

CASE REPORT**Modifying an obstetric unit to incorporate COVID19 without jeopardizing usual workflow: adapting to the ‘new normal’****Authors:**

1. Dr Jayasree Sundar

MBBS, DGO, FRCOG

Director and Head, Department of Obstetrics and Gynaecology
Birthright, by Rainbow Hospitals, New Delhi, India.

E mail: DrJayasree.s@rainbowhospitals.in

2. Dr Chanchal Singh (corresponding author)

MD (ObGyn), MRCOG, FICOG

Lead Consultant, Fetal Medicine

Birthright, by Rainbow Hospitals, New Delhi, India.

E mail: chanchalsngh@gmail.com

3. Dr Shivani Sabharwal

MBBS, PGDHHM, MBA (FMS)

Medical Director, Madhukar Rainbow Children’s Hospitals, New Delhi, India.

E mail: DrShivani.S@rainbowhospitals.in

4. Dr Neha Khandelwal

MBBS, MS (ObGyn)

Senior Consultant, Dept of Obstetrics and Gynaecology

Birthright, by Rainbow Hospitals, New Delhi, India.

E mail: drnehakpandit@gmail.com

5. Dr Naveen Prakash Gupta

MD (Paeds), DNB (Neonatology)

Senior Consultant, Neonatology, Madhukar Rainbow Children’s Hospitals, New Delhi, India. E mail:

dr Gupta.naveen@gmail.com

Corresponding author

Chanchal Singh

Dept of Fetal Medicine, Birthright, by Rainbow Children’s Hospitals, Malviya Nagar, New Delhi, India.

110017

Tel: +919899092076

E-mail: chanchalsngh@gmail.com

ORCID id: <https://orcid.org/0000-0003-3990-8481>

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Abstract

Objective: The exponential rise in pregnant women infected with COVID19 mandates that more and more hospitals cater to infected women while continuing their routine work. The aim of this paper is to report on rapid adaptation of an existing perinatal facility to provide care for COVID-positive pregnant women while safeguarding routine care and suggest a workflow algorithm. There is still no consensus on routine testing of asymptomatic women requiring admission for delivery.

Case report: We report delivery of our first two COVID-positive women, one of whom was asymptomatic and found to be positive on testing prior to planned induction of labour.

Conclusion: It is imperative that hospitals provide a safe zone within an existing facility to optimise care of infected women and their newborns without affecting routine obstetric care. Routine testing of asymptomatic women at high-risk of infection may make triage and segregation easier and minimise spread of infection.

Keywords: COVID-19, Coronavirus, Pregnancy, Labour, SARS-Cov-2.

