

CASE REPORT

Persistent COVID-19 negative report of a physician in Bangladesh living and visiting in Red-listed country with some special precaution followed

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Abstract

COVID-19 infections have been widespread in Bangladesh subsequently. We present the example of a 32-year-old Bangladeshi physician who worked in a hospital and was previously involved in collecting swabs for COVID-19 patients. During the pandemic, he also traveled to a red-listed country and was continuously negative throughout the period.

KEYWORDS

Bangladesh, COVID-19, nasopharyngeal swab, SARS-CoV-2, screening

1 | INTRODUCTION

A COVID-19 fatal infection crisis, driven by the new coronavirus SARS-CoV-2, has presented a grave threat worldwide. Bangladesh has also been affected by this viral infection.¹ The World Health Organization labeled it a pandemic based on its parabolic spread in 213 nations.² The disease is spread mainly through direct contact with infected patients' airborne droplets.³ Rapid recognition and accurate diagnosis have become critical to minimize the spread of disease. Several samples, such as nasopharyngeal or oropharyngeal swabs, nasopharyngeal or oropharyngeal aspirates or washes, bronchoalveolar lavage, phlegm, tracheal swab, and blood, are collected from potential

SARS-CoV-2 patients. The microbiological diagnosis is confirmed using the polymerase chain reaction (PCR).⁴ SARS-CoV-2 RNA virus load in the upper airways was considerably higher throughout the first week and culminated in 4–6 days following onset of symptoms when it could be sampled. In COVID-19 individuals, the sensitivity of nasopharyngeal scrapes was higher than that of oropharyngeal sweeps.⁵ However, even though the research on COVID-19 is inconclusive, lower respiratory tract tissues include the highest viral loads in individuals with the severe acute respiratory syndrome (SARS) and Middle East respiratory disease (MERS).^{6,7} Nucleic acid screening for severe acute respiratory syndrome coronavirus 2 had also detected benign patients with coronavirus infection (SARS-CoV-2).⁸

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In this case report, we have presented a case of a persistent COVID-19 negative report of a physician in Bangladesh living and visiting in red-listed country.

2 | CASE REPORT

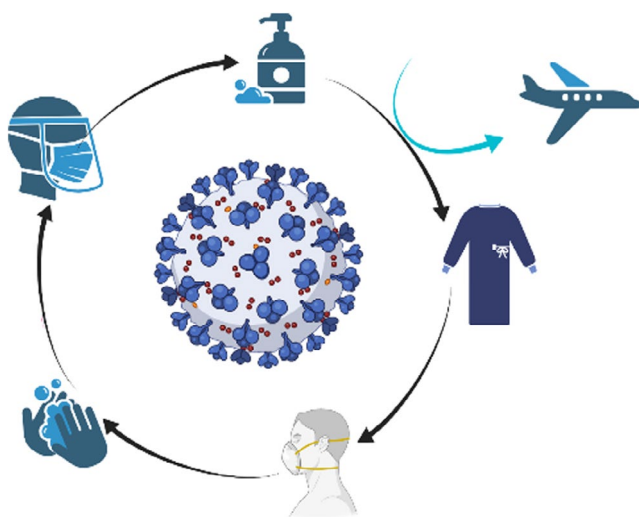
A 32-year-old Muslim male physician with no substantial co-morbidities in his past. He worked as a doctor and resided in Dhaka, Bangladesh. In Bangladesh, the first instance, COVID-19, was discovered on March 8, 2020. The government proclaimed "lockdown" across the country during this time, beginning March 23, 2020. He participated in nasopharyngeal swab PCR for SARS-CoV-2 collection from patients in the hospital three months later, on June 28, 2020. He had a nasopharyngeal swab PCR for SARS-CoV-2 before being collected, and the results were negative. Before collecting the sample, he always takes aseptic precautions such as wearing PPI and drafting, medical masks, gloves, headgear, work clothing, using an ethanol-based hand sanitizer, and washing his hands with soap more than 20 times a day (Figure 1). After completing the whole collection, he went back to the nasopharyngeal swab PCR for SARS-CoV-2 on August 11, 2020, which came out negative. In total, 36 people tested positive for SARS-CoV-2 throughout this collecting period. In the hospital, he had come into contact with COVID-19 cases. He had no experience of any illnesses like fever or other flu-like symptoms when he was collecting the sample. On September 24, 2020, his older brother was diagnosed with COVID-19 due to both PCR and HRCT involvement with whom he lives. In this period, he always looks after his brother. He went to the hospital and other workplaces with always a surgical mask and KN95. He always takes

