



## Anaesthesiology

## A CASE SERIES: OUR EXPERIENCE AS ANESTHESIOLOGIST IN MANAGEMENT OF OBSTETRIC SURGICAL PATIENTS IN COVID-19 ERA

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**ABSTRACT** **Background:** Parturient with suspected or confirmed SARS CoV-2 could be planned for emergency LSCS due to life-threatening maternal or fetal indications. There is a lack of sufficient knowledge available concerning the outcome of the surgery, anesthesia and the newborn delivered.

**CASE SERIES:** We are reporting a case series of nine parturient who were operated upon in COVID-19 dedicated operation theatre in VMMC & Safdarjung hospital from 29<sup>th</sup> July 2020 to 12<sup>th</sup> August 2020. Among the nine parturient operated, 4 of were confirmed positive cases of COVID-19 disease whereas the rest were suspected cases on the basis of symptomatology. All the patients were operated for Emergency LSCS except two cases who were operated on for ruptured ectopic pregnancy and pyoperitoneum.

**Discussion:** The main obstacles faced during the conduction of COVID-19 cases were the technical issues that rose due to the constant fogging of the goggles as well as the discomfort faced due to three levels of the PPE Kit. There was a significant difficulty in the lumbar puncture in case of a neuraxial block in LSCS and hence, and sought for multiple attempts, but there was not even a single case of failed spinal anesthesia. The newborn delivered from the confirmed positive COVID-19 parturients found RT PCR negative after 48hrs. of birth. All suspected patients were found negative of COVID-19 disease after two RT PCR testing.

**Conclusion:** There should be modification of COVID-19 guidelines according to the resources available as well as the experiences of the clinician.

**KEYWORDS :** COVID-19 disease, Parturient with COVID-19 disease, PPE Kit**INTRODUCTION:**

After the declaration of the COVID-19 disease as a pandemic by the World Health Organization (WHO), there has been a stark decline in the number of elective surgeries in different hospitals of India during this COVID-19 pandemic due to the ever-increasing risk of contraction of COVID-19 disease among healthcare workers as well as a certain increase in the mortality and morbidity rates of surgery on COVID-19 patients. Adding to this, due to an immunocompromised state, the pregnancy and postpartum periods have an even greater risk of acquisition of the COVID-19 disease. Since there is a larger proportion of parturients with COVID-19 disease who are asymptomatic and adding to it, due to the limitations of radiological investigation, it becomes very difficult and might often be highly ineffective to screen the patient on the basis of symptoms. Generally, there is a striking difference between the protocols made by different Anaesthesia and Obstetric societies and real management of COVID-19 surgical patients due to numerous reasons, including but not limited to a difference in infrastructures in different institutions as well as a certain decline in the work efficiency that accompanies the

personal protective equipment's (PPEs). There is also a limited amount of knowledge regarding the transmission of SARS CoV-2 infection from the mother to the fetus, due to a lack of adequate research in the field. This is another significant cause that further adds to the problem at hand.

We are presenting a case series of 9 obstetric patients with either a suspected or confirmed infection of SARS-CoV-2 who were operated from 29<sup>th</sup> July 2020 to 12<sup>th</sup> August 2020 in a tertiary care hospital.

**CASE SERIES:**

We reviewed all the relevant medical records, anesthesia charts, the laboratory data of pregnant patients operated for LSCS or any other surgery from 29<sup>th</sup> July 2020 to 12<sup>th</sup> August 2020 in COVID-19 dedicated operation theatre in VMMC & Safdarjung Hospital, New Delhi. Out of the 9 parturient operated during this time period, 7 of them were posted for emergencies LSCS whereas two patients were operated in view of ruptured ectopic pregnancy and pyo-peritoneum after normal vaginal delivery respectively. (Table-1)

