

Case report:

An asymptomatic case report with Prolonged Viral Clearance: an issue to ponder COVID-19 control and containment

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Abstract

A 58-year-old man was tested positive for COVID-19 with mild clinical symptoms. Although symptoms resolved within 2 days, the patient was tested positive again on day 29 post-illness after a negative test. It took more than 40 days to become a negative carrier of SARS-CoV-2. Such asymptomatic cases raise questions on the recommended isolation period. If not contained, these asymptomatic carriers could create challenges for disease control by allowing infection back to the community. A lengthened isolation of patients with COVID-19 for 6 weeks post-illness could be a safeguard for the community.

Keywords: COVID-19; SARS-CoV-2; rRT-PCR; asymptomatic carriers, Bangladesh

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Introduction

Coronavirus disease 2019 (COVID-19) caused by the novel coronavirus (SARS-CoV-2) has posed a medical emergency and a global crisis rapidly after reported first in Dec 2019, resulting in the declaration of a pandemic by the World Health Organization (WHO) on Mar 11, 2020. In Bangladesh, the case fatality rate stands at 1.37% as of 5th September 2020 with 321,615 cases identified placing it 14th among the top infected countries¹. Here, we describe an asymptomatic case in the current context of incidence in Bangladesh.

Case Description

A 58-year-old man without any significant clinical complains or co-morbidities stayed in a 10-day long religious gathering. On the first night of the assemblage (Figure 1), he developed fever, measured 38.5°C that continued for the next 2 days only, followed by remission to normalcy without any

complication. When he learnt one of his companions tested positive for SARS-CoV-2 infection, he checked for himself at the Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka on day 12 after the onset of symptoms. The SARS-CoV-2 real-time reverse transcriptase polymerase chain reaction (rRT-PCR) test was performed on patients' nasal swab using Sansure Biotech Novel Coronavirus (2019-nCoV) Nucleic Acid Diagnostic Kit following the manufacturer's protocol. The test yielded a positive result with a high viral load, thereafter he was kept isolated. The patient did not develop any other symptoms associated with COVID-19 during the isolation period. On day 22, a second COVID-19 test produced him a negative result. Considering recovered, the patient was out of isolation. To mention, none of his family members developed any symptoms of COVID-19, therefore moved around freely outside the home. However, when he experienced a low blood pressure continued

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for some days, a third SARS-CoV-2 test, conducted at day 29 produced a positive test result. After about a further 2-week quarantine stay, he was declared a negative carrier by clinicians following appearance of a negative COVID test. The data reported here was made publicly available, and proper written consent was secured from the index patient for its use in this study.

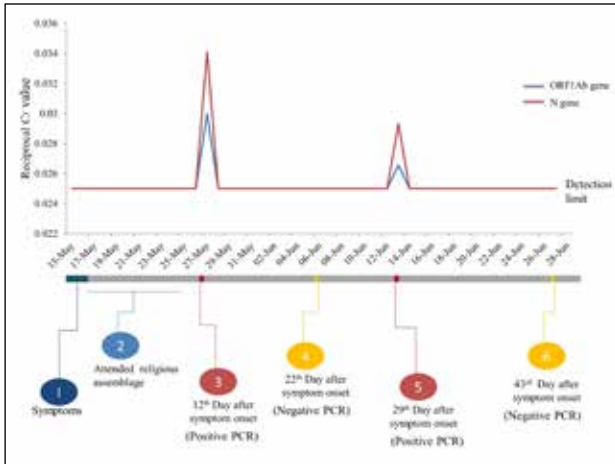


Figure 1: Timeline of disease incubation period showing reciprocal C_T values (to show intensity of viral loads) of ORF1Ab and N genes, (C_T estimated 33.35 and 29.33 at day-12 and 37.66 and 34.13 at day-29 respectively) as per rRT-PCR test of the index patient.

Discussion

The absence of an approved medical treatment and vaccine has plagued the COVID-19 disease control and prevention at bay. Initially termed as novel coronavirus (2019-nCoV), the disease indeed is creating novel cases. In this case, the index patient appears to have a direct contact with COVID-19 positive individual. He showed the disease symptoms at the very early stage of incubation period, similar to cases reported by Luers *et al.*². In another study, SARS-CoV-2 has been reported to infect others with the minimal exposure, two hours for example, indicating a high contagious rate of almost 40%³.

The first positive RT-PCR test result yielded higher viral RNA loads. Although the median age of susceptible population to the disease severity is at around 47 years⁴, the clinical course and presentation of this 58-year old index patient was mild. Such difference in severity rates could be attributed to genetic variations in SARS-CoV-2 virus particles⁵.

While the day-22 test produced a negative result, the day-29 detection turned positive again with a poor viral load (Figure 1). Occasionally, C_T values <37 for the mentioned genes are considered positive for COVID-19 test while >40 refers to negative. Values in between 37 and 40 refer to weakly positive^{6,7}. The appearance of positive result after a negative result in RT-PCR test was found evident in 21.4% cases, which may be linked to the false-negative results rather than recurrence⁸. On the other hand, a previous study showed similar findings like our study where dynamic changes of C_T values, and therefore in viral load was evident in patient's throat swab⁷. Hu *et al.* reported that the longest period, the asymptomatic patients might take to become negative carriers of viral nucleic acid was up to 21 days⁶, as opposed to more than 40 days, seen in our index patient. Having said that, a prolonged viral clearance period was observed for a number of COVID-19 patients⁹, and this could be 2-4 weeks after resolution of symptoms, as evidenced in respiratory secretions¹⁰. Such incidence of asymptomatic cases with SARS-CoV-2 is more alarming as they are the potential reservoir of the virus. Difficulties in screening for asymptomatic patients make it harder to contain this pandemic. Reports claim that asymptomatic COVID-19 patients are not only as infectious as symptomatic ones but also bear similar viral load¹⁰. Supporting the evidence Chen Yi, *et al.* confirmed that there is no statistically significant difference between the infection rates caused by symptomatic and asymptomatic patients¹¹. Our index patient could therefore be proclaimed to experience prolonged viral clearance during his asymptomatic state, who could be as good as symptomatic patients in potential transmission of the virus if not quarantined¹². Hence, it can be assumed that the close contacts of the patients might also be infected similar to the case of a 53-year-old asymptomatic UK patient who was responsible for around 11 more infections¹³. As identifying asymptomatic COVID-19 patients is hard due to the hidden clinical symptoms, it would be difficult to contain the transmission of SARS-CoV-2. Some reports recommend for repeated nucleic acid detection in persons who have contacted COVID-19 patients¹⁴. But in a developing country like Bangladesh, where COVID-19 testing process has

already been criticized for charging people¹⁵, redoing viral nucleic acid detection for several times would not be welcoming. Therefore, this study recommends lengthening the isolation period of patients with COVID-19 for up to 6 weeks since onset of illness.

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Declaration of conflicting interests

The Author(s) declare(s) that there is no conflict of interest.

Ethical Clearance

Not applicable.

Authors's contribution

Data gathering: AS

Idea owner of this study: SS, AS

Study design: SS, MMK

Writing and submitting manuscript: SS, MMK

Editing and approval of final draft: SNK, MMK

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