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Experience of managing covid-19 suspected case in labour in a green zone district tertiary care hospital

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is a novel type of highly contagious pneumonia caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Pregnant ladies are vulnerable to the virus infection due to alteration in anatomic and immune system. The chance of infection would apparently rise due to antenatal visits but inadequate medical care facilities during pregnancy can be harmful for both maternal and perinatal outcome. The Government of India has divided the districts of various states into Red, Orange and Green zones. Most of the hospitals from Red and Orange zones have made it mandatory COVID-19 testing for all antenatal patients near term making it easier to isolate and manage patients accordingly. The green zone hospital presently not doing COVID testing for all peripartum patients. Thus, proper maternal health care management at tertiary level is required with minimum exposure and risk in suspected cases especially in green zone hospitals. Here, we present our experience as a team at our Obstetrics and Gynaecology department of pregnant women with upper respiratory tract infection/suspected case of COVID-19 infection during hospitalization in our rural setup and further we will discuss patient triage based on risk level, antenatal care planning and handling emergencies during COVID-19 lockdown.

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INTRODUCTION

The COVID-19 is an ongoing pandemic, caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). The outbreak began in Wuhan, China, at the end of December 2019. On 30 January 2020 the World Health Organization (WHO) announced the outbreak to be a Public Health Emergency of

International Concern and acknowledge it as a pandemic on 11 March 2020. Approximately 1.43 million positive cases for COVID19 recorded world out of which approximately 82100 death and 301000 people recovered still April 8th 2020. ([Chen et al., 2020](#)).

Coronaviruses are single-stranded RNA viruses with enveloped and spherical shape. The four prevalent types that cause common cold are HCoV-229E, -NL63, -OC43, and -HKU1. Severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) are two strains causing fatal illness.

The routes of transmission and clinical symptoms of COVID-19 are same as SARS and MERS, COVID-19 higher infectivity. ([Schwartz and Graham, 2020](#)).

Maternal healthcare management becomes a potential challenge as it deals with both maternal and perinatal outcome. ([Outcomes et al., 2003](#)).

Most of the hospitals from Red and Orange zones have made it mandatory COVID -19 testing for all antenatal patients near term making it easier to isolate and manage patients accordingly. The green zone hospital presently not doing COVID testing for all peripartum patients. Thus, proper maternal health care management at tertiary level is required with minimum exposure and risk in suspected cases especially in green zone hospitals.

The main purpose of this report is management of covid-19 suspected case in pregnancy in rural health setup of full term pregnant woman and our experience of managing her in green zone districts of our nation during COVID-19. (Omer *et al.*, 2020).

Case report

A 24 year old unbooked Primigravida with 37.2 weeks gestational age presented in emergency hours with history of premature rupture of membrane since preceding 2 hours. She also gave history of high grade fever four days back and dry cough since last two days. She had shifted to present mothers residence two days back and was previously staying in Mumbai. All her antenatal care visits record and investigation were in normal limits except her obstetric doppler showing foetal growth restriction with oligohydramnios and uteroplacental insufficiency done a day prior in private nursing home.

With this background of acute respiratory illness, she was referred here for further management in emergency hours. The senior resident of emergency department screened her with this history and hence she was admitted in isolation labour room which was developed in the hospital by converting emergency department labour room into isolation room. The senior resident obstetrician on duty examined her by wearing Level 1 Personal protective equipment (PPE) to avoid exposure. On examination she was febrile having tachycardia and blood pressure of 130/80 mm hg. There was no pallor or oedema. On examination of respiratory system, there was mild tachypnoea but air entry was equal on both sides. There were no adventitious sound. On per abdomen examination fundal height was term size, there was single foetus in cephalic presentation with floating head in left occipito posterior position. There was foetal tachycardia with foetal heart rate of 176 bpm. Vaginal examination revealed unripe cervix with vertex in left occipito posterior position which was above pelvic rim. The membranes were absent with frank leak of clear liquor. The blood investigation revealed haemoglobin of 10.9 gm/dl, total leucocyte count- 13,500/cumm, total platelet count- 1.88 lacs/cu mm

