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CASE REPORT

Severe Postpartum Hemorrhage in an Asymptomatic COVID-19 Patient: A Call to Be on Guard

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Abstract: Postpartum hemorrhage (PPH), the loss of more than 500 mL of blood following childbirth, is a leading cause of maternal mortality worldwide. The current coronavirus disease 2019 (COVID-19) pandemic has strained health-care systems globally. Pregnant women are a vulnerable group at a high risk of severe infection with COVID-19 due to the physiological changes in their immune state. Although the infection can be asymptomatic, severe COVID-19 infection is associated with respiratory distress, fever and coagulopathies that can complicate an already hypercoagulable pregnancy state. There is a dearth of existing literature regarding the complications of COVID-19 infection during pregnancy, and much is yet to be known about this rapidly evolving pandemic. In our case report, we received a 23-year-old gravida 2 para 1 woman who was COVID-19 positive but asymptomatic; she presented to the obstetric department with labor pains which progressed to severe postpartum hemorrhage and development of mild respiratory distress.

Keywords: postpartum hemorrhage, COVID-19, asymptomatic

Introduction

The ongoing pandemic of coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has made a serious public health threat worldwide, with millions of people at risk in a growing number of countries.[1] Because pregnant women have a suppressed immune system, they may be at an increased risk of developing severe or critical diseases associated with COVID-19, particularly pneumonia and respiratory failure.[2] Clinical experience of pregnancies complicated with infection by other coronaviruses, eg, Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome, has led to pregnant women being considered potentially vulnerable to severe SARS-CoV-2 infection.[3] Their babies are at a higher risk of stillbirth (2.4%, 1/41), neonatal death (2.4%, 1/41), and admission to the intensive care unit.[2] COVID-19 is also associated with coagulopathies characterized by mild thrombocytopenia, slight prolongation of the prothrombin time, high levels of D-dimer, and elevated levels of fibrinogen, factor VIII, and von Willebrand factor, sepsis-induced disseminated intravascular coagulopathy (DIC)[4,5] that can complicate pregnancy. Here, we report an unusual case of an initially asymptomatic COVID-infected woman who later developed Postpartum Hemorrhage (PPH) and mild respiratory distress at Mal Superspeciality Hospital, West Bengal, India.

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Case Report

A 23-year-old G2P1 female patient, BMI 23, was admitted on 11th June 2021 with labour pains of gradually increasing intensity. She presented to the hospital with her husband and both denied fever symptoms, shortness of breath, cough or sore throat before admission. Her expected delivery date was on 9th June, 2021. She was afebrile, with the initial temperature during presentation at the hospital being 37°C. Her vitals were measured with a BP reading of 138 mm Hg (systolic)/89 mm Hg (diastolic) and a heart rate of 103 beats/min.

Her external OS measured 2 cm on physical examination with premature rupture of membrane (PROM), meconium-stained liquor (MSL), and fetal distress. Primary blood tests reported a hemoglobin level of 10.2gm%, and a mandatory COVID Rapid Antigen Test (RAT) during admission was found to be positive. A detailed history revealed a mild cough for the last seven days with no other complaints, and she was yet to be vaccinated with the first dose of Covishield. As her cervix was found to be unsuitable for normal vaginal delivery, an emergency caesarean section was done with universal precautions, resulting in a healthy live born male neonate. The baby weighed 2.86 kg, and since there is no evidence of vertical transmission from mother to child, a routine Real-time Polymerase Chain Reaction (RT PCR) test for SARS-CoV-2 was not done, and the baby was transferred to the nursery. Blood had been sent for matching before the operation, and 1 unit of B+ blood was transferred to the mother during the caesarean section.

After abdominal closure, however, it was found that PPH rapidly developed with heavy vaginal bleeding, and the probable cause was atonicity of the uterus. The initial medical management was Injection (Inj) carboprost, tranexamic acid and Inj methergine. Intravenous (IV) syntocinon and per rectal misoprostol were also administered, but the PPH persisted. Maternal observations were BP 106 mm Hg/64 mmHg, respiratory rate 17 per min, and heart rate was 120 beats per minute. After consultation with the attending surgeon and gynaecologist in charge, she was rushed to the operating theatre, and the abdomen was immediately reopened.

