

A 49-year-old Woman Co-infected with SARS-COV-2 and Mycoplasma – A Case Report

CURRENT STATUS: POSTED



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DOI:

10.21203/rs.3.rs-16376/v1

SUBJECT AREAS

Infectious Diseases

KEYWORDS

SARS-COV-2, Mycoplasma, Co-infection, CT, Case report

Abstract

Background: SARS-COV-2 is a new virus responsible for the outbreak of respiratory illness known as Corona Virus Disease 2019 (COVID-19). Mycoplasma is an uncommon co-infected pathogen with SARS-COV-2 and has not been reported yet. Besides, Computed Tomography (CT), used as an accessory examination, may play a more significant role this time.

Case presentation: A 49-year-old female presented with cough, expectoration and chest congestion followed by elevated CRP and ESR. CT images showed ground-glass opacities in bilateral lower lobes and patchy and striate shadow in right upper lobe. IgM antibody of Mycoplasma pneumoniae was positive and RT-PCR outcome of sputum was positive for the SARS-COV-2 nucleic acid. Her diagnosis of COVID-19 was made on the basis of laboratory results, chest CT images, clinical manifestations and epidemiologic characteristics. She was treated with combination therapy for 17 days following which she showed marked recovery.

Conclusion: Co-infection of SARS-COV-2 and Mycoplasma in COVID-19 patients appears to be uncommon. Computed tomography is an acceptable way to make primary diagnosis and treatment for patients as soon as possible. Combination therapy of antiviral, anti-inflammatory, traditional Chinese medical herbal and supportive care may be a reference for further progress.

Background

Corona Virus Disease 2019 (COVID-19) is an outbreak of respiratory illness caused by SARS-COV-2 which has already infected over 70,000 and killed more than 2,000, especially in Wuhan, China. A study on 8274 samples showed that 5.8% of COVID-19 infected and 18.4% of non-COVID-19-infected patients had other pathogen infections [1].

However, co-infection of SARS-COV-2 and Mycoplasma has not been found or reported yet. We report a case of 49-year-old female with such co-infection.

Case Presentation

A 49-year-old woman came to the hospital with a 5-day history of cough, expectoration and chest congestion on January 20, 2020. She mentioned a travel history in Wuhan a week ago, center of this COVID-19 outbreak.

On admission, symptoms of cough, expectoration of white sputum, chest congestion and debilitation were indicated, but her body temperature was normal 37.0°C (98.6°F). Coarse breath sounds of both lungs with wet rales distributed at the bases of both lungs were heard on auscultation. Laboratory studies showed normal leukocyte count (white blood cell count, $5.58 \times 10^9/L$) and normal lymphocyte count (lymphocyte cell count, $1.47 \times 10^9/L$). The leukocyte differential count indicated as 64.9% neutrophils, 26.3% lymphocytes, and 5.9% monocytes. There were elevated blood levels for C-reactive protein (12.50 mg/L) and erythrocyte sedimentation rate (37 mm/h). Albumin (32.1 g/L) and serum kalium (3.26 mmol/L) were lower. IgM antibody of Mycoplasma pneumoniae was positive. Unenhanced chest CT showed ground-glass opacities in bilateral lower lobes and patchy and striate shadow in right upper lobe. According to these findings and due to her travel history in Wuhan, we speculated her with identified Mycoplasma infection and suspected SARS-COV-2 infection, so we performed an examination on her throat swab but it would take several days for the result. Considering of the prior indication of CT images and rapid development of illness that COVID-19 might brought, we treated this patient with anti-inflammatory and empirical antiviral drugs in the first three days. CT images showed progressive manifestations. Three days later, real-time fluorescence polymerase chain reaction (RT-PCR) outcome of sputum was positive for the SARS-COV-2 nucleic acid

and her diagnosis of COVID-19 was finally made on the basis of laboratory results, chest CT images, clinical manifestations and epidemiologic characteristics. We were glad that we performed early intervention of antiviral therapy as quickly as possible based on the prior indication of CT manifestations.