Introduction

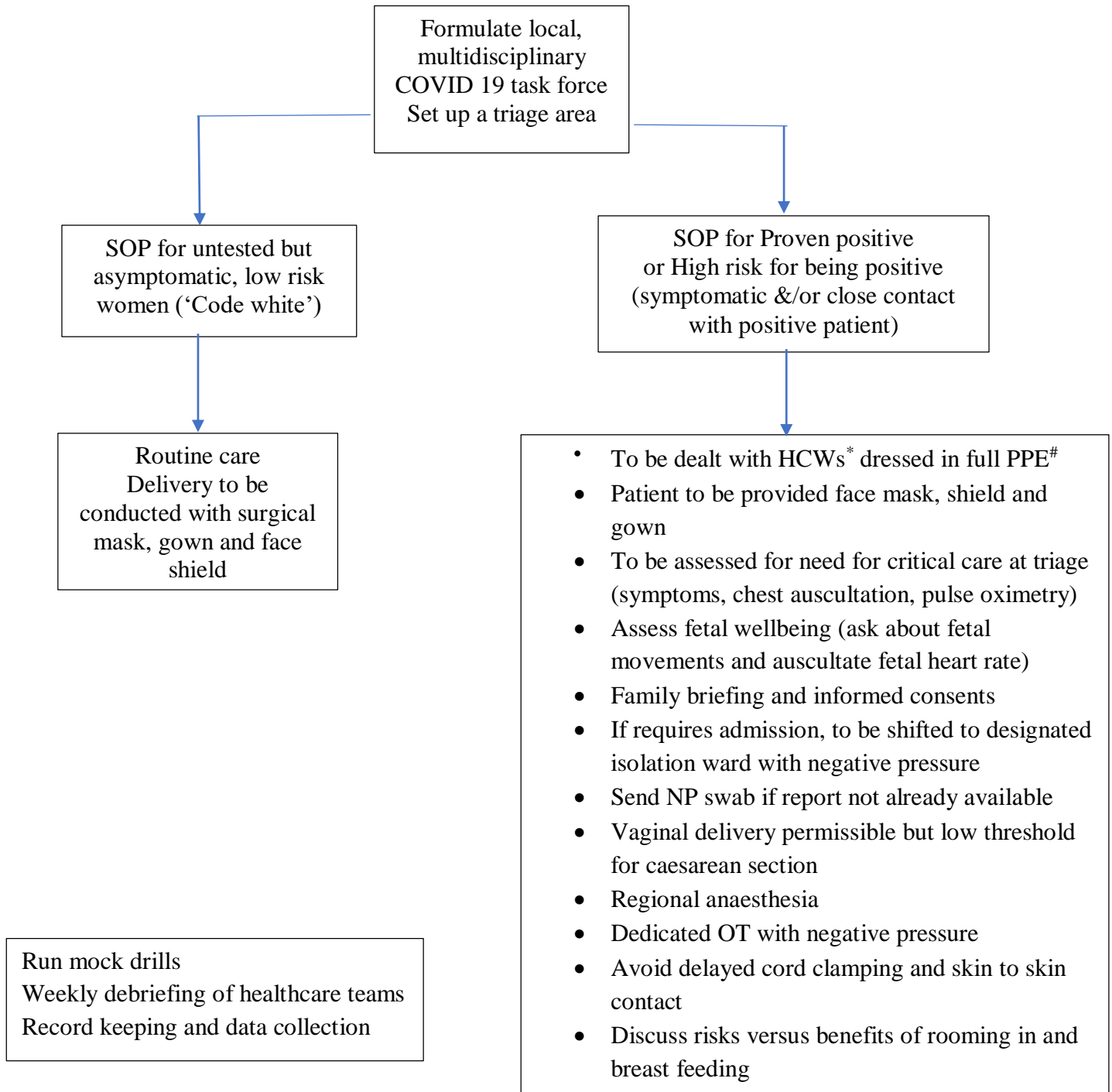
The current coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus-2 (SARS-Cov-2) was declared a pandemic by World Health Organization (WHO) in March 2020.¹ As on 9th August 2020, there have been more than 19 million confirmed cases and more than 7.2 lakh deaths worldwide.² Initially, dedicated hospitals were catering to COVID positive patients including pregnant women in Delhi. However, as the numbers spiral it became impossible to limit care to the few dedicated centers. We present our experience of rapid adaptation of an existing perinatal facility to provide care for COVID positive women while safeguarding routine care and suggest a workflow algorithm (figure 1).

Case presentation

Case 1: A 29-year-old low risk Primi gravida was planned for induction at 39 weeks' gestation in view of suboptimal fetal growth on ultrasound. All patients being admitted for

planned delivery are offered testing for COVID19 by RTPCR on nasopharyngeal swab so as to optimize their care and minimize spread of infection. She opted to do the test and tested positive though she had no symptoms. Since there was no maternal indication for delivery, she was perceiving good fetal movements and nonstress test (NST) as well as fetal Dopplers were reassuring, it was decided to postpone induction with close maternal and fetal surveillance. She did not develop any symptoms and was admitted in spontaneous labour at 40⁺³ weeks. She required emergency Cesarean delivery for non-reassuring cardiotocograph and delivered a 2600-gram baby girl with an Apgar of 8,9. The mother opted to breast feed. Nasopharyngeal swabs for baby on day 1 and 5 were negative. The mother did not develop any symptoms and was discharged on postpartum day 4 with instructions for self-quarantine at home.

Figure 1: Suggested work flow algorithm for modifying existing obstetric unit to accommodate suspected/proven COVID positive women



*HCWs: Healthcare workers, #PPE: Personal protective equipment

Case 2: A 32-year-old G2P1 with previous cesarean was planned for elective LSCS at 38 weeks (patient request). However, she developed mild cough and fever 2 days prior to planned admission and tested positive for COVID-19. Since there was no other maternal indication for delivery and she had no respiratory compromise, it was decided after joint consultation with the respiratory physician to delay delivery unless maternal symptoms worsened. Her mild symptoms subsided in 3 days. She underwent elective LSCS at 39 weeks and 4 days. A baby boy weighing 3200 grams was born with an Apgar of 8,9. She opted not to breastfeed. Nasopharyngeal swab for the baby on day 1 and 5 was negative. This mother also had an uneventful recovery and was discharged on postop day 4.

