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A severe case with co-infection of SARS-CoV-2 and common respiratory pathogens



To the Editor

Since December, 2019, corona virus disease 2019 (COVID-19) caused by SARS-CoV-2, has spread to the majority of countries worldwide [1,2]. Here, we reported the clinical characteristics of a severe case with co-infection of SARS-CoV-2 and common respiratory pathogens. The patient was a 65-year-old woman, who had severe clinical manifestations of COVID-19, including symptoms, decreased lymphocyte counts, abnormal chest CT images. Next-generation sequencing (NGS) was used to test whether she was co-infected with other pathogens besides SARS-CoV-2. The sputum samples were collected and found the presence of *Haemophilus parainfluenzae* and *Moraxella catarrhalis* by NGS.

On Jan 22, 2020, she travelled from Wuhan to Guangzhou, China by high speed rail. From Feb 11, she developed fever lasted for 9 days, and developed cough as well as sore throat, without chills, headache, arthralgia, myalgia. On Feb 20, she was transferred to the Third Affiliated Hospital of Guangzhou Medical University with a body temperature of 38 °C. The next day, she developed a bit shortness of breath, with a body temperature of 37.5 °C. On Feb 21, blood routine tests showed normal white blood cell counts, but decreased lymphocyte counts. The blood glucose was increased. Chest CT scans showed bilateral diffuse ground-glass opacities and consolidation (Fig. 1). Nasopharyngeal swab samples were collected twice and both were negative for SARS-CoV-2 tested by qRT-PCR. However, sputum samples collected on the same day were positive for SARS-CoV-2 by NGS. Furthermore, *Haemophilus parainfluenzae* and *Moraxella catarrhalis* were also found in the sputum samples by NGS. In the afternoon of the same day, the oxygen saturation values of the patient decreased to 91.2%, and the partial pressure of oxygen in arterial blood decreased to 61.2 mmHg. Therefore, she received high-flow nasal cannula oxygen therapy (40% concentration, flow rate 60 L/min). The patient was diagnosed as severe COVID-19, and was transferred to the First Affiliated Hospital of Guangzhou Medical University for isolation and treatment where are designed to treat severe COVID-19 cases by local health authorities.

More and more COVID-19 cases have been reported by the majority of countries worldwide [2]. Health-care professionals do their best to treat patients with COVID-19. Unfortunately, 85,522 cases died of COVID-19 globally by April 9, 2020 [2]. This implies that we need further to improve how to treat COVID-19, especially for severe cases. In the present study, the cause that resulted in severe condition of the patient could be the co-infection of SARS-CoV-2, *Haemophilus parainfluenzae* and *Moraxella catarrhalis*.

Nowadays, more attentions are paid to SARS-CoV-2, so it is easy to neglect patients infected with other pathogens besides SARS-CoV-2 during the outbreak of COVID-19. When we face severe COVID-19 cases, we need to think about more, especially co-infection. Older patients, having diabetes, hypertension are causes of severe COVID-19 cases [3,4]. Furthermore, patients with diabetes are also easily infected with pathogens [5].

Anyway, we should be aware of the co-infection of other respiratory pathogens in patients with SARS-CoV-2 infection. Different kinds of detection methods should be used to find out pathogens in the pandemic of SARS-CoV-2.

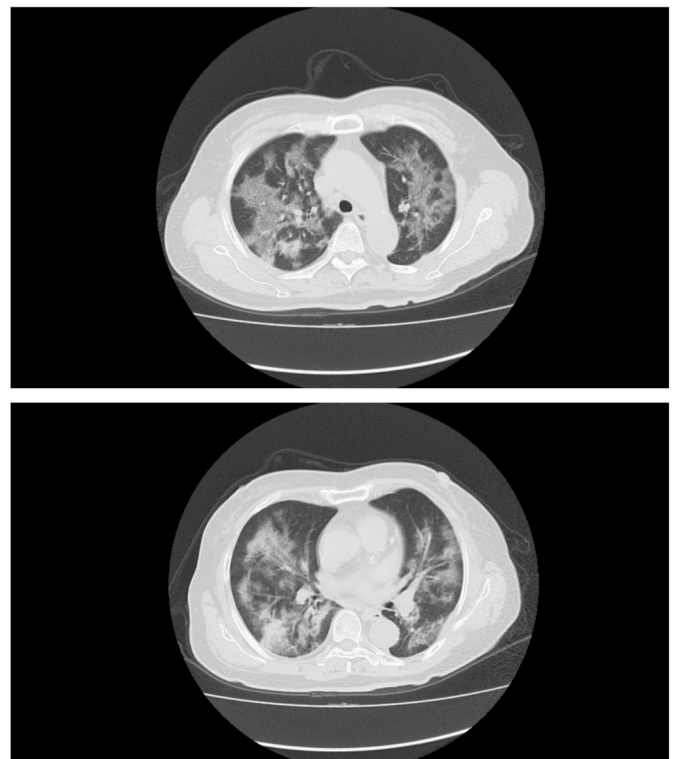


Fig. 1. Chest CT images of the Patient. CT scans showed bilateral multiple lobular and subsegmental areas of ground-glass opacity and consolidation 9 days after symptoms onset.

Declaration of competing interest

All authors declare no financial, potential personal or commercial conflict of interest.

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