CT showed multiple patchy ground-glass opacities and consolidated opacities in bilateral lower lobes (in Figure 1) and patchy and striate shadow of slightly high density in the upper right lung (in Figure 2). This asymmetrical lesion in the upper right lobe was quite rare in the cases reported so far. According to Chinese newest treatment guidelines of SARS-COV-2, we treat this patient with antiviral drugs (Aluvia 0.4g q12h1 po for 4 days, Peramivir 0.6g QD iv for 3 days, Interferon- α 2b 5×10^6 IU BID inh for 14 days), anti-inflammatory drugs (Cefonicid Sodium 2g QD iv for 3 days, Azithromycin 0.5g QD iv for 6 days, Moxifloxacin 0.4g QD po for 4 days) and traditional Chinese medical herbal treatment (Lianhuaqingwen 6g TID po for 14 days), combined with supportive care from January 25, 2020. On 7th day, her cough, expectoration, chest congestion and debilitation started improving and on the following days she felt much better after our therapeutic methods. After twice negative results of SARS-COV-2 nucleic acid, she discharged on February 10, 2020. On 2 weeks follow up, she had marked recovery from her previous symptoms.

Discussion

The outbreak of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) has presented significant harm to human health globally, which has been declared a public health emergency of international concern (PHEIC) by the WHO [2].

It has been spread in 43 countries such as South Korea, Japan, Italy, USA et al. Person-to-

person transmission in hospital and family settings has been identified and more than 2,600 lives have been taken. From the up-to-date data we can see that fever and cough were the most common symptoms, but diarrhea and vomiting were rare. Most patients had lymphopenia and elevated levels of C-reactive protein on admission [3]. Among 2745 COVID-19 patients, 104 were positive for multiple respiratory pathogens and 6/104 had co-infection with coronavirus (3/104), influenza A virus (2/104), rhinovirus (2/104), and influenza A H3N2 (1/104) [1]. Co-infection of SARS-COV-2 and Mycoplasma is unusual and hasn't been reported in published articles. Treatment protocols and prognosis were all new and with few references.

Imageology studies have shown ground-glass opacity and bilateral patchy shadowing were most common on chest computed tomography [3-5]. In our patient, progressive changes of typical CT manifestations were seen but an atypical isolated shadowing in the upper right lung could also be seen. A possible explanation is co-infection and Mycoplasma caused this.

Conclusions

In conclusion, co-infection of SARS-COV-2 and Mycoplasma should not be ignored in clinical diagnosis and treatment, especially in the early course for it is a rapidly developing disease. Prior indications of CT manifestations are quicker than RT-PCR way of testing nucleic acid and can help us make primary diagnosis and treatment as soon as possible. Clinical improvement of pleasant changes in CT images suggested that our early combination therapy may be a novel treatment and reference for further progress. However, we are not very sure that the different shadows were caused by which pathogen respectively, and we haven't yet found a specific medicine for COVID-19. These pathogens are very infectious. Doctors and nurses, particularly those who on the first line, have to protect themselves meticulously.

List Of Abbreviations

SARS-COV-2: severe acute respiratory syndrome coronavirus 2

COVID-19: Corona Virus Disease 2019

CT: Computed Tomography

RT-PCR: real-time fluorescence polymerase chain reaction

PHEIC: public health emergency of international concern

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

Not applicable.

Authors' contributions

Author ZAG and author LBG collected clinic data, discussed the detail and wrote this article together. Since Author ZAG and author LBG contributed to the work equally, they should be regarded as co-first authors. XJC analyzed and interpreted the patient data

regarding the COVID-19. YX analyzed the data and did the modification of this manuscript, and was a major contributor in writing the manuscript. The division of labor is clear-cut, each one being charged with specific responsibilities. All authors read and approved the final manuscript.

Acknowledgements

Not applicable.

