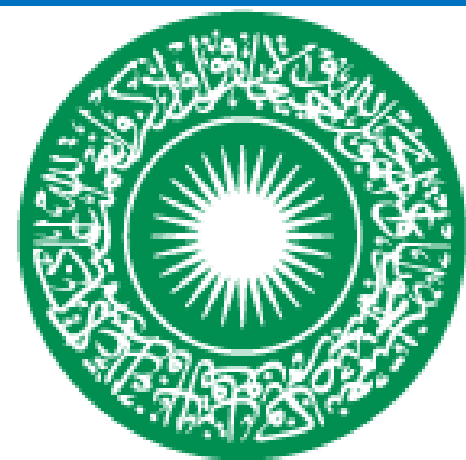




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Massive post-partum hemorrhage in a SARS-CoV-2 positive prim gravid patient- A CASE REPORT

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Introduction

SARS-Cov-2 emerged as a virulent global pest, resulting in considerable morbidity and mortality, affecting people of all demographics. The physiological alterations in pregnancy, and reduced immunity, makes pregnant women highly susceptible to the disease. Available data on pregnancy outcome in relation to COVID-19 is heterogeneous and scarce. Background data suggesting minimal impact of COVID-19 on pregnancy, certain studies have identified the increased thromboembolic risk and disseminated intravascular coagulation (DIC), due to hypercoagulability. Obstetrical hemorrhage is one of the leading causes of maternal morbidity and mortality. It could be thought to pose a greater risk in SARS-CoV-2 affected mothers. Obstetricians should continue to practice clinical vigilance in providing care for infected parturient.

Chronology of blood products transfused

	Estimated blood loss	Packed cell volume transfused	Fresh frozen plasma transfused	Platelets transfused	Cryoprecipitate transfused
First surgical procedure	700-800 ml	4	4	4	0
s	4000-5000ml	2	4	4	6
COVID ICU stay		7	10	10	0
Third surgical procedure	5000-6000ml	5	6	12	4
COVID ICU stay		4	13	12	7
Total		22	37	42	17

Discussion

Pregnant women are more susceptible to viral respiratory infections owing to immunologic and physiological adaptations of pregnancy. Numerous studies carried out regarding the effect of pregnancy on COVID-19 suggest that the physiologic changes in normal pregnancy and the metabolic and vascular changes in high-risk pregnancies may affect the pathogenesis or exacerbate the clinical presentation of COVID-19. Black and Hispanic race, advanced maternal age, medical comorbidities, and antepartum admissions related to COVID-19 predispose to morbidity. This would mean greater ICU admission and need for mechanical ventilation for critical disease.

COVID-19 increases the risk of preeclampsia and preterm delivery, and thrombocytopenia, with reported platelets of <150,000/mm. Hematology is majorly affected, with increase in the risk of coagulopathy, elevated D-dimer, prothrombin time (PT), activated partial thromboplastin time (APTT), FDP, and fibrinogen levels, which has made the possibility of venous thromboembolism, and its prevention in such patients, a priority. Manifesting as disseminated intravascular coagulation, COVID -19 in pregnancy leads to the thought of possibility of higher risk of obstetrical hemorrhage. Existing literature is not in this favour, with earlier studies from China finding no difference in the incidence of postpartum hemorrhage in vaginal deliveries and cesarean sections associated with COVID-19 positive compared with negative patients.

However, as hemorrhage persists as the leading etiology of severe maternal morbidity and mortality worldwide, obstetricians should continue to practice with clinical vigilance in providing care for the COVID-19 infected parturient. There is some evidence pointing to the contrary, but they are mostly case series. One proposed fibrinogen as the only coagulation parameter associated with PPH severity; with a positive predictive value of 100% with fibrinogen < 2 g/L. This was the first of such reports describing COVID-19-related acutely progressive coagulopathy in the third trimester of pregnancy, the recovery of which appears to be hastened by delivery. Thus, evidence is present indicating a possible link between third-trimester maternal COVID-19 infection and rapid maternal deterioration, with progressive coagulopathy, improving shortly after delivery, but there is a dearth of it.