**Table-Detail of all parturients (suspected or confirmed COVID-19 disease) operated in OR.**

Sl no.	age (in yrs.)	diagnosis	procedure performed	covid-19 status	Anesthesia administered	complication during surgery	post-operative care	RT PCR of suspected patients later on	Outcome of newborn delivered (RT PCR)
1	25	Ruptured ectopic	Exploratory laparotomy	<u>suspected</u>	GA	NIL	ICU	Negative	NA
2	33	G4P1L1 with 38 weeks with previous LSCS with GDM	Emergency LSCS	<u>suspected</u>	SAB	NIL	ICU	Negative	Negative
3	28	G4P2L2A1 with 38 wk. with transverse lie in labor	Emergency LSCS	Confirmed positive	SAB	NIL	WARD	NA	Negative
4	21	Primi gravida with 34+6 wk. with fetal distress	Emergency LSCS	Confirmed positive	SAB	NIL	WARD	NA	Negative
5	20	Primi with 39 wk. with fetal distress with MSL	Emergency LSCS	<u>suspected</u>	SAB	NIL	WARD	Negative	Negative
6	34	G2P1L1 with 36 wk. with Pre - Eclampsia without severe feature with previous LSCS with asthma	Emergency LSCS	confirmed positive	SAB	NIL	WARD	NA	Negative
7	26	P3L3, post-partum 6day- with pyo peritoneum	Exploratory laparotomy	<u>suspected</u>	GA	NIL	ICU	Negative	NA

8	22	Primi gravida @39 wk. with IHCP with COVID-19	Emergency LSCS	Confirmed positive	SAB	NIL	WARD	NA	Negative
9	22	G2A1 @37 wk. leaking PV	Emergency LSCS	<b>suspected</b>	SAB	NIL	ICU	Negative	Negative

Four of them were having confirmed SARS Cov-2 infection before the surgery whereas the rest of the patients were suspected cases of COVID -19 disease. The patients were suspected owing to symptoms like high-grade fever, cough, breathlessness or any history of residence from a containment zone of COVID-19 disease. All the LSCS were performed under regional anesthesia i.e. subarachnoid block whereas the patient operated for emergency laparotomy was performed upon general anesthesia.

The detailed PAC of the patient was also conducted telephonically and the attendants of the patients were informed regarding the risk and benefit of specific anesthesia technique and any other procedures like blood transfusion, central venous catheterization etc. As the anesthesia plan for surgery was dependent on specific patients related factors like severity of COVID-19 symptoms, treatment history i.e. anticoagulation and associated other comorbidities, these points were confirmed before shifting of patient to operation theatre.

The operation theatre was prepared and all equipment's like videolaryngoscope, airway adjuncts, emergency drugs were checked beforehand by one of the anesthesiologist. The patient was then shifted to operation theatre with specified routes and lifts for COVID-19 patients. There was a nursing officer in PPE KIT outside the operation theatre for transmission of communication or any further help. The three level PPE kit consisted of tightfitting N- 95 mask and goggles, face shield, non-absorbable suit, hood, shoe cover and two pairs of gloves.

Most of the LSCS was conducted under subarachnoid block unless there was any contraindication for subarachnoid block. After the delivery, the baby was transferred to a specific newborn resuscitation zone inside the operation theatre. Oxygen therapy through nasal prong below N-95 or surgical mask was given to the parturient when there was SPO2 less than 94%.

COVID-19 disease was suspected in pregnant percent when there were symptoms like, high-grade fever, cough with respiratory distress and history of contact with positive case of COVID-19 disease or residence from a COVID-19 containment zone. All the suspected patients who were operated in the COVID-19 operation theatre were tested for SARS CoV-2 by two sets of RT-PCR.