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Figures

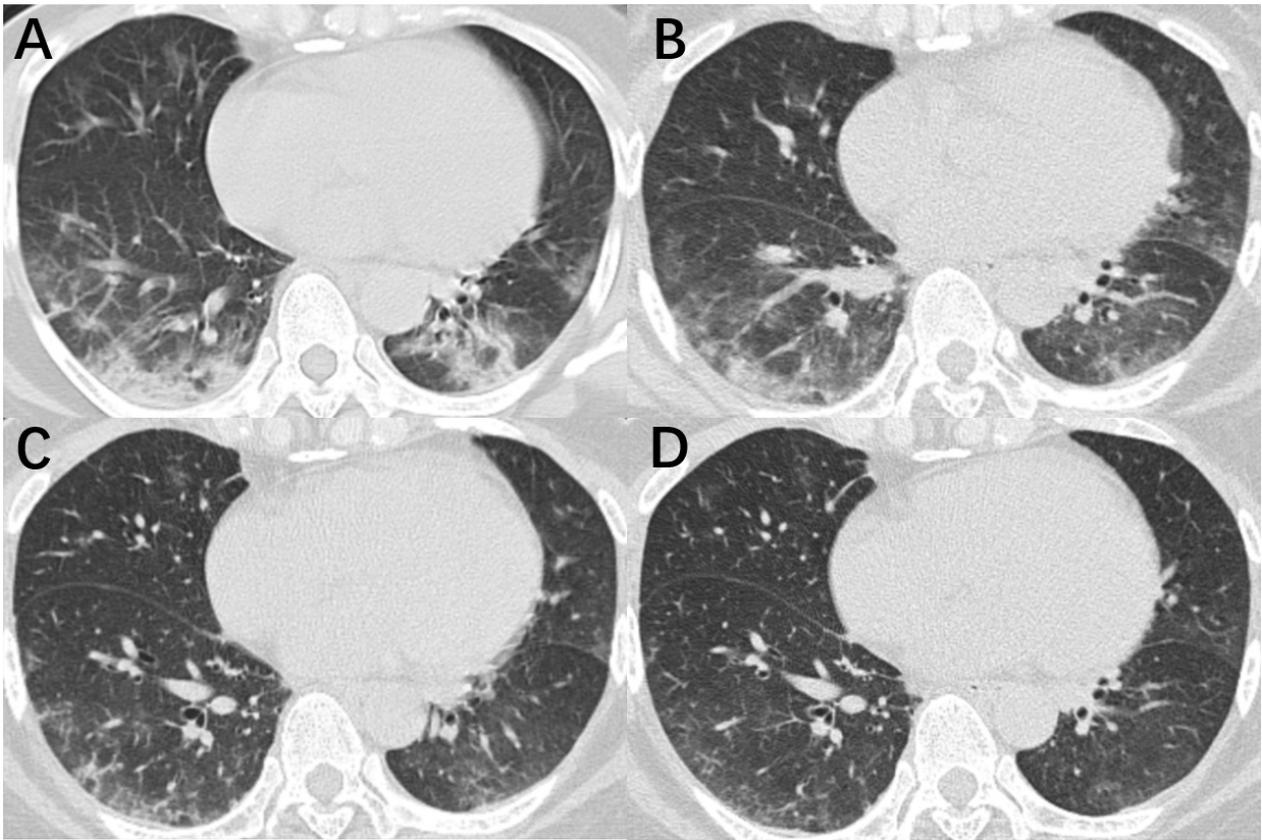


Figure 1

Figure.1 Unenhanced CT images in a 49-year-old woman (axial imaging). CT radiographs show multiple patchy ground-glass opacities and consolidated opacities in bilateral lower lobes, the middle lobe of the right lung and the tongue segment of the upper left lung. As the treatments progressed, CT manifestation showed us pleasant change. In Figure 1, A, B, C, D represents day 7 (2020.1.26), day 12 (2020.1.31), day 16 (2020.2.4) and day 21 (2020.2.9) after the onset of symptoms.