.in view of above findings broad spectrum antibiotic and antipyretic was given parenterally. On pulmonologist opinion, chest Xray was done which was normal. Nasopharyngeal swab was sent for RT-PCR (Reverse transcriptase polymerase chain reaction) test. After one-hour patient was afebrile and was shifted for emergency caesarean section in view of PROM with FGR with uteroplacental insufficiency. Under spinal anaesthesia, Caesarean section was done by taking all precaution and wearing Personal Protective Equipment (PPE). A male baby was delivered by vertex presentation at 1:27am of weight 2.5 kg with APGAR score 8/10,9/10. Baby was immediately shifted to NICU for COVID-19 evaluation. Placenta was sent for Histopathological examination. Post operatively patient was kept in isolation ward. Patient did not have any fever and cough subsided in 24 hours postoperatively. The COVID-19 test report came 12 hours later as it was sent to a government institute in next district at that time. The report was negative for both mother and baby. Patient was managed in isolation ward and postoperative period was uneventful. The patient was kept under observation and isolation for 14 days. Counselling for pros and cons of breastfeeding was done and patient was opted for exclusive breast feeding. Patient was healthy and asymptomatic and was discharged home with a healthy baby on 15th post-operative day.



Figure 1: "Be Aware be Safe" The use of Personal Protective Equipment while performing caesarean section of suspected COVID- 19 patient in operative room of our tertiary care hospital.