## DISCUSSION

Pregnancy is considered as a high risk population due to the increased risk of transmission of SARS CoV-2 than general population<sup>[3]</sup>. There are special concerns while managing a parturient with COVID-19 disease as some of the symptoms of COVID -19 disease mimic the normal symptoms of pregnancy like pregnancy rhinitis and dyspnea in pregnancy<sup>[4]</sup>. As there is a concern of two lives in the case of a pregnant patient, it is desirable to take due precautions during the management of a parturient with suspected and confirmed COVID-19 disease. When the pregnant patient has symptoms suggesting of COVID-19 disease like high-grade fever, cough, dyspnea and history of contact with a confirmed positive case of COVID- 19 disease, due precautions (like PPE) to be taken during the time of history taking and physical examination. Virtual history taking could be possible in this era due to the advancement of technology. Though Rapid antigen tests are readily available nowadays but due to its poor sensitivity ,RT-PCTTR is considered a gold standard test for COVID-19 disease.<sup>[5-7]</sup> Due to paucity of study on experience of anesthesiologist in conducting obstetric emergency, we planned to write on case series regarding our experience and difficulties faced during the anesthesia management of parturient suspected or confirmed COVID-19 disease for any surgical procedure in VMMC & Safdarjung Hospital from 29<sup>th</sup> July 2020 to 12<sup>th</sup> August 2020. We have selected 9 parturient operated within the aforementioned observation period.

A special Protocol was devised by different societies of Anesthesiologists regarding the anesthesia and perioperative management of COVID-19 patients.<sup>[8,9]</sup>

### Salient points of their recommendations:

1. Personal Protective Equipment (PPEs) should include a fit-tested N95 respirator, face shield, gown, and double gloves should be

used. Least number of staffs should be present inside OR during aerosol-generating procedures.

2. Rapid Sequence Intubation (RSI) method should be used to avoid positive pressure ventilation with the use of a video laryngoscope for intubation.
3. Airborne infection isolation rooms (AIIRs) should be under negative pressure relative to the surrounding areas. There should be a minimum of 6 air changes per hour (12 air changes per hour is recommended for new construction or renovation). The HEPA filter should be used before the disposal of air from AIIRs to outside.<sup>[10]</sup>

### The concerns and difficulties faced during the conduction of Cases are as follows:

1. There was difficulty in taking obtaining consent from the patients and their relatives during emergency surgery in the COVID-19 Era.
2. As pregnancy is an immunocompromised state, there is always a risk of acquisition of new infection. Adding to that is also the high risk of transmission of diseases to suspected COVID-19 parturients when they are not really having SARS CoV-2 infection.
3. Thrombocytopenia is a common finding in case of patients with COVID-19 disease as compared to a healthy population. So, precautions should be taken before the administration of neuraxial block in parturient posted for LSCS<sup>[11]</sup>. Platelet count of more than 70,000/mm<sup>3</sup> is desirable before administration of neuraxial anesthesia to avoid epidural hematoma<sup>[12]</sup>
4. There is always a concern of translocation of SARSCoV-2 to the central nervous system of the patient through CSF. But as per many recent studies, there is lesser risk of viral translocation in a parturient with COVID-19 disease<sup>[12-14]</sup>
5. The pre-operative symptoms of COVID-19 disease, preoperative use of anticoagulants always creates problems for anesthesiologists as these factors affect the type of anesthesia technique to be used and the need for postoperative mechanical ventilation.
6. Working with PPE Kit decreases the working efficiency of health care staffs due to contact fogging through goggles, decreased hearing capacity and breathing difficulty due to tight fitting N95 mask and sweating .
7. There was an unavailability of a negative pressure environment inside the OT room as recommended by different society guidelines.
8. As it is very difficult to hear breath sound through a stethoscope with a three level PPE confirmation of the correct position of the endotracheal tube is made by a capnograph.

Despite the above deficiencies and practical issues experienced, every institution has modified their COVID-19 management plan as per the resources available. A digital system could be planned for consent as well as history taking before anesthesia. Different methods like the use of anti-fogging spray, hand rub are some options to prevent fogging in goggles in case of no supply of anti-fog goggles<sup>[15]</sup>. In our practice, one anesthesiologist used to don to check all the essential drugs, equipment's and machine by the time the senior anesthesiologist donned after the patient reached the OR. In this way fogging and exhaustion in three level PPE could be minimized. Visual and palpation of equal chest rise could be a useful method to avoid endobronchial intubation.

### CONCLUSION:

There should be a specific set of institution based protocols regarding the management of surgical COVID-19 patients as per the resources available.

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