

## COVID 19 Patients with Pregnancy Anesthetic Management Case Series

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### Abstract

**Introduction:** Case series helps us to evaluate management and safety of spinal anesthesia for caesarean delivery in pregnant women with COVID-19 infection.

**Case Series:** We hereby report the management of three COVID-19 positive pregnant women undergoing caesarean section in our hospital. Patients presented with mild symptoms of COVID 19. Routine investigations and COVID -19 markers were evaluated. Anesthesia and operation went uneventfully.

**Conclusion:** Health care providers and babies were not infected with virus. Precautionary measures and strategies were of utmost importance to lower virus contagion risk. Spinal anesthesia was preferred over GA.

**Keywords:** Caesarean section, COVID-19, Pregnant, Spinal Anesthesia.

**Key Messages:** When confronted with caesarean section in parturient with COVID-19, careful planning and detailed preparation improved the safety of the mother and infant and reduced the risk of infection for medical staff.

### Introduction

COVID 19 infection caused by corona virus is extremely contagious and can cause severe acute respiratory tract infection. COVID-19 infection can spread to other pregnant women and health care workers. Hence management of such patients is of

utmost importance.<sup>1</sup>

Pregnant women with mild infection may present with fever, fatigue, dry cough, but severe infection may progress rapidly to acute respiratory distress syndrome, septic shock, intractable acidosis and coagulopathy.<sup>2</sup>

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During caesarean section generation of infectious agents such as blood, amniotic fluid, creates a challenge for healthcare workers in keeping the mother and neonate safe, while protecting themselves against infection.<sup>3</sup>

We hereby report the management of three COVID-19 positive pregnant women undergoing caesarean section in our hospital.

### Case Series

**Case 1:** A 21 year old patient, primigravida 39 weeks gestation age was referred to RLJH, in view of being tested positive for COVID-19. Patient was asymptomatic at the time of presentation. Patient had a primary contact with her brother who was tested positive for COVID-19. Patient was not vaccinated for COVID-19. LSCS was done. Baby was tested on using RT PCR and was negative. Patient spo 2 was 93% on room air. Fig. 1 shows her chest x-ray with mild opacities.



Fig. 1: Case 1 CXR with mild opacities.

**Case 2:** A 19 year old patient, primigravida with 39 weeks gestation age with COVID-19 positive status was referred to RLJH, after she had tested positive for COVID-19. None of her family members were tested positive for COVID 19. Patient had mild fever at the time of presentation. Patient was not vaccinated for COVID-19. LSCS was done. Baby was tested using RT PCR and was negative. Patient spo 2 was 89% at room air. Fig. 2 shows her chest x ray with moderate opacities.



Fig. 2: Case 2nd CXR with moderate opacities.

**Case 3:** A 21 year old patient, primigravida with 40 weeks gestation age with cephalic presentation with COVID-19 positive status was referred to RLJH, after she had tested positive for COVID-19. None of her family members were tested positive for COVID 19. Patient had mild fever and sore throat at the time of presentation. Patient was not vaccinated for COVID-19. LSCS was done. Baby was tested using RT PCR and was negative. Patient spo 2 was 90 at room air. Fig. 3 shows chest x ray of this patient.



Fig. 3: Case 3rd CXR.

### Anesthetic Management

Patient was shifted to designated COVID-19 OT with a surgical triple layer mask covering the face. Anesthesiologist wearing Level 3 PPE assessed the patient and his reports just outside operating room then explained regarding spinal anesthesia. Anesthesiologist after checking routine and covid related investigations (Table 1) started case. It was the duty of helper to spray the sodium hypochlorite solution (1%) on the footprints of the trolley.

Table 1: Investigations of 3 cases.

Findings	Case 1	Case 2	Case 3	Normal Range
Neutrophils	75%	77%	78%	<45
Lymphocytes	16.50%	17%	14.80%	20 to 40%
N/L	4.54	4.52	5.27	.78 to 3.53
D dimer	1101.2 ng/ml	810.2ng/ml	1204.83 ng/ml	<250ng/ml
Ferritin	43.1 ng/ml	55.4 ng/ml	16.5 ng/ml	20 to 250mg/ml
LDH	278 u/l	235u/l	245 u/l	110 to 210 u/L
CRP	Negative	Negative	Positive	Negative

Abbreviations: N/L neutrophils/lymphocytes, LDH lactate dehydrogenase, CRP-C reactive protein.

Electrocardiogram, blood pressure, saturation and vitals were monitored keenly. Anesthesiologist after assessing the patient changed his outer gloves with the help of operating room circulating nurse, thereby maintaining proper hand hygiene. The patient was made to sit at the side of the table with help of anesthesia technicians. As per standard aseptic precautions concerned site was painted with betadine and spirit. Local anesthesia was then given (2mL of 2% lignocaine). At the level of L4-L5 a 25-gauge spinal needle was inserted, and 2 mL of heavy bupivacaine 0.5% was given after confirming free backflow of CSF. Patient then made to lie in supine position. Vitals were monitored. Spinal anesthesia was tested, and it was found adequate. The obstetrician went ahead with caesarean section. During the course of procedure patient vitals including blood pressure was noted to be stable. There was no need to give mephenteramine. After delivery of the baby, sample of the amniotic fluid was taken, and the baby was handed over to the neonatologist, who performed the polymerase chain reaction COVID-19 swab. Before exiting the operation theatre, the anesthesia team removed their PPE kits according to hospital protocol.

## Discussion

In our hospital, we had a COVID-19 OT complex, in accordance with the standards laid by the perioperative recommendation issued during this pandemic. Along with providing the best clinical care for the COVID-19 pregnant patient, the exposure of SARS COV-2 to HCWs and the new-born were reduced by taking necessary IPC measures.<sup>4</sup>

Therefore, we used Level 3 PPE in OT, and shifted the new born to the separate room immediately as a part of our effective IPC measures. Level 3 PPE included splash resistant whole-body suit, face shield, N-95 mask, cap, goggles, shoe covers and 2 pairs of gloves. However, the patient was wearing surgical triple layer mask during transport as an IPC measure according to our hospital policy.<sup>5</sup>

Pregnant women with positive COVID-19 tests were managed based on the severity of illness. COVID-19 infection by itself was not an absolute indication to perform CS. Patients could be delivered according to individual obstetric indications. Patients

should be tested for COVID-19 if they become symptomatic. Evaluation of the maternal and foetal status were performed in order to balance the risks and benefits of delaying the delivery until the result of the test comes back. The clinical manifestation of COVID-19 and gestational age were the prime factors in determining the appropriate time for delivery.<sup>6</sup>

We preferred spinal anesthesia instead of general and epidural anesthesia. Regional anesthesia should be preferred over general anesthesia to prevent undue exposure of health care workers to aerosol generating procedure. It had reduced rates of respiratory depression. There was no vertical transmission seen in our study.

## Conclusion

Precautionary measures and strategies were of utmost importance and should be opted so as to lower virus contagion risk. Spinal anesthesia was preferred over GA

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*Conflict of Interest:* Nil

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