The medical and paramedical staff managing the

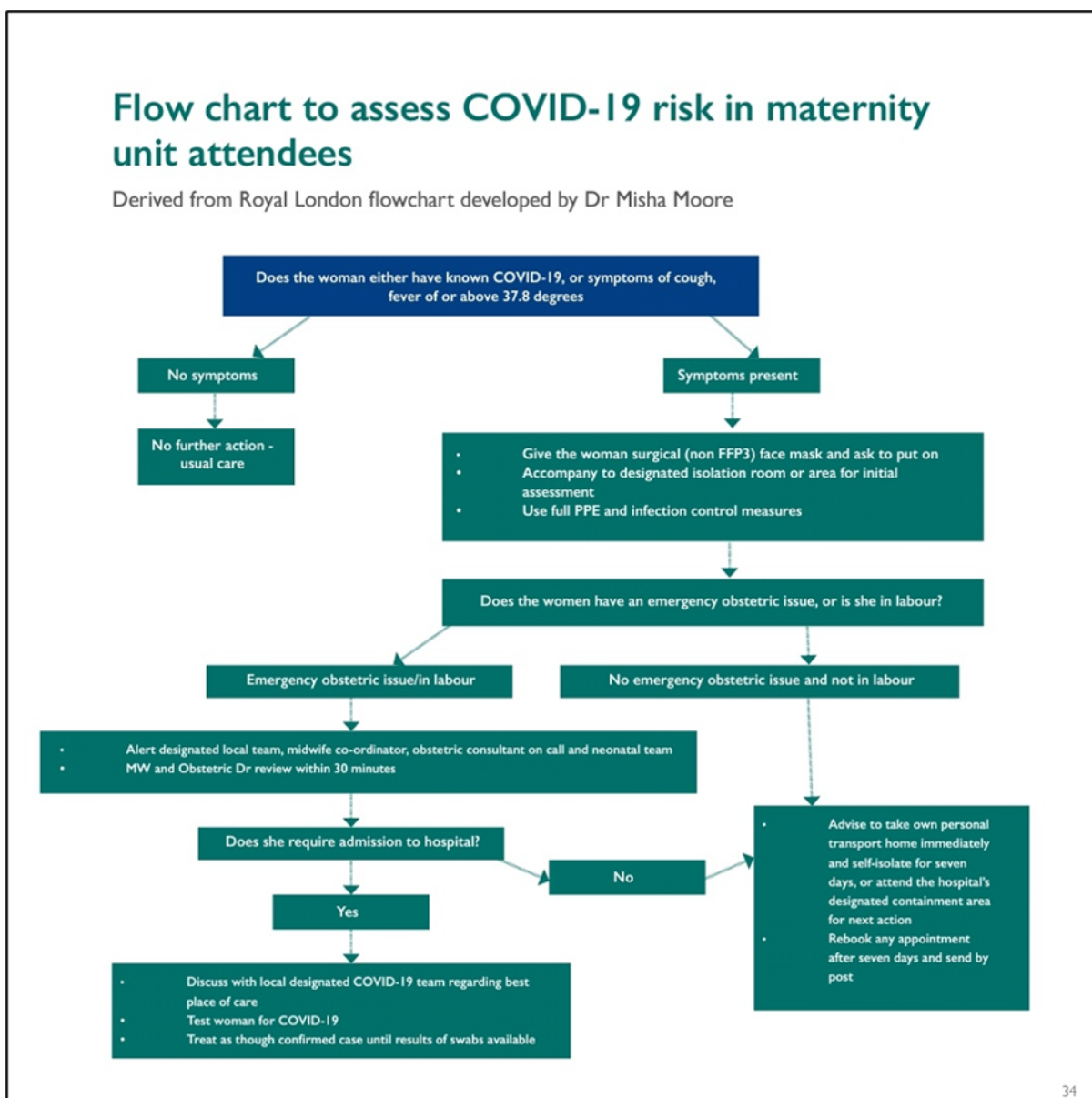


Figure 2: Flow Chart to Assess COVID-19 Risk in Maternity Unit

case were mentally stressed up. The stress they felt from themselves and the possibility of transmission to their family. The patient was stressed up about the diagnosis possibility of positive COVID-19 report and chance of neonatal transmission. She was also worried about the loneliness in the isolation ward during post-partum period. In spite of that throughout the treatment and stay of patient in the hospital the medical and paramedical staff gave her and to her family psychological and moral support by counselling them regarding the need of testing of COVID-19 and isolation for preventing transmission. The patient was motivated every day, the moral of the patient was boosted by appreciating her and her families' co-operation and was kept in regular touch with each other through video conferencing.

Maternal care advices during covid19 lockdown

Hygiene protocol and proper self-care is the first step in order to decrease COVID-19 related pregnancy complications. Safe motherhood care can significantly reduce mortality of pregnancy complication. The exposure risk can be minimised by early quarantine of diagnosed and suspected patients with preventive measures.

At present for the asymptomatic pregnant woman is to defer antenatal care routine visit. Consultation to an obstetrician can be done telephonically for minor ailments. Essential scan for chromosomal abnormalities and first visit can be recommended. Pregnant Women are advised to maintain DFMC (Daily Foetal Movement Count Chart) note every day. There are following guidelines where

they can protect themselves by the motto "Do the Five". (Gandhi, 2020)

1. Stay at home -unless related to pregnancy and any other complications.
2. Deferral of Routine antenatal visits. Medical council of India has permitted telecommunication consultation and services till situation comes under control.
3. Avoid home visitors completely. Social distances to be maintained.
4. Minimum 20 seconds of proper hand washing with alcohol based solution/soap and water. While coughing or sneezing tissue wipes to be used and to be disposed immediately after use.
5. Proper hand hygiene to be maintained while touching face, eyes, nose and mouth.

Labour triage for pregnant woman with covid-19 infection

When pregnant woman presents in labour with confirmed/suspected case of COVID-19 infection, presents in labour or is undergoing operative procedure, The use of Personal Protective equipment (PPE) such as surgical face mask (N95) and face shield becomes necessary ailment in order to prevent respiratory tract infection. If there is lack of appropriate equipment for Personal Protective equipment (PPE) patient can be transferred to higher centre which is better equipped. The management COVID-19 infection includes certain level of Protection. (Ağalar and Engin, 2020).

Level I Protection

Surgical mask (N95), cap, gloves/isolation clothing, work uniform to be disposed after use. Pre examination triage for general outpatient department implemented for safety measure.

Level II Protection

Disposable surgical mask (N95) and cap, disposable gloves/isolation clothing, work uniform disposable. Non-respiratory specimen examination of suspected/confirmed patients with fever and cough need to be screened. Imaging examination of suspected/confirmed patients to be done under safety measures.

Level III Protection

Disposable surgical mask (N95) and cap, disposable gloves/isolation clothing, work uniform disposable. Face shield with protective gear to be available while

attending suspected/confirmed patients. The resuscitation and Intubation procedures to be carried out under safety and personal care measures.

Health care management of pregnant woman with suspected/confirmed covid- 19 infection during labour

Health Care providers should continue to provide client-centred, skilled care and support to maternal health care. (Albouaini *et al.*, 2007) Proper counselling to be done to mothers about the spread of infection. Labour room and operation theatres should be well equipped and sterilised with disinfectants. Neonatal resuscitation corners and delivery table distance to be maintained of at least 2 metres. Trained healthcare workers with multispeciality team are required for delivery, caesarean section and neonatal resuscitation. The use of tocolysis is contraindicated if there is intervention with systemic disease. Beta- mimetic agents are to be avoided if there is pulmonary involvement. (de Masi *et al.*, 2017) Evaluation of the respiratory status such as difficulty or shortness of breath, respiratory rate, pulse rate, oxygen saturation on pulse oximetry to be monitored periodically. If there is any deterioration in health of pregnant woman to be shifted in intensive care unit at the earliest with all protective measure. The use of protective gear should be kept in mind with every examination and contact. Foetal monitoring to be continuously in labour room. The second stage of labour to be cut short, if there is any respiratory tract infection in order to prevent and reduce maternal exhaustion. At present, pregnant women have almost universally been delivered by caesarean section when they present in labour with COVID-19 infection.