On reopening, her uterus was found to be flabby. Devascularization was performed by locating bilateral uterine and ovarian arteries. A B-lynch suture was done on the uterus to preserve it. The uterus was partially contracted, and the abdomen was closed as normal. During the whole duration of the 2nd operation, around 2 litres of blood was lost, and another 3 units of B+ blood was transfused.

After proper surgical closure of the abdomen, she was sent to the COVID High Dependency Unit (HDU) ward. Oral feeding was started 16 hours post-operation. On her 2nd day of post-op, the patient developed slight respiratory distress, and her O_2 saturation dropped to 92%. Blood was sent for investigation.

She was managed with IV piperacillin/tazobactam, IV metronidazole, Inj pantoprazole, Tablet (Tab) ivermectin, Tab montelukast, Tab cetirizine, Inj ondansetron, Tab zinc, Tab vitamin C, Capsules vitamin D, Infusion paracetamol and Tab paracetamol. Another 1 unit of blood was transfused on the 3rd day of post-op. Her condition gradually improved, and there was no need for tracheal intubation. The rest of her post-op was uneventful, and her O_2 saturation was maintained at 96–98% throughout the rest of her recovery period. Her abdominal stitches were removed on the 8th-day post-op. A repeat blood report done on the 10th day came back with the results summarized in Table 1.

Output and fluid balance were maintained properly. On the 14th day, the RT PCR was performed, and it came back negative. The patient was discharged on the 15th day.

Discussion

Postpartum hemorrhage occurs in up to 18% of births and is the most common maternal morbidity across the

Table 1 Summary of Laboratory Investigation Results on Two Occasions: 2nd and 10th Day of Admission

Blood Investigation	Normal Range	Results on the 2nd Day	Results on the 10th Day
D-Dimer	0.48–2.26 mg/L	9.78 mg/L	3.31 mg/L
C-Reactive Protein	1.5–27 mg/L	129 mg/L	11.6 mg/L
WBC count	6000–17,000 /μL	16200 /μL	9300 /μL
Haemoglobin	12–16 g/dL	8.2 g/dL	9.3 g/dL
Interleukin	4.6–16 pg/mL	49.7 pg/mL	16.7 pg/mL
Ferritin	47.8–146.2 ng/mL	224.1 ng/mL	171.6 ng/mL

world.[6] The causes of postpartum hemorrhage can be summarised using the 4 T's mnemonic: tone, trauma, tissue, thrombin, among which uterine atony is the most common cause accounting for 60–80% of all the cases.[7] Trauma from instrumentation to assist with delivery also can cause postpartum hemorrhage (16.7%). Placental anomalies such as retained placental fragments (4–36%), and coagulopathies such as Von Willebrand disease (7.4%) can cause postpartum hemorrhage.[8] Some of the risk factors of PPH include antepartum hemorrhage, augmented labour, chorioamnionitis, fetal macrosomia, maternal anemia, maternal obesity, multifetal gestation, preeclampsia, primiparity, prolonged labour. However, in about 20% of postpartum hemorrhage cases, there are no manifestations of these risk factors.[6] In India, postpartum hemorrhage is a particularly problematic occurrence. Globally, an estimated 275,000 maternal deaths and 2.7 million neonatal deaths occur annually, a quarter of which occur in India.[9] Hemorrhage, the leading cause of maternal mortality, accounted for 27% of all deaths globally and 38% in India.[10]

Current data reveal no risk of vertical transmission of COVID-19 to the fetus, but it has been associated with increased preterm birth, preeclampsia, cesarean delivery and perinatal death.[11] A recent case series of two patients reported rapid deterioration of maternal COVID-19 infection with progressive coagulopathy during delivery.[12] Although data on COVID-19 among pregnancy is still unfolding, the altered homeostatic environment of pregnancy in relation to COVID-19 infection warrants special attention of these women who present to the gynecology clinic during this pandemic. This case study also reveals that pregnant women are likely to present with asymptomatic infections, which can rapidly progress to severe symptoms compounded with coagulopathy obstetric complications like PPH. Raised CRP and D-dimers, as seen in COVID-19 patients, are some of the inflammatory and hematological predictors of severe outcomes.[13] Although we did not manage to do detailed coagulopathy studies, the role of COVID-19 in this patient's PPH cannot be ruled out. Also, the earlier detection of the asymptomatic infection and prompt administration of COVID-19 treatment with the development of respiratory distress contributed to better patient outcomes than if it had not been discovered. Since routine testing among this category may not be widespread, health workers should be on guard to closely monitor every pregnant woman during this pandemic period to avoid preventable causes of maternal death.

