

Case Report

A case of extremely increased maternal age cesarean section infected by Covid 19

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ABSTRACT

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The novel coronavirus disease 2019 (COVID-19) caused by severe respiratory syndrome coronavirus 2 (SARS-CoV-2) has become a global health emergency since its declaration as a

pandemic by the World Health Organization. Advanced maternal age is considered a high-risk pregnancy and therefore may affect the severity of Covid-19. In this case report, we discuss the perioperative management of an in vitro fertilization (IVF) cesarean section in a 48-year-old woman with Covid-19 infection. A 48-year-old parturient with pregnancy of 37 weeks 3 was scheduled for cesarean section, due to advanced maternal age, after she had a positive result for real time polymerase chain reaction (RT-PCR) test for (SARS-CoV-2). In our case of extremely advanced maternal age cesarean section the obstetric outcome was positive. Physiologic and vascular changes in advanced maternal pregnancies may exacerbate Covid-19 symptoms and increase the risk for poor pregnancy outcome. Further studies are needed to investigate the factors that influence the outcome in pregnancy of increased maternal age with Covid-19 infection.

Keywords: caesarean, increased maternal age, Covid-19

INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) caused by severe respiratory syndrome coronavirus 2 (SARS-CoV-2) has become a global health emergency since its declaration as a pandemic by the World Health Organization. Advanced maternal age is considered a high-risk pregnancy and therefore may affect the severity of Covid-19¹. Data regarding the management and outcome of a cesarean section in an extremely increased aged woman with Covid-19 disease are limited to a few case reports. In this case report, we discuss the perioperative management of an in vitro fertilization (IVF) cesarean section in a 48-year-old woman with Covid-19 infection.

CASE REPORT

A 48-year-old parturient (weight 76 kg, BMI 29,68 kg/m²) first gravida with pregnancy of 37 weeks and 3 days presented to our hospital, which is a referral centre for high-risk obstetrics for delivery. She was scheduled for cesarean section, due to advanced maternal age, after she had a positive result for real time polymerase chain reaction (RT-PCR) test for (SARS-CoV-2). The IVF technique was used to induce her pregnancy due to infertility. Antenatal records revealed gestational diabetes mellitus (GDM), controlled with insulin and administration of aspirin and low molecular weight heparin.

She complained of mild fever for 3 days with maximum temperature of 38,3°C. At the time of surgery she had normal respiratory auscultation and had no complaint of shortness of breath, diarrhoea, nausea or vomiting. Her respiratory rate was 18–20 per minute and peripheral oxygen saturation (SpO₂) was above 95% at all times. Her investigations including coagulation, renal and liver profile were within normal limits (Table 1). As per our hospital policy, all precautions of personal protective equipment (PPE) were taken to make all health providers safe. Standard monitoring (ECG, pulse oximetry and noninvasive blood pressure) were applied. She had BP of 123/60 mm Hg, HR of 76/min, and SpO₂ of 97% on room air. Supplemental oxygen at 2 L/min was delivered via a nasal cannula under the patient's surgical mask. A wide-bore (16-gauge) intravenous catheter was secured and co-loading with 1000 ml of ringer lactate was started. With the patient in the left lateral decubitus position under all aseptic conditions, combined spinal epidural anaesthesia was performed at L3-L4. After infiltration of local anaesthesia (Lignocaine 2%) at L3/4 lumbar interspace, combined spinal-epidural was sited using the needle through needle technique. A 1.6-mL solution of 0.75% ropivacaine with fentanyl (15 µg) was injected intrathecally.

Table 1. Patient's laboratory results.

	Preoperative results	Reference range	Postoperative results (Day 1)
White-cell count	11.50 per mm ³	4.00–10.00	22.3 per mm ³
Neutrophil	4.6 per mm ³	2.00–7.00	5.5 per mm ³
Lymphocyte	2.1 per mm ³	0.80–4.00	1.9 per mm ³
C-reactive protein	1,28 mg/dL	0.0–0.5	2.8 mg/dL
Ferritin	134 ng/mL	5,0–204	131 ng/mL
Potassium	4,4 mEq/L	3.5–5.1	4.0 mEq/L
Hemoglobin	11.6 g/dL	11.0–15	8,3 g/dL
Platelet	292 per mm ³	100–400	181 per mm ³
Glucose	120 mg/dL	70–105	75mg/dL
Alanine aminotransaminase	14 U/L	0,0–55	35 U/L
Aspartate transaminase	10 U/L	5,0–34	47 U/L
Lactate dehydrogenase	312 U/L	125–220	300 U/L
Creatinine	0,93 mg/dL	0,6-1,3	1,2 mg/dL
INR	0,94	0,80-1,20	1,4
APTT	32,6sec	30-50	45

The patient was placed in a supine position with left uterine displacement. Three minutes post block the patient developed hypotension (BP 90/50 mmHg, HR 80 beats/minute) associated with nausea, despite prophylactic administration of 10 mg of ephedrine and left-lateral position. The duration of perioperative hypotension was short and responded to 6 mg IV ephedrine and 300 ml fluid bolus. Thereafter haemodynamic parameter remained stable.

