

A case report of an undiagnosed COVID-19 infection

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Case Report

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Abstract

Background: A very serious new type of coronavirus infection has recently erupted in China. For new viruses, data and information in all aspects need to be improved.

Case Presentations: During the early COVID-19 outbreak, a 38-year-old man experienced COVID-19 infection in Shenzhen (nonendemic area-related personnel) and underwent SARS-CoV-2 nucleic acid screening multiple times due to an initial positive COVID-19 screening at the beginning of the disease. The results of these additional tests were negative, and the initial SARS-CoV-2 nucleic acid screening result for this patient was suspected as being a false positive.

Diagnosis: After nearly 17 days of hospitalization in two hospitals, a variety of tests were performed to diagnosis this new coronavirus infection (due to the positive results of the initial screening).

Intervention: Early in the onset of the disease, treatment was given to maintain water and electrolyte balance, and antibiotics and proprietary Chinese medicines were given as the treatment. The symptoms were controlled at an early stage.

Outcomes: The patient developed symptoms on the first day and had pneumonia in the lungs, as shown by a chest CT examination on the 7th day of onset. The subsequent prognosis was good. The family members living with this patient did not show similar symptoms.

Conclusion: The diagnostic process of COVID-19 needs to be improved, and the development of SARS-CoV-2 diagnostic reagents needs to be strengthened under certain conditions. Screening should be performed at an early stage when a COVID-19 infection is suspected and should distinguish between patients with a COVID-19 infection and with a non-COVID-19 infection. Patients are more conducive to controlling the COVID-19 epidemic.

1. Introduction

COVID-19 is an emerging virus that is a high-intensity infectious disease in the population, especially in confined spaces and clusters. It is more likely for people to be infected. Currently, more than 60 countries have been diagnosed. Case[1]. Currently, China is continuing its prevention and control, and it has been effectively controlled. This case is a patient that appeared in Shenzhen in early February. The time point of the case appeared in the early stage of the epidemic, and the patient is an undiagnosed case of COVID-19[2]. There are a certain degree of similar cases that may occur in the future.

2. Case Description

A 38-year-old male ,GP, began to have local pain on the inside of the left leg at 14:30 on February 1, 2020. The continuous pain gradually worsened with no radiation pain, and this pain did not affect walking. At 16:00, chills and fever began to occur, the body temperature of the patient fluctuated between 38 and

38.6 °C; the patient had no apparent weakness, intermittent coughing, no nasal congestion and runny nose, no sore throat, no dizziness, no chest tightness, no sore limbs, normal appetite, normal sleep, and normal defecation. He was healthy and had no hypertension or diabetes. The patient did not have a fever in the past 6 years. The patient had a brief history of exposure to people in Hubei or Wuhan in the last 4 days. He was given 75 mg oseltamivir, 0.5 mg amoxicillin orally, 3 tablets of Jinshuibao orally, and oral rehydration salt, and the body temperature of the patient decrease to normal at 22:00 on the February 3, 2020. The patient had no obvious discomfort. On the afternoon of February 3, 2020, a fever clinic was performed. Examination: temperature of 37°C, Shenqing, no swallowing, no follicles, no abnormalities in heart and lungs, and mild tenderness in the left groin. Routine blood test results: WBC, $10.27 \times 10^9/L$; NEUT, $6.42 \times 10^9/L$; LYMPH, $2.43 \times 10^9/L$; MONO, $1.2 \times 10^9/L$; YMPH%, 23.7%; and CRP, 36.86 mg/L. The chest CT scan had obvious abnormalities; the pharyngeal test (returned the next day) suggested that 2019-nCOV qualitative nucleic acid detection was positive and immediately admitted to Shenzhen Third People's Hospital. A blood test on February 4, 2020 showed normal routine blood tests, normal biochemistry, negative influenza A/B, negative TORCH, positive EB virus IgG, negative IgM, negative Mycoplasma pneumoniae, and 19 mm/h ESR. A CT scan of the lungs on February 8, 2020 revealed that the upper and lower lobes of the right lung were scattered with solid subsolid nodules. Considering the possibility of benign nodules (value-added infections), this patient was referred to a general hospital on the same day to continue isolation and observation procedures. Moxifloxacin, acetylcysteine, and traditional Chinese medicine treatments were reviewed twice on February 12 and 14, 2020 after the patient results were negative for the pharyngeal tests. On the 13th day of onset, the lung CT was not abnormal, and medical observation was performed on February 18, 2020. Self-quarantine was prescribed for the patient until March 2, 2020. There were no symptoms of fever, cough, or fatigue after discharge. In addition, the five family members who underwent the hotel's designated isolation and home observation for 2 weeks did not experience discomfort, and a throat swab test for each family member conducted on February 4, 2020 showed negative results.