a shower after returning from outside activities, and he washes his everyday clothes after each visit from outside. According to a WHO report released on December 27, 2020, Bangladesh has 509,148 confirmed cases and 7,452 deaths. He then supplied a COVID-19 sample for traveling to India on January 28, 2021, which was similarly negative the next day. According to a WHO report dated January 25, 2020, India had 10,667,736 confirmed cases and 1,53,470 total deaths. On January 31, 2021, he returned to Bangladesh with a negative COVID-19 report. On March 10, 2021, he took another COVID-19 test in preparation for a trip for family reasons, which came back negative the next day. According to a WHO report dated March 8, 2021, Bangladesh had 550,330 illnesses and 8,462 deaths. According to a WHO report dated March 10, 2021, India has 11,244,786 confirmed cases and 157,930 total deaths. The COVID-19 test for repatriation to Bangladesh was negative on March 17, 2021. Since April 20, 2021, Bangladesh has been on UK's and other countries' no-fly list. For entering India from Bangladesh on April 17, 2021, August 30, 2021, October 9, 2021, October 28, 2021, and October 30, 2021, he had to undergo a nasopharyngeal swab PCR for SARS-CoV-2. He had to also again repeat the nasopharyngeal swab PCR for SARS-CoV-2 on April 22, 2021, September 4, 2021, and November 5, 2021, to return to Bangladesh from India. His total of nine sample tests all came back negative. During his stay in India, he constantly wears a double mask and keeps his hands sanitized. He also avoids crowds and prefers to go by private car whenever possible. Some routine blood tests were performed in this period, including a complete blood count, CRP, thyroid test, and viral marker for hepatitis and HIV, with typical results. (Table 1). During this time, his relative was diagnosed with COVID-19 on June 24, 2021, and was later hospitalized. During this time, he regularly visited the hospital and interacted with other COVID-19 patients, as it was a COVID-19-specific hospital. He had no symptoms of COVID-19 throughout his entire travel experience. During this timeframe, he also had no additional medication history. He administered the first dose of Moderna COVID-19 Vaccine on July 19, 2021, and completed the second on August 18, 2021.

From the commencement of COVID-19 in 2020 until November 2021, he took 14 COVID-19 tests and was always negative, despite being in close proximity to COVID-19 positive cases and visiting one of the topmost cases identified and mortality countries in the world, Asia.

3 | DISCUSSION

We reported on a clinician in Bangladesh who had a persistent COVID-19 negative report while living close to



Some special precautions for COVID-19

FIGURE 1 Precautions for COVID-19

known COVID-19 cases and visiting one of the countries with the highest death rates. The most prevalent method for severe acute respiratory syndrome–coronavirus-2 (SARS-CoV-2) test is based on reverse transcriptase-polymerase chain reaction (RT-PCR) for the presence of viral RNA. The virus extraction or positive response of polymerase chain reaction (PCR) from phlegm, nasal sample, or throat swab is used to provide a precise diagnosis of coronavirus disease 2019 (COVID-19).⁹ Because the consequences of swab testing are affected by a variety of factors, along with the period of swab acquisition after the onset of symptoms, the location of the specimen, the shipping of the swab, and the procedures used in swab collection, physicians should not rule out COVID-19 in a widely speculated patient who has traveled to an epidemic zone.¹⁰ Thorough viral screening for SARS-CoV-2

infections could help ensure safe aircraft flight during the COVID-19 pandemic and slow the virus's wide adoption. Unfortunately, the efficiency of these test-and-travel procedures in reducing traveler risk of SARS-CoV-2 transmission of the disease at the community level is uncertain.¹¹ Proven test-and-travel methods for SARS-CoV-2 infection, including periodic viral diagnostics surrounding airline travel, can lower passenger chance of infection and population-level SARS-CoV-2 transmission risk when traveling. The clinician performed 13 COVID-19 tests (Figure 2) to detect virus infection while traveling across nations. A negative RT-PCR nasopharyngeal swab test does not rule out COVID-19. As a result, putting too much faith in test results could be harmful, and the demand for widespread testing could be exaggerated.

