

## Original Article

# Fetomaternal Outcome in Asymptomatic and Symptomatic Covid-19 Positive Women at term Pregnancies

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## Abstract

**Background:** The SARS –COV-2 has quickly swept the globe due to strong infectivity. (1) Pregnant women are at higher risk of being infected and developing more complicated events.

**Objective:** To determine the fetomaternal outcome in COVID-19 positive pregnant women at term in order to improve the awareness and management of this obstetric population.

**Methodology:** This Retrospective descriptive case series study was conducted in the Obstetrics and Gynaecology department of FG polyclinic Islamabad, from June 2020 to May 2021. A total of 23 pregnant women who were found positive for Covid viral rRT-PCR of nasopharyngeal specimens, were included in the study. Data regarding their age, parity, gestational age, symptoms and signs related to labor and covid 19 pneumonia, mode of delivery, APGAR score at one and five minutes after birth, NICU admission and stay was collected on structured proformas, analyzed by SPSS version 20, and presented in the form of mean values and percentages.

**Results:** The mean maternal age was 28.26 years. All of them were term pregnancies, 82.61% having gestational age between 37-40 weeks. Multigravidas were 91.3% and primigravida 8.7%. Among 21 multigravidas, 6 were having a previous 1 cesarean section and 5 had previous 2 cesarean sections. Covid -19 symptoms were present in 8 (34.78%) women. Vaginal delivery was conducted in 39.13%. One was intra uterine fetal death. Three newborns were admitted to NICU due to respiratory distress syndrome (RDS). Neonatal nasopharyngeal swabs were not taken. Vertical transmission was not tested.

**Conclusion:** All women were discharged without any serious morbidity. Majority of neonates were healthy and those who were admitted to the neonatal care unit were discharged without any major complication.

**Key words:** Pregnancy, COVID-19, clinical features, maternal morbidity, neonatal morbidity

Cite this article as: Farooq N, Ain QU, Shafiq S, Farooq M, Israr N. Fetomaternal Outcome in Asymptomatic and Symptomatic Covid-19 positive women at term pregnancies. J Soc Obstet Gynaecol Pak. 2021; 11(3):229-233.

## Introduction

The novel severe acute respiratory syndrome (SARS) coronavirus-2, which causes COVID-19 disease results in severe morbidity and mortality especially in vulnerable groups and is an emerging disease. The lethal virus has quickly swept the globe due to its strong infectivity by April 26, 2020. 2774135 people were positive for SARS –COV -2 and 190871 people died in at least 210 countries. <sup>1</sup>

Pregnancy by virtue of its physiological and anatomical

adaptations increases the risk of severe infections especially those of the respiratory tract.<sup>2</sup> The SARS-CoV 2 virus is a single-stranded RNA virus that is primarily transmitted by droplets and soiled foam. There are various degrees of disease severity - asymptomatic, mild, moderate, severe, and critical. Most infections in pregnancy are asymptomatic or mildly symptomatic. For these women, the consequences on the mother or pregnancy are minimal unless they have additional risk factors such as

Authorship Contribution: <sup>1,2</sup>Substantial contributions to the conception or design of the work, acquisition, analysis, or interpretation of data for the work, <sup>3</sup>Drafting the work or revising it critically for important intellectual content, <sup>4</sup>Active participation in active methodology, <sup>5</sup>Final approval of the version to be published.

Funding Source: none

Conflict of Interest: none

Received: July 29, 2021

Accepted: Oct 07, 2021

diabetes, hypertension, cardiorespiratory disease, obesity, or are of ethnic minority background. Most women with symptoms will present with fever, unproductive cough, sore throat, myalgia, headache, nasal congestion, loss of smell and taste with associated leukocytosis and lymphopenia. The complications experienced by these patients were pre-term labor, fetal distress, and pre-term rupture of membrane. The babies born to these mothers had complications of prematurity, respiratory distress syndrome, and still-birth. The intrauterine or trans-placental transmission risk from infected pregnant women to their fetuses; as demonstrated by the limited and largely incomplete current data, is very rare.<sup>3</sup>

Diagnosis of SARS-COV 2 infection is by reverse transcription-polymerase chain reaction (RT-PCR) on nasopharyngeal flocked swabs or saliva, demonstrating pathognomonic features of ground-glass appearance and pulmonary infiltrates on chest X-ray or CT scans. Management in pregnancy is the same as that for non-pregnant women with COVID-19.<sup>4</sup>