This case report demonstrates the hospital course of a COVID-19 positive, primigravida, who was otherwise a low risk patient, suffering a massive postpartum hemorrhage. After multiple blood transfusions and surgical measures to control the bleeding, hysterectomy was the final resort to govern the unending hemorrhage. Hematological changes indicated disseminated intravascular coagulation. Hence, it could be a life saving measure to anticipate an increased risk of obstetric hemorrhage in COVID-19 positive parturient, and make all the necessary arrangements, including interventional radiology and radical surgical procedures, with rapid availability of blood products, to battle this. Further observational studies are a needed to assess the association of such complications with COVID-19 infection

Conclusion

COVID-19 positive obstetrics patient might be at a higher risk of massive obstetrics hemorrhage, which would require the health care professionals to be ready to perform radical medical and surgical procedures to save lives. Hence, high quality observational studies are required to establish an association between COVID-19 infection and obstetric hemorrhage, to identify women who require vigilant monitoring and earlier intervention

Case Report

20 years old south Asian female, primigravida, with no comorbid, delivered via spontaneous vaginal delivery in a secondary care hospital, at 0800 hours on 11.7.2020. Post-delivery, she developed post partum hemorrhage (PPH), followed by examination under anesthesia and vaginal packing, and she was referred to a tertiary care facility for further management.

On arrival to Aga Khan University Hospital, on 12.07.2020 at 0130 hours, she was drowsy, confused and pale, and hemodynamically unstable. She had a soft, non-tender abdomen. Uterus measured 20 weeks, well contracted, but fresh blood poured out vaginally. She was shifted to operating room for examination under anesthesia. Relevant investigations were sent from emergency room, and she tested positive for COVID PCR on universal testing policy; hence all further management on the patient was conducted with full COVID PPE (personal protective equipment) protocols. Upon examination, uterus was found to be well contracted. Episiotomy was unstitched and bleeding, which was then sutured in layers. Small cervical tear at 3 o’ clock position identified, and repaired. Uterine balloon tamponade was inserted and vagina was tightly packed with two 3-inch ribbon gauzes. Total of 4 units of packed cells volumes, 4 of fresh frozen plasma and 4 of platelets were transfused intra-operatively. Estimated blood loss of 700 to 800 ml.

Upon shifting to recovery area, she again started to bleed profusely. Exploratory laparotomy proceeded at 0730 hours. Modified B-lynch sutures were applied. Bilateral internal iliac arteries ligated, and vagina packed. Further blood products were transfused. There was an estimated blood loss of further 4000 to 5000 ml. Patient was shifted to COVID –ICU and kept intubated.

At 1030 hours, call was given from the ICU that the patient has started to bleed vaginally. She had tachycardia and tachypnea. Significant amount of blood was present on the bed sheet; but no active bleeding noticed. Conservatively managed and observed, and further blood products transfused. Another such episode encountered at 1230 hours, but no intervention deemed necessary.

At 2000 hours, patient started to bleed heavily. She was found to be pale, hypotensive, with a blood pressure of 80/40 mmHg, and a pulse 130-150/minutes. Norepinephrine support initiated. Uterus was found to be relaxed with heavy vaginal bleeding despite the packing. Patient was shifted to the OR for exploration. Abdomen opened through previous incision. Failed conservative measures was followed by total abdominal hysterectomy and bilateral salpingectomy. Bleeding from episiotomy stitch line was re-secured. Abdomen was packed with 12 sterile abdominal packs. Peritoneal drain kept. Vagina was again tightly packed with two 3-inch ribbon gauzes. Estimated blood loss of 5000 to 6000 ml was encountered, and blood products transfused.

The patient was shifted back to COVID-ICU. She remained hemodynamically stable and blood products were replaced accordingly. Laparotomy for removal of abdominal packs and closure of abdominal wound was done on 15.07.2020, and on the same day she was extubated post procedure. Shifted to ward facility on 16.07.2020. She remained well in the post-operative period and was discharged on 19.07.2020, and was followed in the clinic, recovering well.

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