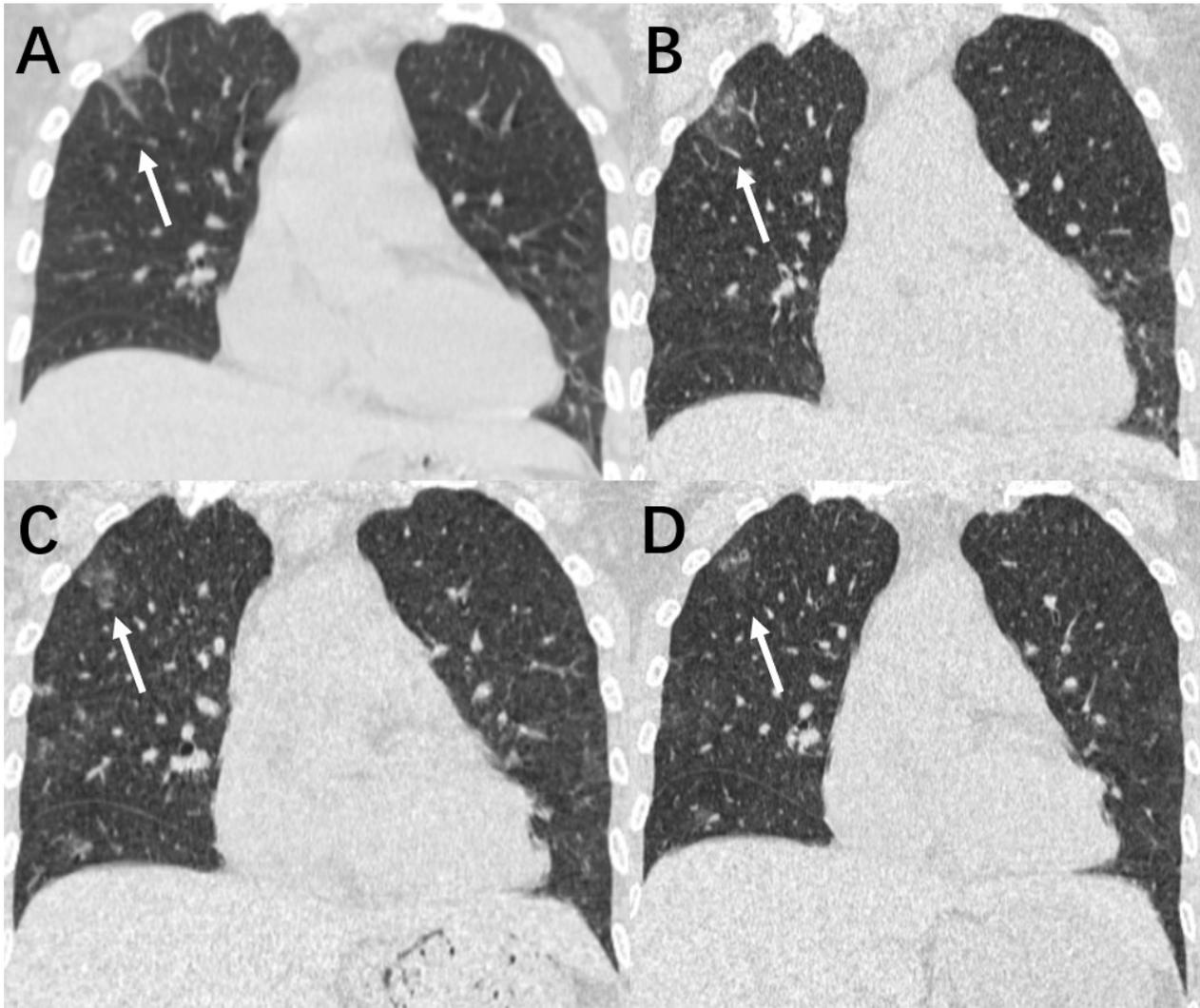


Figure 2

Figure.2 Unenhanced CT images in a 49-year-old woman (coronal imaging). CT radiographs show patchy and striate shadow of slightly high density in the upper right lung (Arrows). As the treatments progressed, this asymmetrical lesion was absorbed gradually. In Figure 2, A, B, C, D represents day 7 (2020.1.26), day 12 (2020.1.31), day 16 (2020.2.4) and day 21 (2020.2.9) after the onset of symptoms.

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