreasing gradually, and severe oligohydramnios was evident on an ultrasound. Following these serious complications, and based on her gestational age, a decision was made to terminate her pregnancy.

Misoprostol 100 µg/3h, up to three doses, was given sublingually according to the International Federation of Gynecology and Obstetrics (FIGO) protocol(11). After the third dose, she presented with abdominal pain, nausea, and vomiting. The first diagnosis was the Misoprostol side effects. But she developed tachycardia (HR ≥ 120/ min). Following this, the patient was referred to an internist, and another ultrasound was performed. Free intraperitoneal fluid was detected, and ultrasound examination showed heterogeneous uterine revealed the strong possibility of uterine rupture. During these assessments, her hemoglobin level decreased to approximately 10.6 g/dL. Based on this continuous decrease and others evidence such as oxygen saturation of 80%, and sonographic results, she was taken to the operating room immediately for an emergency laparotomy under general anesthesia. After entering the peritoneal cavity, an intact amniotic sac with fetus and placenta, separated from the uterus, were seen in the abdominal cavity. More than 1000 ml of hemoperitoneum was evacuated from the abdominal cavity. At first, it was attempted to repair the uterus, but bleeding could not be controlled. Eventually, a hysterectomy was done. After the surgery, the patient was transferred to the COVID-19 unit, where she received supportive care.

5. DISCUSSION

Uterine rupture is one of the most challenging medical complications of second-trimester pregnancy associated with high maternal and perinatal mortality(12). This life-threatening complication can also occur in an intact uterus and scarred uterus(13). However, it is more frequent in a scarred one(14). The most common cause of uterine rupture is the previous cesarean scar. Other factors such as grand multiparity, laparoscopic surgery like myomectomies, cesarean delivery, fetal weight > 4250 g, multiple fetal macrosomia, and trauma may be responsible for this catastrophic event(15, 16).

The early signs of uterine rupture are nonspecific, leading to difficulty in diagnosing and treating. Symptoms of uterine rupture specifically depend on the site and size of the rupture, which can cause fetal distress, the absence of uterine tonicity, decreased uterine contractions, abdominal pain, bleeding, and hypovolemic shock(17).

For decades, Misoprostol has been used for the termination of pregnancy due to its Uterotonic effects(18, 19). It is a synthetic prostaglandin E1 analog inducing uterine contraction(20). However, adverse effects such as diarrhea, abdominal pain, nausea, vomiting, cardiovascular side effects, and uterine rupture have been reported for this drug(21). The possibility of uterine rupture with Misoprostol can increase significantly in women with a history of previous caesarian sections(22). As presented before, our case had an unscarred uterus which can decrease the chance of rupture following the use of Misoprostol.

Furthermore, recent research has highlighted that COVID-19 progression is associated with a dramatic decrease in the level of hemoglobin(23, 24). The patient in this case study had a continuous decrease in hemoglobin level from the admission day till the third day. Apart from that, her oxygen saturation was 96 percent on admission day, but it decreased to 80 percent on

the third day. This deterioration in SPO_2 and hemoglobin level were two main factors that our team has taken into account to make decision in favor of pregnancy termination.

One case report has reported an enlarged and atonic uterus after C-section in a pregnant woman who was positive for COVID-19 (25). In our case, after laparotomy, the uterine was found atonic, and because of massive bleeding, it was decided to perform hysterectomy.

All things considered, it seems in our case, the combination of pregnancy with COVID has led to an uncontrolled situation for physicians, and COVID has deteriorated the circumstances. Future studies on the current topic are therefore required to recognize whether there is a correlation between COVID-19 and uterine rupture in pregnant women.

AUTHOR'S CONTRIBUTIONS

Conceptualization and methodology: H.G.T; Data collection: S.H, S.A; Data analysis and interpretation: H.G.T, S.A; Drafting the article: S.H; Revising and final approval of the manuscript: all authors.

REGISTRATION

As this is a case report, Institutional or Ethical approval was not obtained.

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Availability of Data and Materials

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TABLE LEGEND

Table I: Laboratory Findings of the patient on admission day and two days later. M.C.H.C: Mean Corpuscular Hemoglobin Concentration, CRP: C-reactive protein, ESR: Erythrocyte Sedimentation Rate.

Table I: Laboratory Findings of the patient on admission day and two days later.

	On the hospital day		
	On admission day	2nd day	3th day
Hemoglobin (g/dl)	12	11.5	10.6
Hematocrit (L/L)	34.1	35.9	31.6
Platelet (/mm^3)	120	119	112
M.C.H.C	32.6	32	33.5
CRP (mg/L)	43	54	78
ESR (mm/hour)	> 18	> 18	> 18

M.C.H.C: Mean Corpuscular Hemoglobin Concentration, CRP: C-reactive protein, ESR: Erythrocyte Sedimentation Rate.