



Hidden risk of nosocomial transmission: a presymptomatic novel coronavirus disease-19 (COVID-19) case with ischemic stroke

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The first case of COVID-19 emerged in early Dec, 2019 in Wuhan, China and outbreak since Jan, 2020 (1). As of Feb 15, 2020, a total of 66,576 cases were reported in China. 29% COVID-19 transmission was presumably healthcare-associated (2), indicating SARS-CoV-2 nosocomial infection is an important transmission route. SARS-CoV-2 was supposed to be contagious during incubation phase (3,4). Therefore, admitting screening presymptomatic carriers, who are usually ruled out by current symptom or epidemiological history-based criteria (5), become crucial for SARS-CoV-2 nosocomial infection control. Herein, we report a case of successful diagnosis, prompt quarantine and efficient treatment of an presymptomatic COVID-19 patient admitted with acute ischemic stroke.

On Feb 6, 2020, a 72-year-old woman was admitted to our emergency department. She had a sudden dropped muscle force of left upper limb and slur in her speech for 8 hours. She has hypertension for 10 years. On admission, her temperature was 37.2 °C (99 °F), and she didn't complain any signs or symptoms relevant to COVID-19. Her ECG indicated atrial fibrillation, and her head CT showed no hemorrhage or obvious infraction sites. Her neutrophil ratio was 65% (40.0–75.0%), lymphocyte was 17% (20.0–50.0%) and procalcitonin (PCT) was <0.1 ng/mL, indicating low possibility of bacterial infection. However, the proBNP was 1,090 pg/ml (0–125 pg/mL), indicating a high likelihood of heart failure, and then a chest CT was

performed. Unexpectedly, the chest CT indicated multiple patchy and ground-glass opacities, suggesting a possibility of pneumonia (*Figure 1*). Her throat swabs were then obtained and tested positive for SARS-CoV-2 with real-time RT-PCR (ct value: 21). The patient was immediately proceeded to quarantine at a COVID-19-designated hospital. After 7-day of antiviral treatment (darunavir plus inhaled interferon- α), her virus test turned to negative and she is now stable.

Admission of contagious presymptomatic carriers put healthcare professionals and patients at high risk of transmission (2). Our procedure successfully diagnosed an presymptomatic COVID-19 carrier by chest CT examination. Given the high virus load, our diagnosis successfully prevented a potential SARS-CoV-2 nosocomial transmission in our hospital. Therefore, it is highly urgent to establish a new special procedure to add lung CT and/or serological tests for admitted patients at least in COVID-19 affected regions.

Patients with chronic comorbidities are usually susceptible to infection (2). Moreover, COVID-19 patients with comorbidities showed more severe symptoms and higher risk to receive ICU care (2). Earlier diagnosis and prompt treatment are therefore crucial for the survival of this population. Our case presented a successful treatment of a patient before symptoms appear. It is also necessary to emphasize the importance of respiratory protection to

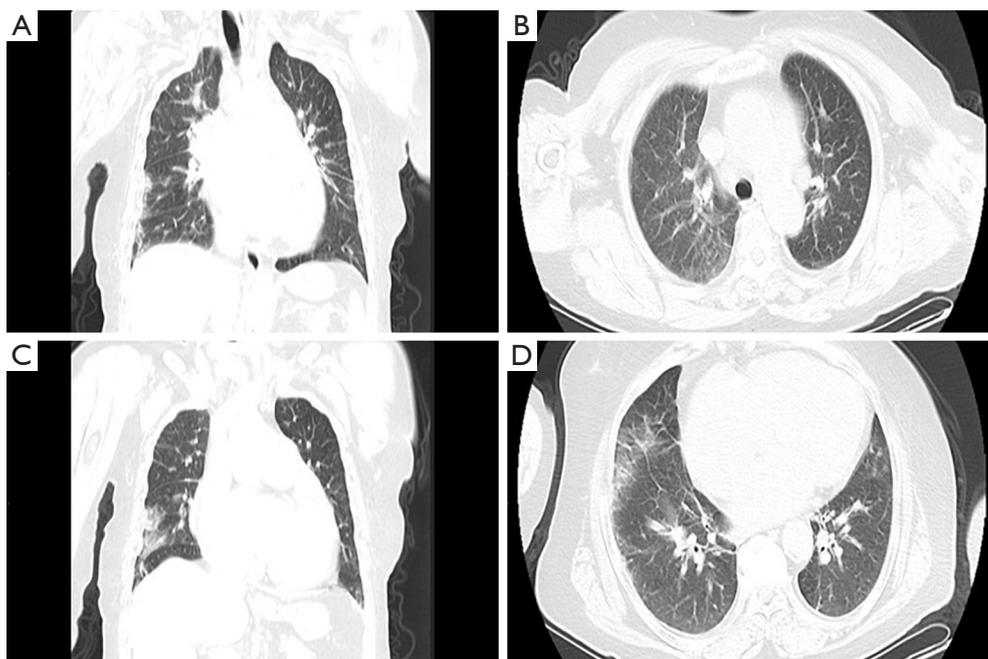


Figure 1 Chest imaging of the patient. Chest CT scans of the lung showed bilateral, multiple patchy, ground-glass opacities, accompanied by interlobular septal thickening. CT, computed tomography.

minimize the virus transmission in susceptible populations.

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Footnote

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