Team-based management is recommended for pregnancies managed in tertiary health care facilities and must include a designated clinic unit to provide care to stable as well as critical mothers. The general principles regarding management of COVID-19 pneumonia during pregnancy include early isolation, aggressive infection control and testing for comorbidities. Oxygen therapy, avoidance of fluid overload and prophylactic antibiotics are compulsory. Delivery planning should be individualized according to the patient's needs.<sup>5, 6</sup> There is no indication for elective delivery but assisted delivery in the second stage for those with moderate, severe or critical disease may be required to shorten this stage. COVID-19 is not an indication for interrupting pregnancy or cesarean section, but the latter may be performed to facilitate ventilation support or resuscitation in those with severe disease. Spontaneous vaginal deliveries were not associated with poorer outcome.<sup>7, 8</sup> Pain relief in labor should not be different but regional analgesia is preferred for operative deliveries.<sup>9</sup> Postpartum thrombo-prophylaxis should be considered, and breastfeeding encouraged with appropriate precautions to minimize transmission. Since benefits of breastfeeding outweigh risks of transmitting SARS-CoV2 due to close contact, breastfeeding is recommended.<sup>10</sup> However, COVID -19 positive mothers must wear mask, and practice hand hygiene before each feed, maintaining 6 m distance from their babies when not feeding.

Pregnant and lactating women should be encouraged to receive the mRNA based vaccines, provided the theoretical risks do not outweigh the potential benefits of the vaccine.<sup>11</sup>

The purpose of this study is to determine the fetomaternal outcome in Covid 19 positive pregnant women at term, in order to contribute to the existing pool of knowledge regarding the natural history of disease at the time of delivery. This is an effort towards providing local evidence which would be helpful for obstetricians in managing the obstetric population during the pandemic.

## Methodology

This study was conducted in the Obstetrics and Gynaecology department of the Federal Government Polyclinic, Islamabad over a one year of period from June 2020 to May 2021. The study design was a descriptive case series study. Approval of the research proposal was obtained from the ethical committee of institute. Patients were selected via consecutive sampling technique on basis of explicit criteria to include all those women who reached at term pregnancy during this period. They were diagnosed with covid 19 infection and admitted for delivery. Positive cases were confirmed by Real-Time Reverse Transcription Polymerase Chain Reaction (rRT-PCR) of nasopharyngeal specimens for viral RNA. Twenty-three pregnant women at term were found positive for viral RNA, out of the 4995 total births during the study period, according to the hospital statistics, which were recorded on a daily basis from labour room and then compiled at the end of each month. Those pregnant women who were Covid -19 positive in initial trimesters but recovered before term or underwent preterm delivery were excluded from the study.

Data regarding their age, parity, gestational age, symptoms, and signs related to labor and Covid 19 virus, need for induction of labor, mode of delivery, indication for caesarean sections, neonatal birth weight, and NICU admission and stay was collected on structured proformas.

Enrolled pregnant women at or approaching term, with a positive RT-PCR test for COVID-19, with or without symptoms of cough, fever, sore throat, diarrhea, and shortness of breath; were admitted to a designated ward for pregnant COVID-19 patients, with all facilities for normal vaginal delivery and rapid access to caesarean section. COVID (rRT-PCR) of

nasopharyngeal specimens was advised for all suspected emergency cases and all women who came for admission and underwent either elective caesarean section or planned inductions. Cardiotocography and ultrasonography were used to ensure the foetal well-being of their fetuses. A multidisciplinary approach was employed in the management of these patients, with physicians, anaesthetists, neonatologists, and paramedical staff working in collaboration with the obstetrics team. They were monitored till discharge from the hospital and then followed up from home by telephonic conversation. Neonates were also followed up in the NICU till discharge.

Data was analyzed by the Statistical Package for the Social Sciences software, SPSS, version 20, and is presented in the form of mean values, frequencies, and percentages.

## Results

According to the hospital statistics there were total 4995 births during this period in the obstetrics department.

Covid (rRT-PCR) of nasopharyngeal specimens was advised to all suspected emergency cases, and all women who came for admission and underwent either elective cesarean section or planned inductions.