Health care workers remain as the frontline of COVID-19 outbreak. Working in rural health care setup is a substantial challenge faced by health care providers while dealing and creating awareness to patient. The necessary preventive care taken in order to minimise the exposure and risk of coronavirus. The experience while dealing with COVID-19 suspect was foremost to protect occupation safety and health. The co-operation between management and health care worker played a drastic role in order to prevent undue consequences. Pregnant woman with Covid-19 are at high risk and they possess potential challenge during operative delivery. The COVID-19 suspect patient was shifted to operation theatre for caesarean section with all protective measures. The health care team and operation team including operation staff nurses, the anaesthetist, the paediatrician were all ready with personal protective equipment which included operative room

scrub suits, fluid resistant gowns, full face shield, eye protection, disposable gloves and shoe covers shown in Figure 1.

Though this case and many such suspected cases were managed by taking all precautions with Personal Protective Equipment (PPE), the medical and paramedical staff were mentally stressed up and felt relieved after the negative testing of COVID-19 report. The stress they felt was from themselves and the possibility of transmission to their family.

The caesarean section was uneventful. Hand hygiene and proper sterilisation of equipment was taken care of before and after the operative delivery.

During the study of (Chen *et al.*, 2019) any medical performance given to suspected or diagnosed patient, we use consumable medical material if possible and all recyclable devices will be sterilized after having contact with such patients and all medical and domestic waste are disposed of as infectious waste. After the surgery or delivery, the patient should be quarantined in the appointed single-bed ward, neonates will be quarantined in neonatal intensive care unit and breastfeeding will be postponed till the possibility of infection is eliminated or the infection is cured.

The study reported, (Lam *et al.*, 2004) coronavirus infection during pregnancy might cause preterm birth, intrauterine growth restriction, intrauterine death, and neonatal death. The potential of SARS-CoV-2 to cause severe obstetric and neonatal adverse outcomes is unknown, rigorous screening of suspected cases during pregnancy and long-term follow-up of confirmed mothers and their neonates are needed (Lam *et al.*, 2004).

In the study by (Chen *et al.*, 2019) Hospitals should establish a dedicated negative pressure operating room for pregnant women who must deliver with confirmed COVID-19 infection. Visitation may also need to be limited, as close familial contacts may still be within the window in which they are infectious but asymptomatic (Chen *et al.*, 2020).

In this case report we have discussed the health care management of suspected case of COVID-19 of pregnant woman who presented with fever and acute respiratory illness during admission to our Obstetrics and Gynaecology department (Figure 2). Then, we further illustrate our strategies that were modified and developed by referring to the guidelines from Indian Council of Medical Research and our hospital. We have also discussed our experience about the proper preventive measures we took while examining the suspected case such as hand hygiene, sterilisation and use of personal protec-

tive equipment during conduct of caesarean section in operative room of pregnant woman in our rural setup. The moral support which was given to mother by our healthcare team post-operative delivery in order to prevent psychological stress and dilemma faced by them while kept under isolation away from their families.

CONCLUSIONS

Health care management for pregnant woman plays a crucial role in our society. Obstetricians are more prolonged contacts with patients than physicians during COVID-19 outbreak as pregnant woman although are less susceptible to respiratory illness but certain physiological changes to immune system during pregnancy can be associated with severe symptoms. Thus, these symptoms should be identified and treated promptly with various preventive measures and strategies which would help to reduce mortality and morbidity of maternal and perinatal outcome. Proper training, social distancing, hand hygiene protocols and use of Personal Protective Equipment would help to minimize the risk of exposure while dealing with suspected/confirmed case of COVID-19 during pregnancy. The focus was also made on the psychological stress and loneliness felt by suspected COVID-19 mother after post-operative delivery. The healthcare workers provided with utmost moral support and counselling to tackle the depression and anxiety faced by the mother. There is a flow chart to assess COVID-19 risk in maternity unit attendees.

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Conflict of Interest

None.

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