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# Cesarean Section and the Related Challenges in COVID era-Mini Review Article.

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***Abstract***

*The COVID-19 pandemic had profuse impact on the healthcare industry. This also involved the much important department of obstetrics care. Antenatal checkup, labor, delivery, and breastfeeding guidelines for COVID-19 positive patients constitute vital components in the mother and the child care. Pregnant women had to face more challenges in this pandemic era. Notable of these are the mental and physical challenges in this vulnerable segment of women.*

*The aim of this review was to delve into this important aspect in the current literature on both the direct repercussions of catching COVID-19 during pregnancy and the indirect repercussions of the pandemic for pregnant women's health, mode of delivery and challenges of caesarian section during the pandemic era, in which containment and social distancing measures have disturbed the daily life.*

***Key Words:-***

*COVID-19; Pregnancy; Caesarian section.*

## Introduction

COVID-19 originated initially from Wuhan, China in winter of 2019 [1-2]. It then spread across the continents like a wild fire. It has, inflicted millions of people directly and indirectly [2-3]. It has affected all segments and ages of population [3-5]. It is worth noting that pregnant women are easily susceptible to this infection and if they catch it, the results might be frightful.

Peripartum services, unlike many other specialties, cannot be stopped or deferred in the context of pandemic challenges, the strain on limited work force and resources (6, 7). Management of either elective or obstetric emergencies in COVID-19 pandemic pose a great challenge as these patients can't be overlooked and timely intervention is required to save the life of the mother and the baby. The aim of this review was to delve into this important aspect in the current literature on both the direct implications of catching COVID-19 during pregnancy and the indirect repercussions of the pandemic for pregnant women's health, and the challenges of the caesarian section.

## Methods

We did search on PubMed, Medline database publications using: COVID-19, caesarian section; childbirth; pandemic; pregnancy and telemedicine clinic. The publications included were special communications, reviews, conferences papers, books and research studies regarding the subject matter over last 24 months.

## Discussion

Respiratory droplets supposed to be the main route of transmission (8). Pregnant women are theoretically at higher risk of catching this infection owing to relatively impaired immunity (9). However interestingly recent evidence suggested that pregnant women are no more at risk of COVID-19 than other adults nor is the condition thought to be more severe in them (10). Moreover, it has been noted that clinical course of COVID-19 seems to be of milder nature in contrast to the SARS, Middle East respiratory syndrome, and influenza outbreaks (11).

As discussed, Peripartum services have to be continued non-stop, in contrast to many other healthcare services. When it comes to dealing with obstetric emergencies in COVID-19 pandemic, it becomes a tricky challenge as these patients need swift care and cannot afford delay in any intervention for the safety of the mother and the baby. Sometimes, it becomes quite difficult or even impossible to wait for the COVID test results before admitting an obstetrical emergency case. Delay can be life-threatening. Hence, in order to avert such dreadful situations, all pregnant patients can be electively admitted and tested for COVID-19 near term to anticipate the difficulties and plan and prepare health-care working staff to cope with impending challenges (9-13).

The pandemic had multifaceted implications on the healthcare requirements and the care provided to normal obstetric patients as well as those affected by the virus. Furthermore, protocols were implemented to provide flawless care to pregnant women during the antenatal period, during the labor, and the postnatal period (10-14). During the pregnancy period, women have to face significant anatomic, physiologic, and immunologic alterations to support and protect the developing fetus. These changes can increase susceptibility of pregnant women to catch infection with respiratory viruses.

Certain safety measures have been tried in COVID infected pregnant ladies by few centers in world, one such example included a study including 115 ladies infected with COVID-19, who underwent cesarean delivery. All of their patients were confirmed SARS-Cov-2 positive. They used only spinal anesthesia in their patients (12-14). As we know that lung is the primary target of the COVID virus, there may be potential challenges of exacerbation of pulmonary complications secondary to intubation in these patients.

Furthermore, general anesthesia is an aerosol-generating mode of anesthesia, so every attempt was made to avoid general anesthesia. An elective cesarean is considered to be the safest in these patients, but there is a paucity of data till date. Spinal anesthesia for LSCS was found safe and effective for obstetric anesthesia in COVID-19 both for the parturient and the newborn baby. They were of the opinion that elective cesarean should be preferred to emergency surgery. Identification of high-risk groups should be done rigorously. Moreover, effective biosafety precautions were of sheer importance for the safety of medical and paramedical staff.

In yet another study by Eva et al. C-section risk in SARS-CoV-2-infected patients is associated with the presence of pneumonia, especially in preterm pregnancies, and with clinical conditions that require a rapid and early termination of pregnancy. In pregnancies at term, delivery care is similar between asymptomatic patients and those with mild–moderate COVID-19 symptoms such that the presence of uterine scarring (due to a previous C-section) and induction or programmed C-sections for unspecified obstetric reasons contributed to the C-section rate. They also noted that patients in the C-section group had more obstetric and medical complications (abruptio placentae, hypertensive disorders and thrombotic events), including two maternal deaths that were associated with disseminated intravascular coagulation. It was established that women with a SARS-CoV-2 infection have a significantly higher risk of developing pre-eclampsia (15-16); this results in more C-sections in preterm pregnancies due to the difficulty in inducing these deliveries, which is in line with the findings mentioned above. Therefore, clinical practice guidelines to improve the quality of pregnancy care in times of COVID-19 have to be devised, as well as a standardization of the indications for C-sections (17-20).

Types of infectious agents such as blood, amniotic fluid, and other body fluids are generated during cesarean section, posing a challenge for healthcare workers of keeping the mother and neonate safe while protecting themselves against the COVID infection (21). In the face of threat of COVID infection, a thorough anesthesia plan, comprehensive pre-anesthesia preparation and tacit multidisciplinary cooperation can not only enhance the safety of mothers and infants, but also to reduce the risk of infection of health care staff.

In yet another study, it was noted that the heightened utilization of regional anaesthesia for category-1 caesarean section during the pandemic was not found to be associated with an increase in adverse neonatal outcomes. It is reassuring for anaesthetists, obstetricians, the parturient and those societies recommending the preferential utilization of regional anaesthesia for emergency caesarean section during the COVID-19 pandemic. However, it is of paramount importance that the anaesthetist, obstetrician and members of the multidisciplinary team attending a category-1 caesarean section communicate effectively with each other and are aware of the “shared responsibility of the urgency of delivery”. Anaesthetists need to make a risk-benefit analysis to come up with the optimum choice of anaesthetic for each case. There should be continuous efforts to improve the safety of delivery which ever anaesthetic technique is utilized (22).

## Conclusion

The continuity of obstetric care is of paramount importance even in times of pandemics. Taking special measures for the segregation of suspected COVID patients and healthy subjects is the key to the smooth delivery of services. Choosing wisely the type of anesthesia and precautions during caesarian section is vital for the safety of mother, newborn baby and the health care personnel alike.

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