

■ Case Report

## A successful model of personal protective equipment for the newborn against COVID-19 transmission

### *Yenidoğanda COVID-19 Bulaşını Önlemede Etkili Kişisel Koruyucu Ekipman Modeli*

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#### Abstract

Pregnancy is a period that requires a continual interaction of pregnant women with healthcare. According to the current data, 13.7% of pregnant women favour the SARS-CoV-2 virus without any symptoms. This data emphasizes the importance of personal preventive measures. This case reported the vaginal delivery of an asymptomatic pregnant woman reported as COVID19 positive soon after birth. The newborn tested following this contact, PCR resulted negative with our novel preventive measure: "a face shield for the newborn."

**Keywords:** Personal protective equipment; COVID-19; newborn; vaginal delivery; SARS-CoV-2; pregnancy

#### Öz

Hamilelik, hamile kadınların sağlık hizmeti ile sürekli etkileşimini gerektiren bir dönemdir. Mevcut verilere göre hamile kadınların %13,7'si SARS-CoV-2 virüsü taşımasına rağmen semptomsuzdur. Bu veri, kişisel önleyici tedbirlerin önemini vurgulamaktadır. Bu vaka sunumu, doğumdan hemen sonra COVID-19 pozitif olarak bildirilen asemptomatik hamile bir kadının vajinal doğumunu ve hastanemizde alınan önlemleri özetlemektedir. Testi pozitif annesi ile temas sonrası test edilen yenidoğanın, yeni önleyici tedbirimiz olan "yenidoğan için yüz siperi" ile bulaştan korunduğu gözlenmiştir.

**Anahtar Kelimeler:** Kişisel koruyucu ekipman; COVID-19; yenidoğan; vajinal doğum; SARS-CoV-2; gebelik

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## 1. Introduction

Pregnant women require continual interactions with healthcare providers. According to current data, 13.7% of pregnant women test positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) without exhibiting symptoms (1). Individuals with no symptoms can transmit the virus. Thus, transmission depends on the effectiveness of preventative measures (PMs).

Herein, we report our management of an asymptomatic pregnancy in a woman with COVID-19 who delivered vaginally and tested positive only after giving birth. Fortunately, our PMs were effective.

## 2. Case Report

A 19-year-old multiparous woman at 39 weeks of gestation was admitted to the University of Health Sciences, Etlik Zubeyde Hanım Women’s Health Training and Research Hospital, Department of Obstetrics and Gynecology, Ankara, Turkey with contractions in April 2020. On admission, she had a body temperature of 36.7°C, and she replied ‘no’ to all questions regarding disease symptoms (**Figure 1**); thus, her examination continued in the ‘green line’. Her vital signs were typical in range. The vaginal examination revealed a 5-cm dilatation and 50% effacement. During the admission procedures, she was asked about her medical history, during which she revealed that her father-in-law, whom she lived in the same house, was hospitalized with COVID-19. She was tested approximately two weeks prior. Meanwhile, she had no symptoms. Her test results were negative; however, she withheld this information on attendance because of her fear. Following this information, her obstetric care was continued in the ‘red line’.

	Yes	No
Have you had fever in the last 14 days?		
Do you cough?		
Do you have shortness of breath or difficulty in breathing?		
Have you been abroad in the last 14 days?		
Have any of your family members been abroad in the last 14 days?		
Have any of your family members been hospitalized for respiratory system diseases in the last 14 days?		
Have any of your close contacts been hospitalized due to COVID-19?		

**Figure 1.** Routine questions asked to any patient at hospital visits at entrance during pandemic, if any of these questions are replied as “yes”, the examination is performed in red line.

Her prepartum laboratory values were within normal ranges. The maternal throat swab for polymerase chain reaction (PCR) analysis was re-obtained since her incubation period was completed. She had an uneventful spontaneous vaginal birth. She was advised to feed her baby by milking until her PCR test results were confirmed, and a shield was placed on the newborn (**Figure 2**). During the postpartum period, all her vital signs were typical. Meanwhile, the PCR test results were positive.



**Figure 2.** The newborn worn a face shield.

The mother underwent chest X-ray imaging and computed tomography, revealing nonspecific findings. Her control test results were negative 3, 5, and 7 days after her delivery. The newborn had no symptoms; he was discharged from the hospital with his mother and continued feeding by milking as long as they tested negative. His throat swab PCR test was performed 14 days after birth, the results of which were negative. Neither the newborn nor the mother required any medications. Twenty days after encountering this case, our healthcare team, including the doctors, nurses, and medical secretaries, underwent COVID-19 screening tests as part of routine check-ups, with all negative results.

## 3. Discussion

This was a case of COVID-19 in a pregnant woman who concealed her contact and thus misdirected the medical staff. Due to PMs, no contamination occurred among the healthcare workers and other mothers/newborns.

Considering that COVID-19 is often asymptomatic (1), the approach to these cases becomes even more critical to decrease transmission. The clinical manifestations and laboratory tests in



asymptomatic patients are often vague; even PCR analysis results can be negative in the incubation period, as in our case. For a newborn with a mother with COVID-19 infection, one of the significant problems in disease prevention is choking the hazard risk of facemasks. This case demonstrated our design of a face shield for the newborn without this risk (**Figure 2**). Although this is only one case, PMs appeared to be effective in protection.

To minimize transmission during the pandemic, on admission to the hospital, patients undergo body temperature checks. They are asked to report COVID-19 symptoms (**Figure 1**) by staff wearing personal protective equipment, including a working suit, surgical overall gown, surgical mask, glasses or shield, and gloves. Furthermore, each patient is examined individually (2). They are allocated appointment times from the central office by telephone or online, so only a few patients are waiting for an examination at any given time.

If a patient responds 'yes' to having a fever or any symptoms (**Figure 1**), the patient is accepted in the 'red line'; she then enters from a different gate and receives the required obstetric care in that area. This new area was solely constructed for patients with COVID-19 to minimize contamination. In this area, patients are cared for in single-person rooms, and if required, the 'red line' has its surgery rooms. In the 'red line', a working suit, surgical overalls, a double-layered surgical gown, an FF2 mask, a surgical mask, glasses, a shield, and boots are worn as PMs (2).

Clinical guidance from the Royal College of Obstetricians and Gynecologists and American College of Obstetricians and Gynecologists emphasizes that in suspected or confirmed COVID-19 cases, maternal preferences and maternal and fetal indications should be considered while deciding on the delivery mode (3, 4). Although vaginal secretions are tested and reported negative for SARS-CoV-2 (3), a tendency towards cesarean delivery is observed in practice. Our case also revealed that vaginal delivery does not result in virus transmission to the newborn.

#### 4. Conclusion

COVID-19 non-transmission may be due to sheer fortune or a patient's viral load. The management, in this case, maybe one of the best implementations in the absence of more robust data.

#### Declaration of Interest

The authors declare no conflict of interest.

Acknowledgment: Informed consent was obtained from the parents for the usage of the baby's photo.

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