Furthermore, avoiding attempts to test the many numbers, if not millions, of mild COVID-19 instances could save a significant quantity of personal protective equipment. Barrier protection and preemptive behavior, such as acquiring travel or having vaccinated before traveling overseas, is influenced by personal healthcare and well-being perspectives.^{12,13} Masking, social dispersion, hand-washing, cleansing of commonly handled items, better ventilation, self-isolation, and confinement are among the non-pharmaceutical measures advised to minimize SARS-CoV-2 transfer. Vaccines are the most effective way to avoid the SARS-CoV-2 outbreak. Numerous vaccinations are being developed in many countries using various approaches. The cornerstone of attempts to control the propagation of SARS-CoV-2 has been preventing transmission of the virus and, more recently, immunization against the virus.¹⁴ The percentage of false-negative SARS-CoV-2

TABLE 1 Laboratory parameters of the cases

Investigation	01-02-2021
HB%	14.6 g/dL
Total Leucocyte count	8.3 x 10 ⁹ /L
Lymphocytes	26%
Neutrophil	69%
Platelet count	259 x 10 ⁹ /L
T3	0.627 uIU/ml
T4	1.03 ng/dl
Hepatitis C antibody	Non-reactive
HBsAg	Non-reactive
HIV 4th Gen Assay	Non-reactive
VDRL	Non-reactive

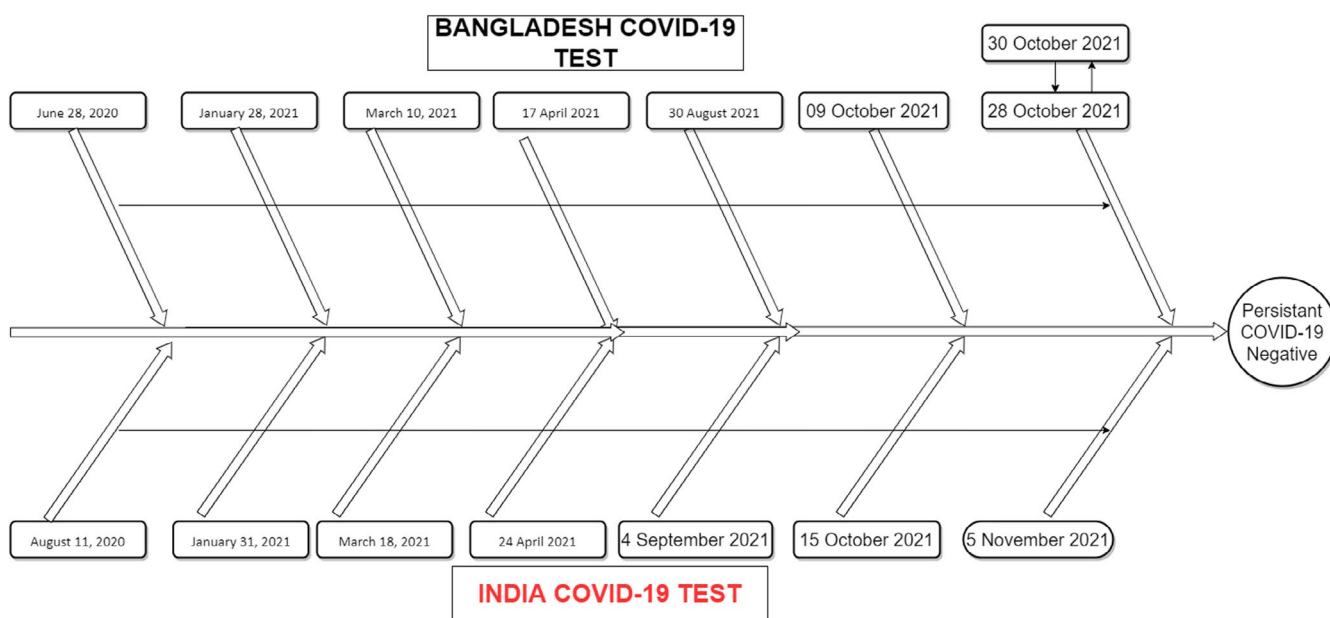


FIGURE 2 Whole COVID-19 test sequence

results from patient respiratory samples varies between 1 and 30%.¹⁵ There is no screening test that offers 100% sensitivity and specificity. Despite the fact that the RT-PCR test seems to have become the best model for detecting the SARS-CoV-2 virus, false-negative incidences have been observed. These false-negative results can occur for a variety of causes, including detecting either early or too late in the virus's pathogenic process, inefficient or defective sample collecting techniques, incorrect specimen aspects, low analytic sensitivity, low viral load, or viral shedding mutability. These false-negative findings could have major ramifications, opening the path for positive case aggregations to lead to adverse outcomes and increased transmission rates throughout the population. Because false-negative RT-PCR results in cases of COVID-19 are not rare, researchers advocate collecting upper respiratory tract samples in the acute stage and lower respiratory samples or stool samples in the non-acute period.¹⁶ Doctors in India intensively examined the second wave and stated that bronchoalveolar lavage done on RT-PCR negative patients with COVID-19 symptoms produced COVID-19 positive results. According to a doctor quoted in the same source, 15 to 20% of COVID-19 patients comes with the aforementioned issue, which is posing a problem for doctors.¹⁷ In another study, a scientist said that alterations in the SARS-CoV-2 virus may have enabled it to evade RT-PCR testing and that the reagents must be re-configured immediately.¹⁸