A total of 23 pregnant women at term were found positive for viral RNA by Real-Time Reverse Transcription Polymerase Chain Reaction (rRT-PCR) of nasopharyngeal specimens. While those with incomplete data and having symptoms of active infection but with no confirmatory diagnosis were excluded

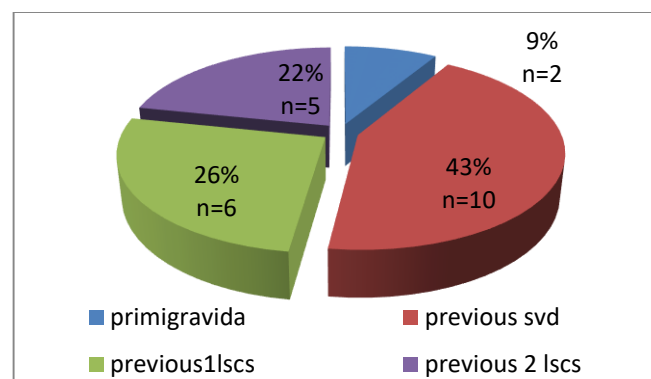
The range of maternal age was 20-35 years with mean of 28.26 years. All of them were term pregnancies, 82.61% (n=19) of them having gestational age between 37-40 weeks, while 17.39% (n=4) were postdate with gestational age between 40 weeks and 1 day to 42 weeks. There were 91.30% (n=21) multigravida ladies and 8.70% (n=2) primigravida. Among the 21 multigravidas, six women had a previous one cesarean section while five had previous two cesarean sections.

Covid -19 symptoms were present in 34.78% of the patients. Fever and cough each in 8.69% (n=2). Shortness of breath, sore throat, flu, and diarrhea were present in 4.3% (n=1) (Figure 2).

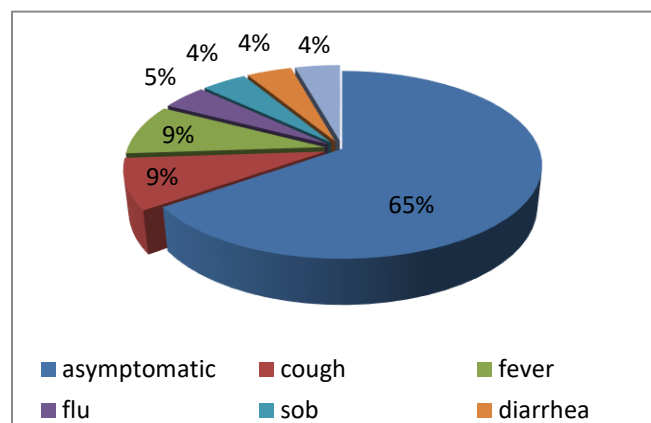
The main complaint in these pregnant women at term was labor pains, as ten of them presented with labor

pains. Prelabor rupture of membranes was present in four while vaginal bleeding in one of them.

Induction of labor was done with prostaglandin PGE 2 in three women. Indication of induction of labor was prelabor rupture of membrane in two women intrauterine fetal demise in postdate pregnancy in the third women. Two inductions turned out to be successful while one ended in cesarean section due to meconium staining of liquor.



**Figure 1: Obstetrics of pregnant women**



**Figure 2: Number of pregnant patients and the Covid-19 symptoms.**

Vaginal delivery was conducted in 39.13% (n=9) and cesarean sections done for 60.86% (n=14) pregnant ladies, half of them (n=7) were elective and half (n=7) were emergency cesarean sections (Table I).

Indications for emergency cesarean sections were previous two scars with labor pains (n=2), previous one scar with prelabor rupture of membranes (n=2), meconium staining of liquor (n=2), and antepartum haemorrhage (n=1). Elective cesarean sections were done in three women with previous two scars (n=3). Other four elective cesarean sections were done in women having previous one cesarean section as three of them were postdates and one was having short inter pregnancy interval. There was no postpartum

haemorrhage or any other morbidity. Fortunately, there was no maternal mortality due to Covid 19 during this period. All women were discharged healthy.

There was one intrauterine fetal death, three newborns were admitted in NICU for RDS management and discharged within one week of admission. Rest of the nineteen newborns had good APGAR score. Neonatal nasopharyngeal swabs were not taken and not tested for vertical transmissions. (Table I)

**Table I: Mode of Delivery in Pregnant Covid-19 positive Women**

Mode of Delivery	N (%)
Total Number of Patients	23(100)
Vaginal Deliveries	9 (39.13)
Cesarean Section	14 (60.86)
Elective Cesarean	7(30.43)
Previous two scars	3 (13.04)
Previous one scar postdates	3(13.04)
Previous one scar with short inter-pregnancy interval	1(4.34)
Emergency Cesarean	7(30.43)
Meconium stained liquor	2(8.69)
Previous two scars in labor	2(8.69)
Previous one scar with PROM	2(8.69)
Antepartum hemorrhage	1(4.34)
<b>Neonatal Outcome</b>	
Healthy babies	19(82.60)
Still Birth	1(4.34)
NICU Admissions for RDS	3(13.04)

## Discussion

As the global pandemic caused by SARS -CoV-2 has infected million individuals<sup>1</sup>, the increasing mortality rate warrants identification and protection of the vulnerable populations in society.