After her stabilization, anaesthesia was assessed bilaterally with cold alcohol cotton and the T4 level blockage was checked. A low transverse incision was made, and the patient delivered a viable infant weighing 2.8 kg with Apgar scores of 9 and 9 at 1 and 5 minutes, respectively. Af-

terwards, 3 IU of oxytocin was administered intravenously slowly over 30 sec followed by infusion of oxytocin to produce uterine contraction and minimize the blood loss. The cesarean section was performed uneventfully. The patient had an estimated blood loss of 800 mL and urine output of 40 mL, and total intravenous fluids administered were 1,500 ml.

Postoperatively the patient was transfused with two RBC units. Oxygen saturation was 96% with 2 L by nasal cannula. For pain control the patient was administered 2 mg of morphine epidurally. Post-operative analgesia included paracetamol (1 g every 8 hours), NSAID, meperidine (50mg mg every 6 hours), and ondansetron (4 mg every 12 hours). Her postoper-

ative course was uneventful. The mother remained stable and afebrile and was discharged on postoperative day four in excellent condition, asymptomatic, with pain well-controlled. The neonate was tested to be negative for COVID-19 suggesting no intrauterine transmission.

DISCUSSION

Here, we reported the anaesthesia management of a 48-year-old IVF pregnant woman who was scheduled for cesarean section and was infected with covid-19 during the last trimester. IVF pregnancies in advanced maternal age are associated with increased oxidative stress² and maternal morbidity³. Moreover, increased maternal age is a risk factor for severity of COVID-19 symptoms⁴. Studies have shown that between 20 and 49 years the case fatality rate of COVID-19 infection doubles for each decade¹. SARS-CoV-2 infiltrates human cells and binds to the angiotensin-converting enzyme 2 (ACE2) receptor, which is upregulated in normal pregnancy. Furthermore, advanced age is associated with increased expression of ACE2 receptors, possibly accounting in part for the increased severity of the disease. Although recently published case reports of IVF cesarean section in women of increased maternal age with covid-19 infection, have shown a poor maternal and neonatal outcome^{5,6}, in our case the obstetric outcome was positive. Further studies are needed to investigate the expression of ACE receptors

in pregnancy of advanced maternal age pregnancy.

Advanced maternal age is associated with GDM, particularly in the setting of a first pregnancy at advanced age. The incidence of GDM is 3-to 6-fold higher in gravid women over the age of 40 years⁷. Studies have demonstrated that ACE2 receptor is more expressed in diabetes⁸. Moreover, proinflammatory state and relative immunosuppression of GDM may increase the risk of developing severe Covid-19 symptoms and lead to poor maternal and neonatal outcomes⁹. However, in our case advanced maternal age with GDM did not increase the risk for poor pregnancy outcome.

The management of cesarean section in an advanced maternal age woman with covid-19 infection present many anaesthetic challenges. General anaesthesia is considered an aerosolizing procedure and therefore avoiding airway manipulation is important¹⁰. Moreover, studies have shown that neuraxial anaesthesia is safe for Covid-positive obstetric patients requiring caesarean section¹¹. In our case report, CSE anaesthesia resulted in intraoperative hypotension despite prophylactic administration of vasopressors. These findings are consistent with previous case series, where transient hypotension occurred after spinal anaesthesia¹². Upregulation of ACE2 leads probably to relatively low blood pressures compared to normal parturient¹³. In addition to that, Covid-19 infection leads to some degree of inflammatory mediated

vasodilation which may compromise hemodynamically the pregnant woman.

Studies have shown a strong correlation between advanced maternal age pregnancy with IVF and postpartum haemorrhage¹⁴. Postpartum haemorrhage and need for blood transfusion contribute to maternal morbidity and mortality. Furthermore, studies have shown that high rate of postpartum haemorrhage and blood transfusions are observed in pregnant women with Covid-19, much higher than that reported in the general population of pregnant women¹⁵. We presume that in our case blood transfusion was due to haemostatic changes induced by Covid-19 infection in combination with advanced maternal age.

Studies have shown that venous thromboembolism thrombosis is one of the most common complications among pregnant women aged 45 to 54 years^{16,17}. Moreover, SARS-CoV-2 during pregnancy may lead to endothelitis and initiate microvascular dysfunction, which can contribute to hypercoagulability¹⁸. Therefore, pregnant women with Covid-19 infection are at increased risk of maternal venous thromboembolism during the peripartum period. In order to avoid thromboembolic events, we administered prophylactic low-molecular-weight heparin and acetylsalicylic acid in accordance to existing literature¹⁹.

Third trimester of advanced maternal age pregnancy is proinflammatory in order to promote labor⁴. Moreover, studies have shown that

pregnant women of increased maternal age infected with SARS-CoV-2 during third trimester may be at higher risk for exaggerated responses to Covid-19. In our case although the pregnant woman was infected during the last trimester, her only symptom was fever. This is in accordance to recently published studies were pregnant women with a positive outcome present with a mild course of Covid-19, fever, cough, and myalgia. In pregnant women with severe Covid-19 and poor outcome the most common symptoms are mostly cough and shortness of breath^{20,21}.

In conclusion, physiologic and vascular changes in advanced maternal pregnancies may exacerbate Covid-19 symptoms and increase the risk for poor pregnancy outcome²². However, in our case of extremely advanced maternal age cesarean section the obstetric outcome was positive. Further studies are needed to investigate the factors that influence the outcome in pregnancy of increased maternal age with Covid-19 infection.

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