Strategies can be adopted to ensure readiness in the management of postpartum hemorrhage. The most effective approach to prevent PPH is the active management of the third stage of labour (AMTSL).[6] Oxytocin and ergometrine as pharmacological prophylaxis are highly advised. However, a combination of IV tranexamic acid and carboprost/misoprostol are also accepted.[8] Due to the relative degree of hypercoagulability in COVID-19, the use of drugs like tranexamic acid without co-administration of anticoagulants in these patients can exacerbate thrombotic events.[14] Although it was part of our management, it is an oversight, and use should be prudently spared in COVID-19 patients until concrete data are available. Establishment of response teams, protocols and having supplies and medications handy are other major help. Antenatal assessments such as screening for anemia and sickle cell disease and obtaining sonograms for women at high risk of invasive placenta are important. Delivery must be performed in a facility with a blood bank and in-house surgical services if the patient has a high risk of hemorrhage.[6]

Furthermore, since the patient was asymptomatic, it is reasonable to believe that the health-care providers face a considerable risk of contracting the COVID-19 infection without appropriate protection.[15] Obstetric care providers are at significantly higher risk due to the long hours spent near the patient during labour and other sudden emergencies with the potential for tracheal intubation in patients undergoing delivery.[16] The obstetric team at Mal Superspeciality Hospital followed proper regulations and had adequate protective gear including PPEs and N95 masks, and thus transmission was prevented in the hospital setting. However, several hospitals worldwide still lack an adequate supply of PPEs and N95 masks, which puts the health-care workers at the forefront of this deadly virus.[17]

With an increased number of COVID-19 positive, yet asymptomatic, patients presenting to the gynecology department, along with the rapid development of serious complications like postpartum hemorrhage, respiratory distress, there is an urgent need for the establishment of an adequate supply of protective gear for all the members of the health-care team. Visiting hours should be reduced, and visitors also need to be provided with surgical masks to halt the spread of the virus effectively. The major limitation to this case report is that we did not have detailed coagulopathy studies done to cement COVID-19 as the cause of a coagulopathy dysfunction leading to PPH in this patient. Although its role cannot be ruled out, it as well cannot be under looked.

Conclusion

Postpartum hemorrhage is a major cause of maternal death worldwide, and early diagnosis is imperative in management of PPH. In this particular case, the hemorrhage was detected in time. Hence, the patient was saved; a delay in detecting the hemorrhage might have resulted in the patient going into shock with an increased chance of mortality.

The COVID-19 pandemic is a major problem, both medically and logistically, in the world of gynecology. COVID-19 is likely to have detrimental effects on pregnancy outcomes; however, its asymptomatic nature presents a missed opportunity to identify and optimize care for some infected pregnant women. Routine testing of all pregnant women with rapid diagnostic test kits should be incorporated in antenatal care. Where not possible, the health-care systems should bolster the capacity of handling obstetric emergencies that could be higher during this pandemic. While there are possibilities of COVID-19 infection complications to the patients, it also poses a possible risk for the medical personnel attending to the asymptomatic patients. The medical team should thus be well versed in their knowledge and implementation of the precautionary protocol. In this case, the proper following of the universal precautions by the medical staff minimized the risk of viral transmission.

Human Ethics

Consent was obtained from all participants of this study. The Biomedical Ethics Research Committee issued that approval was not applicable. The above-titled research has been examined.

Consent for Publication

A written full informed consent was obtained from the patient for publication of this case report.

Disclosure

The authors report no conflicts of interest in this work.

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