Last year, the development of the alpha, beta, and delta SARS-CoV-2 Variants of Concern (VOCs) was linked to new waves of illnesses. However, now the omicron new variant has been linked to the highest transmissibility of all the variants. The primary worries concerning omicron are whether it is more contagious or harmful than other VOCs and bypass vaccine immunity. Although clear immunological and medical proof is not yet ready, we can generalize from what we know about omicron mutations and provide preliminary suggestions on disease transmission, intensity, and immune evasion. Omicron's effect on transmissibility is a source of worry. Although omicron is expected to be highly transmissible, it is unclear whether it is more highly infectious than delta. However, preliminary evidence suggests multiplying against a background of continued delta-variant dissemination and high natural protection to the delta variation.¹⁹ In our case report, the subject tested for screening up to delta variants during the COVID-19 test; however, the omicron variant was not identified. Because the transmission rate of the omicron form is higher than that of the other variants, the presence of a persistent COVID-19 negative test should be cause for concern throughout all aseptic precautions. rRT-PCR approaches identify just 2–3 of these genes, although they have the advantage of being quick to diagnose. Given the

frequency of mutations in SARS-CoV-2, the risk of false negatives in identifying COVID-19 may be a drawback of rRT-PCR-based approaches. It may be beneficial to utilize two or more rRT-PCR diagnostic kits that measure specific viral genes simultaneously to address this limitation. Recent research from China showed that rRT-PCR tests for COVID-19 resulted in over 50% false-negative instances. However, given the precision of rRT-PCR, these excessive false-negative results can be attributed to issues with the Ct cut-off level, gene selections, swab accuracy, and the use of chemicals generated earlier in the COVID-19 outbreak and had not been thoroughly tested.²⁰

Furthermore, epidemiology, the background of exposure, and clinical signs such as fever or pulmonary disease should all be examined when establishing COVID-19. As a result, combining serum IgM/IgG antibody identification, nucleic acid testing, CT scan, and clinical characteristics increases COVID-19 accuracy rate. By falsely claiming that an infected individual does not have a disease, a false-negative test puts society in danger. As a result, this individual may spread infection throughout the population. False negatives in group testing are far more dangerous than in solo testing. Interestingly, existing healthcare strategies help (mask use, isolation, avoidance of confined rooms, outside preference, and hand cleanliness) that have been helpful previously should also be beneficial against the omicron and NeoCoV coronavirus variety. In South Africa, a team of Wuhan researchers discovered NeoCov, a new type of coronavirus. According to the findings of a study, the virus could represent a hazard to people in the long run.²¹ Vaccination combined with public health interventions is predicted to remain a successful method against old and novel variants. COVID-19.

4 | CONCLUSION

In summary, medical professionals are at considerable risk of contracting in the COVID-19 outbreak, affecting the entire world, due to its direct interaction with COVID-19 patients. In individuals diagnosed with substantial traveling or contact, COVID-19 cannot be counted out even if there are no pulmonary complaints. A lower respiratory specimen should be taken with proper precautions for patients with suspected is significant. A negative PCR test on upper respiratory samples may not be enough to establish COVID-19. Asymptomatic travelers would benefit from routine test-and-travel techniques, which would lower the chance of disease from traveling during the pandemic. There has been published evidence that the tendency of PCR testing targeting the spike gene is growing in tandem with the rise in Omicron infections. To stop the Omicron variation from spreading, it is also vital to

improve diagnostic performance to quickly isolate and treat diagnosed cases.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

AUTHOR CONTRIBUTIONS

MAA and SN wrote the article's first draft and contributed to the literature review and manuscript preparation. All authors contributed to the final version by critically reviewing and editing drafts.

ETHICS APPROVAL

The article is about a case study. As a result, our Ethics Committee's consent was not required.

CONSENT

The patient's written informed consent for publishing this case report, as well as images, was acquired.

DATA AVAILABILITY STATEMENT

Data can be shared based on the reader's reasonable request and priority base and some restrictions will apply.

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