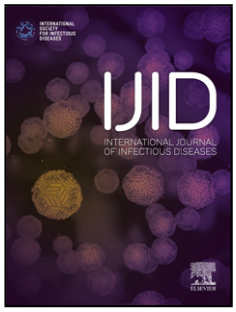

The enlightenment from two cases of asymptomatic infection with SARS-CoV-2: is it safe after 14 days of isolation?

Zhi-Qun Mao, Ren Wan, Li-Yi He, Yue-Chun Hu, Wei Chen

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The enlightenment from two cases of asymptomatic infection with SARS-CoV-2: is it safe after 14 days of isolation?

Author list:

Zhi-Qun Mao, MD, Department of Radiology, Hunan Provincial People's Hospital(the First Affiliate Hospital of Hunan Normal University), Changsha 410005, Hunan Province,China

The Corresponding author: Ren Wan, MM, Department of Radiology,Hunan Provincial People's Hospital(the First Affiliate Hospital of Hunan Normal University), No.61 JieFangXi Road, Changsha 410005, Hunan Province,China. wanrenradiology@163.com

Telephone:+86-731-83929025

Fax:+86-731-82278012

Li-Yi He, MM, Department of Radiology,Hunan Provincial People's Hospital(the First Affiliate Hospital of Hunan Normal University), Changsha 410005,Hunan Province,China

Yue-Chun Hu, MM, Department of Radiology,The center hospital of Loudi city, Loudi 417000, Hunan Province,China

Wei-Chen, MM, The Academician workstation of Loudi Central Hospital, Loudi 417000,Hunan Province,China

Highlights

1. There may be virus carriers in asymptomatic population.

2. After 14 days of isolation, asymptomatic infection may still carry the virus.

3. Asymptomatic infection present a new challenge to home isolation.

[Abstract] From 78 laboratory-confirmed cases, we found 2 asymptomatic infections. One patient was discharged within 14 days after treatment. Another patient was discharged 25 days after treatment, and his TR-PCR test was still positive on the 15th day. We found that there may be virus carriers in asymptomatic population with epidemiological contact history. After 14 days of isolation, asymptomatic infection may still carry the virus, which means the risk of transmission and present a new challenge to home isolation.

Keywords: novel coronavirus (SARS-CoV-2); Asymptomatic infection; home isolation

The outbreak and spread of novel coronavirus (SARS-CoV-2) that began in Wuhan, China, has attracted worldwide attention[1、2、3]. As of 24:00 on February 24, 2020, a total of 77658 confirmed cases have been reported in China, and 641742 cases of close contacts were tracked, including 87902 cases under medical observation. Most close contacts are still subject to home isolation, especially in Wuhan, the center of the epidemic. Isolation at home is mainly suitable for people who are healthy in the past, have no history of basic diseases and have no symptoms or mild symptoms at present[4]. Considering the incubation period of SARS-CoV-2, it is recommended to home isolation for 14 days. Are those who do not experience symptoms during 14 days of isolation period necessarily safe? Of the 78 laboratory-confirmed patients collected from multiple centers, We found two asymptomatic infections.

Case1: On January 22, 2020, a 36-year-old radiology technician performed chest CT scan on a patient who returned from Wuhan. A day later, the patient was diagnosed with Covid-19. All the health workers who had in contact with the patient were tested for real time reverse-transcription-polymerase-chain-reaction(RT-PCR), and the 36-years-old radiology technician was positive. He was immediately isolated on February 7. He stated that he had no symptoms, and his chest CT was negative on admission. Laboratory evaluation showed a myoglobin level of 86.7ng/ml(reference range,0-70), an alanine aminotransferase level of 55U/L(reference range,0-50), a uric acid level of 459 umol/L(reference range,150-428). During the period of isolation, he had twice chest radiographs, both of which were negative. Kaletra (Lopinavir/Ritonavir) was given for antiviral treatment. On February 14 and 16, the

results of RT-PCR test were negative and he was discharged. None of his close contacts were infected.

Case 2: On January 26, 2020, a 45-year-old women for 4-days fever and cough was diagnosed with Covid-19 by a local public hospital. She claimed that she had dinner with a business partner from Wuhan 10 days ago. The local centre for Disease Control(CDC) performed RT-PCR test on her close contacts, and the results showed that her 19-year-old son was positive. Her son stated that he had no symptoms and he was immediately isolated on January 27. Laboratory tests including blood routine test, erythrocyte sedimentation rate(ESR), C-reactive protein and three items of myocardial enzyme spectrum were all negative. During the isolation, he had twice chest X-rays, both of which were negative. Kaletra (Lopinavir/Ritonavir) and ribavirin were given for antiviral treatment. On February 11, the 15st day of isolation, he had his third RT-PCR test and the result was still positive. On February 15, the 19st day of isolation, he carried out the fourth RT-PCR test and turned weak positive. On February 21, the 25st day of isolation, his RT-PCR test turned negative for the second time and he was discharged(Figure). There were no symptoms during the treatment.

We discovered that after 14 days of isolation, there were still virus carriers in asymptomatic population, which means the risk of transmission[5, 6]. Due to the large number of close contacts and relatively limited medical resources, it is impossible for all contacts to go to the hospital for RT-PCR detection, which presents a new challenge for home isolation.

