

Is There A Covid-19 Transmission With Percutaneous Needle Prick? A Case Report

Perkütan iğne batması ile covid-19 bulaşı olur mu? Bir vaka raporu

Murat Duyan¹, Serhat Gunlu², Ali Saridas³, Resmiye Nur Okudan Kildan⁴

¹ Department of Emergency Medicine, Antalya Training and Research Hospital, Antalya, Turkey

² Department of Cardiology, Dağkapı State Hospital, Diyarbakır, Turkey

³ Department of Emergency Medicine, Prof. Dr. Cemil Taşçıoğlu City Hospital, Istanbul, Turkey

⁴ Department of Emergency Medicine, Gebze Fatih State Hospital, Kocaeli, Turkey

ABSTRACT

While a 34-year-old male healthcare worker was working in the clinic ward where patients infected with COVID-19 were hospitalized, the needle of the syringe through which blood was taken from the patient accidentally pierced the left-hand 2nd finger into the volar surface of the distal phalanx. The patient for whom the syringe was used was a 54-year-old female patient who had been treated in the hospital for 3 days due to COVID-19 pneumonia. The health worker was followed for 4 weeks. No symptoms or signs of disease suggestive of COVID-19 infection were detected. Healthcare worker were vaccinated with 2 doses of BNT162b2 (Pfizer-BioNTech) vaccine with 42 days between 2 doses. His last vaccination was 1 month before the needle stick injury ago. Even if the risk of transmission is considered, the fact that the patient had two doses of the BNT162b2 vaccine may have protected him. Theoretically, although there seems to be a risk of transmission of coronavirus through blood, it has not been proven yet. The risk of transmission is almost non-existent when we compare the infection that will occur by the needle stick injury in patients infected with the virus, through the respiratory route, where the risk of transmission is high. A large-scale study is required on this subject.

Key words: SARS-CoV-2, COVID-19, percutaneous needle stick injury, transmission of infection, work accident, occupational health

ÖZET

34 yaşında erkek sağlık çalışanı, COVID-19 ile enfekte hastaların yattığı klinikte çalışırken, hastadan kan alınan şırınganın iğnesi yanlışlıkla sol elin 2. Parmağının distal falanksın volar yüzeyine kazara saplandı. Şırınganın kullanıldığı hasta 54 yaşında COVID-19 pnömonisi nedeniyle hastanede 3 gündür tedavi alan kadın hastaydı. Sağlık çalışanı 4 hafta boyunca takip edildi. COVID-19 enfeksiyonunu düşündüren hiçbir semptom veya bulgu tespit edilmedi. Sağlık çalışanı 2 doz BNT162b2 (Pfizer-BioNTech) aşısı ile 2 doz arası 42 gün olmak üzere aşılanmıştır. Son aşısı, iğne batması yaralanmasından 1 ay önceydi. Perkütan iğne batması sonucu yaralanma nedeniyle virüs bulaşma riski yok denecek kadar azdır veya yoktur. Bulaşma riski düşünülse dahi hastanın iki doz BNT162b2 aşısı olması kendisini korumuş olabilir. Teorik olarak koronavirüsün kan yoluyla bulaşma riski var gibi görünse de henüz kanıtlanamamıştır. Virüs bulaşmış hastalarda, bulaş riskinin yüksek olduğu solunum yolu ile perkütan iğne batması sonucu yaralanma karşılaştırıldığında, enfeksiyonun bulaşma riski yok denecek kadar azdır. Bu konuda geniş çaplı çalışma yapılması gerekir.

Anahtar Kelimeler: SARS-CoV-2, COVID-19, perkütan iğne batması, enfeksiyon bulaşması, iş kazası, iş sağlığı

INTRODUCTION

SARS-CoV-2 (COVID-19), respiratory droplets are the main route of transmission but the infection can also be transmitted via contact with an infected person or anyone via clothing and body fluids (1,2). Therefore, healthcare workers should wear personal protective equipment when caring for patients infected with COVID-19 (3). The ongoing pandemic continues to

place a serious burden on healthcare workers. Health care workers working under intense pace may be exposed to some work accidents such as percutaneous needle prick while caring for patients infected with COVID-19. This raised concern about whether COVID-19 will be transmitted as a result of the percutaneous needle prick. With percutaneous needle prick, hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV

Corresponding author: Murat Duyan, Department of Emergency Medicine, Antalya Training and Research Hospital, Antalya, Turkey

E-mail: drmuratduyan@gmail.com

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Authors: Murat Duyan (ORCID: 0000-0002-6420-3259), Serhat Gunlu (ORCID: 0000-0003-4346-0085), Ali Saridas (ORCID: 0000-0002-2725-6001), Resmiye Nur Okudan Kildan (ORCID: 0000-0003-4187-7928)

(Human Immunodeficiency Virus) can cause blood-borne diseases (4). However, the information about the transmissibility of COVID-19 after percutaneous needle stick injury is not clear.