The physiological, anatomical, hormonal, and immunological changes during pregnancy make the mother more susceptible to severe infections

There were total of 23 pregnant women at term who were positive for viral RNA by Real-Time Reverse Transcription Polymerase Chain Reaction (rRT-PCR) of nasopharyngeal specimens.

The range of maternal age was 20-35 years with mean 28.26 years which is similar to mean age of pregnant

Covid -19 positive women in study conducted at Sir Ganga Ram hospital, Lahore.<sup>4</sup> A Wuhan based study also reported similar range of maternal age 29-35 years.<sup>12</sup>

Multigravidas were 21 (91.30%) and primigravida were 2(8.70%). This could be compared to the study conducted on pregnant COVID -19 positive women at Lahore, where there were 20% primigravida and 80% multigravida.<sup>4</sup>

The majority of women (n = 15) in our study were asymptomatic for COVID pneumonia symptoms. Covid -19 symptoms were present in 34.78% of women. 8.69% of people have fever and cough. Shortness of breath, sore throat, flu, and diarrhoea were present in one (4.3%) woman each. These results are similar to the study results of Chen et al and other studies in which the most common symptoms in this population were fever and cough followed by diarrhea, shortness of breath, and sore throat.<sup>13, 14</sup> No woman required ventilator support and no maternal death was reported in them as well as our research.

The main complaint in these pregnant women at term was labor pains, as 10 of them presented with labor pains. Prelabor rupture of membranes was present in 4 and vaginal bleeding in one of them, like the previous studies.<sup>13, 14</sup>

The possibility of vertical transmission from mother to child, and also an increased risk of neonatal infection in case of vaginal delivery is matter of debate. So, prolonged trials were avoided. But women having efficient progress of labor were encouraged for vaginal delivery, maternal and fetal monitoring was done by filling Labor Care Guide using intermittent fetal heart rate auscultation by using doppler or cardiotocography. There was no postpartum complications like hemorrhage or any other morbidity. Fortunately, there was no maternal mortality due to Covid 19 during this period. All women were discharged healthy. Schwartz's study on 38 COVID-19 positive pregnant women also reported no maternal death and no neonatal infection.<sup>15</sup>

There was one intrauterine fetal death in postdate pregnancy as that lady did not visit any health care facility during antenatal period, three newborns were admitted to NICU due to RDS All of them were managed and discharged within one week of admission, and others 19 newborns were having good APGAR score. This shows that the vaginal delivery did not increase the risk of morbidity in neonates.<sup>4</sup> Zhang



et al concluded in their study that neonates of infected mothers had good prognosis when followed up till 28 days after delivery.<sup>16</sup> The neonates in our study, though not followed up physically for whole neonatal period, but according to NICU discharge and telephonic follow up, also had similar favorable outcomes. Our study was, however, limited in that neonatal nasopharyngeal swab testing for neonates was not done to establish the evidence of vertical transmissions.

Although our study found that there were good maternal and neonatal outcomes, given the severity of the disease associated with SARS-CoV-2, screening of suspected cases arriving at the emergency room and all elective procedures should ideally be the protocol. These should be managed in separate well-equipped and designated ward in collaboration with a multidisciplinary team. A good comprehensive study should be conducted, and neonates must be checked for neonatal covid infection so it can help in a better understanding of the nature of the disease and will improve the obstetrician's decision in managing cases with Covid infection.

## Conclusion

Covid 19 infection in pregnant ladies did not produce any new symptoms as compared to non-pregnant ladies, thus not resulting in any significant maternal morbidity or mortality. Fetal morbidities and mortalities were also reported to be very low. Vertical transmission in the newborns could not be ruled out which needs to be studied further.

**ACKNOWLEDGMENT:** We, authors express gratitude to the dedicated team of obstetricians, physicians, haematologist, anaesthetist, neonatologist, staff nurses and other paramedical staff who worked in COVID obstetric, general wards and NICU during this pandemic.

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