Author declarations

All authors declare no conflicts of interest, no funding source. The work has been approved by the ethics committee of the hospital and the patients' families signed the informed consent.

Declaration of interests

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.

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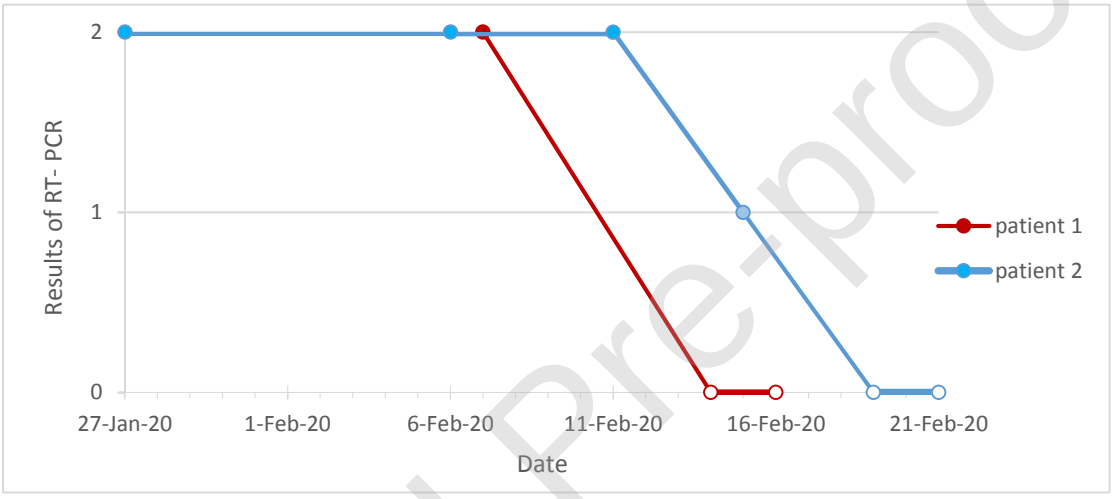
Figure A Timeline of RT-PCR test



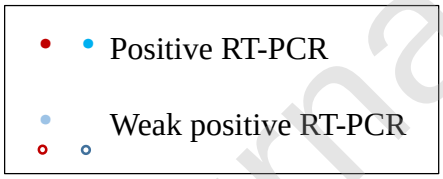


Figure B Viral load detected in throat swabs

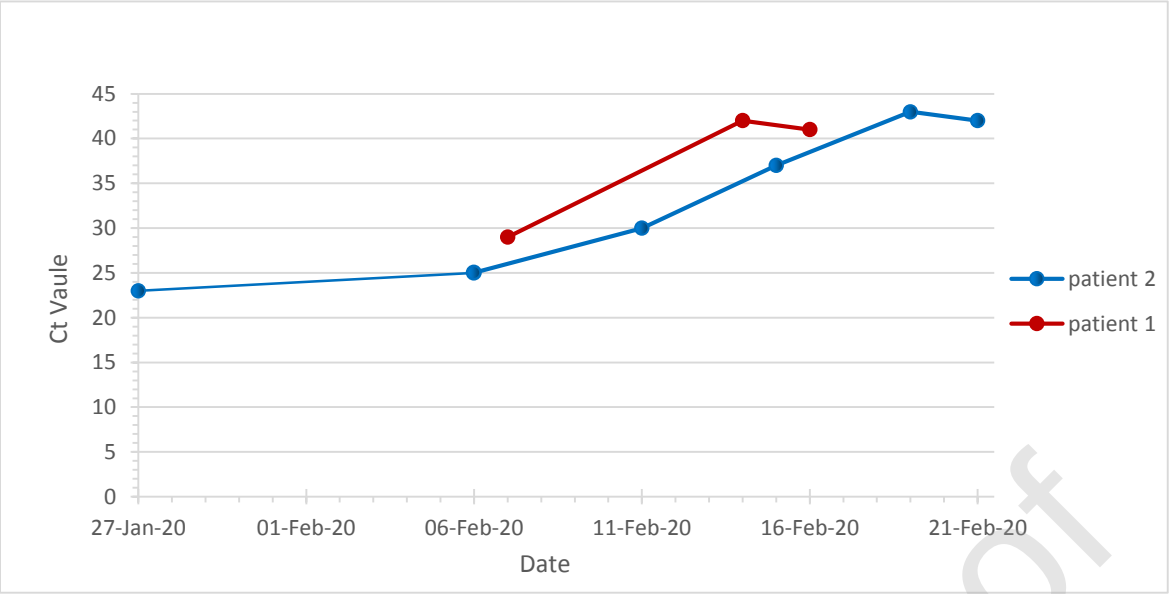


Figure B shows cycle threshold (Ct) values of ORF1ab on reverse-transcriptase –polymerase-chain-reaction (RT-PCR) assay that were detected in throat swabs obtained from the two patients. Ct values of 29.96, 26.64, 23.32, and 20 corre sponding to 1×10^4, 1×10^5, 1×10^6, and 1.0×10^7 copies per milliliter. Negative sa mples are denoted with Ct value of more than 40.