In this case report, we will share the clinical course of a healthcare worker who accidentally had a needle stick injury with the needle he used in a COVID-19 infected patient.

CASE REPORT

While a 34-year-old male healthcare worker was working in the clinic ward where patients infected with COVID-19 were hospitalized, the needle of the syringe through which blood was taken from the patient accidentally pierced the left-hand 2nd finger into the volar surface of the distal phalanx. Immediately afterward, he washed the finger with soap and plenty of water.

The patient, for whom the syringe was used, was admitted to the hospital again 2 days after the diagnosis of Covid-19 due to shortness of breath. Frosted glass images are detected on thorax computed tomography. In his vital signs, oxygen saturation was measured as 87% (on room air), temperature 38.2 °C, pulse 105 per minute, respiratory rate 20 per minute, blood pressure 120/75 mmHg. She was admitted to the pandemic clinic. As a treatment, favipiravir, enoxaparin sodium, methylprednisolone, levofloxacin, 0.9% NaCl isotonic, and oxygen support were given. On the third day of the treatment, the healthcare worker had a needle prick injury, accidentally.

Healthcare worker vaccinated with 2 doses of BNT162b2 Vaccine with 42 days between 2 doses. His last vaccination was 1 month before the needle stick injury. Blood tests were run after the incident and no pathological results were detected regarding HBV surface antigen (HbsAg) and antibody (by measuring anti-HBs), HCV (measurement of HCV antibody), and

HIV (by measuring HIV antibodies by ELISA test and confirmed by Western Blot test) in the patient and healthcare worker. Following the percutaneous needle prick, the healthcare worker did not develop any symptoms suggestive of COVID-19 transmission for the following 4 weeks.

DISCUSSION

The COVID-19 pandemic creates a serious workload on healthcare workers. It can cause some accidents due to increased workload. Percutaneous needle sticks are a common but preventable occupational hazard among healthcare workers. There is a risk of contagion with HIV-1, HBV, HCV infection, and other transfusion-transmitted infections after percutaneous needle prick injury (4).

However, there is no clear information about the transmissibility of COVID-19 after percutaneous needle prick injury. In current literature, a case report stated that apheresis platelet transfusion which was unknowingly taken from SARS-CoV-2 infected donor was given to a patient with aplastic anemia and the incident resulted without any COVID-19 infection in the recipient. The platelet donor was later found to be infected with COVID-19. No transfusion-related COVID-19 infection was detected in this case report(5).

Similarly, according to the data of the US Food and Drug Administration, there has been no case of transfusion-transmitted infection of COVID-19 (6). The absence of any symptoms suggestive of infection with COVID-19 in our case supports that COVID-19 was not transmitted after percutaneous needle prick injury.

In addition, some studies reported intermittent viremia in the blood while infected with COVID-19 (7). In our case, needle stick injury may have coincided with the time when there is low viral load in the patient and therefore, it may not be resulted with SARS-CoV-2 infection in the health care worker.

After two doses of the BNT162b2 vaccine, the rate of getting COVID-19 disease decreases and even if it has been caught, The course of the infection is expected to be mild or asymptomatic (7,8). The fact that our patient received two doses of the BNT162b2 vaccine may have created a protective effect. This is because of the effectiveness of vaccines against COVID-19 has been confirmed by studies (7,8).

One of the possible reasons why our patient did not have any symptoms suggesting the presence of infection with COVID-19 is that there is no transmission or it may be due to the protection of the vaccines even if there had been a transmission.

CONCLUSION

Although theoretically there seems to be a risk of transmission of COVID-19 infection through blood, this is still not proven data. There is a low or absent risk of transmission with a needle stick injury to the finger compared to respiratory route in which the risk of transmission is high. The exact risk of blood-borne transmission needs to be studied with large-scale studies.

Informed Consent: The patient gave her informed consent to the anonymous publication of data for scientific purposes.

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