Discussion

As soon as COVID19 was declared a pandemic, the maternal-fetal unit at our hospital modified its working as per current recommendations.³⁻⁷ Waiting areas, outpatient clinics and scan rooms have been rearranged to adhere to social distancing norms. Video-consults and tele-consults have been adopted for routine care. Ultrasounds in fetal medicine units have been prioritized and restricted. A dedicated COVID task force was formulated including members from Obstetrics, Fetal Medicine, Neonatology, Anaesthesia, Nursing, Engineering, Biomedical Department, Housekeeping and Hospital Management. A standard operating protocol (SOP) was agreed upon regarding how to safely triage patients. Waiting areas were adapted to current norms of 'social distancing'. Patients were encouraged to do

tele-consults or video consults and advised to visit the hospital only when necessary and minimize number of attendants. For patients physically coming to the hospital, a 24/7 functional screening desk was made at the entrance where they are screened for fever by a thermal sensor, provided three-ply masks and asked to perform hand hygiene.

In order to safeguard other patients, health care workers (HCWs) and minimize community spread, it was decided to offer COVID testing to all patients requiring admission for delivery. A 'Code White' was formulated for the SOP to be activated for any untested obstetric patient coming in labor or in need for emergency admission. A separate floor was earmarked and a makeshift labour room was made on this floor. The patient would be shifted directly from emergency with restriction for single attendant accompanying the patient through a separate corridor and lift reserved for this SOP. Another floor was converted into COVID-positive floor. A separate entry point from the regular main entry gate was identified for proven COVID-positive patients. These patients would be provided with N95 mask and face shield at the entrance itself and directed to a new triage area at ground floor which has been temporarily walled off from the main foyer of the hospital. A dedicated staff nurse and doctor in full personal protection equipment (PPE) assess the patient for severity of COVID-infection and need for further testing, eg ultrasound, NST and/or admission. The COVID-floor has a negative pressure labour ward and operation theatre with separate high-efficiency particulate air (HEPA filters). The lift from triage area is permitted to go

only upto the dedicated floor and is for use of only proven positive cases and HCWs involved in their care. An ultrasound machine was also shifted to this floor to enable assessment of fetal wellbeing as needed.

Staff from existing workforce including doctors, nurses and housekeeping was posted as dedicated staff to COVID floor and no intermingling of staff was permitted. 3 teams have been formulated which are expected to work 24/7 for a week and then given one week off. They return to work if they are asymptomatic in this duration. For personnel required for a temporary entry to the floor, eg for an ultrasound of a positive patient, the visiting doctor wears a full PPE and performs the task and leaves the floor after doffing PPE in the designated doffing area and taking a bath in the duty room on the same floor.

It was realized during mock drills that donning and doffing of PPE can be confusing and charts showing the correct sequence were displayed in the dedicated rooms. Training in doffing and donning of PPE and adopting a 'buddy system' to assess that its being done appropriately is desirable. 'Doffing' and appropriate disposal of infective material is of vital importance.

Spontaneous labour aiming for normal delivery should be the norm unless urgent delivery is needed due to respiratory compromise in the mother. Delayed cord clamping and skin to skin contact should be avoided.⁷⁻⁹ Current evidence suggests that pregnant women are not more likely to contract the disease than others,³ and when infected, most will have a good outcome,^{10,11} as exemplified by both our cases.

The neonate can get infected through close contact with mother.^{12,13} It is unclear till date

whether the virus can be transmitted through transplacental route. Most case reports and series deny vertical transmission. The virus has also not been found in breast milk which might be protective by transmitting antibodies to neonate. Guidelines advocate breast feeding in stable neonates born to COVID-positive mothers.^{3,9} Thus, women choosing to breastfeed are advised regarding handwashing. They should wear a fluid resistant surgical mask while handling the baby. Women who choose not to breast feed can either give expressed breastmilk or formula-feed through COVID-negative caretaker. Baby is tested on day 1 and between 5th to 14th day. If both are negative, baby is declared negative.

Symptomatic and mildly symptomatic women are discharged as for any postpartum patient with instructions for home quarantine. On discharge, the patient and family is informed that they should seek immediate medical attention if there are any new, alarming symptoms.

Unanswered questions

Should asymptomatic women getting admitted for delivery be tested for COVID? We feel that since asymptomatic carriers form a vast majority,¹⁴ knowing their status will invariably help in minimizing spread of infection as happened with our first case. However, the patients should be given an option and if they decline, it must not hinder care and an SOP akin to our stated 'Code White' should be followed.

Conclusion

Given the current situation of rapidly increasing numbers of infected individuals,

more and more hospitals will need to cater to COVID affected pregnant women. Thus it is imperative that they provide a safe zone within an existing facility to optimise care of infected women and their newborns without

affecting routine obstetric care. Routine testing of asymptomatic women at high-risk of infection may make triage and segregation easier and minimise spread of infection.

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