This time through the hospitalization, in addition to the initial nucleic acid screening positive, the rest of the nucleic acid tests were negative, but in view of the patient's onset at a particular time period, and the initial screening positive, the suspected diagnosis of COVID-19 was temporarily given, the diagnosis was not given, late Auxiliary diagnosis can be performed according to COVID-19 Ig G detection.

3. Discussion And Conclusion

First, the patient had no significant history of prolonged or confined space exposure with Wuhan or Hubei personnel and no history of exposure to patients with a confirmed COVID-19 infection. However, it is reported in the literature that 25.9% of patients did not have any contact history in Wuhan (did not visit Wuhan and had no contact with people from Wuhan). The median incubation period of COVID-19 infection is 4 days, most of which are 2-7 days[3]. In extreme cases, the incubation period exceeds 24 days (or 28 days). In this patient, the symptoms and duration of symptoms occurred after having short-term contact with Wuhan and Hubei personnel. The incubation period of COVID-19 infection is relatively consistent. In addition, there are studies or data showing that there are asymptomatic carriers in the

normal population. The proportion of asymptomatic infection is 1.2% of the confirmed diagnosis. Currently, there is some evidence that asymptomatic carriers may be infectious to close contacts. From the point of view, COVID-19 infection cannot be explicitly ruled out.

The symptoms of COVID-19 are mainly fever (87.9%) and cough (67.7%). The most common symptoms are diarrhea (3.7%) and vomiting (5.0%). In this case, the patient had fever symptoms and no other symptoms of COVID-19, including cough, diarrhea, and vomiting[4]. Combined with the fact that the patient has not had a fever in the past 6 years, in the current COVID-19 epidemic, the issue of COVID-19 infection needs to be considered first; however, the initial onset of pain in the left medial leg did not match the initial symptoms of a COVID-19 infection, and there were no typical symptoms of COVID-19 infection, such as fatigue.

A total of 82.1% of patients with COVID-19-infected hematology show lymphopenia, 36.2% of patients have thrombocytopenia, and leukocytopenia is observed in 33.7% of patients[4]. The blood routine of this patient at the initial diagnosis suggested a bacterial hemogram, which was not consistent with the typical viral hematology of a COVID-19 infection.

Typical CT findings of COVID-19 pneumonia include ground-glass opacities (56.4%) and patchy shadows in both lungs (51.8%). A total of 2.9% of severe cases and 17.9% of nonsevere cases do not have abnormal lung CT changes. In this case, the fever lasted for only 18 hours, there was no cough, wheezing, or other symptoms, and the lung infection was not obvious. On the second day of onset, the patient had no abnormalities in CT scans of the lungs. A CT scan of the lungs at 1 week of onset revealed acute lung inflammation. A CT scan of the lungs on the 12th day of onset showed inflammation and absorption. If this patient had a COVID-19 infection, this suggests that some patients with mild COVID-19 infection will also develop COVID-19 pneumonia; however, because the patient is in a good physical condition or has received more effective treatment for pulmonary inflammation, the pneumonia was not serious and was quickly self-contained.

According to the Shenzhen New Coronary Virus Infection Diagnosis Process, it is necessary to refer to a SARS-CoV-2 nucleic acid-positive treatment hospital after a general outbreak or community investigation indicates that a person is positive for SARS-CoV-2 nucleic acid, and the SARS-CoV-2 nucleic acid-positive diagnosis will be confirmed after a review of the designated hospital COVID-19 infection[5]. In this patient, the nucleic acid test was positive at the initial screening, and the SARS-CoV-2 nucleic acid was rechecked 4 times later in the infection period, and all of these results were negative[5]. Therefore, the final diagnosis at discharge in this patient was COVID-19 infection (positive initial screening); however, the patient was a suspected and an undiagnosed case. It is difficult to detect SARS-CoV-2 nucleic acid in the early stage of the infection. There are news reports in China suggesting that the patient was positive after 4-5 SARS-CoV-2 nucleic acid tests after the onset of the disease, and the final diagnosis was COVID-19 infection. In addition, the problem of false positives in laboratory tests cannot be ruled out. If a patient has a false-positive result from the SARS-CoV-2 nucleic acid test, this can explain the subsequent negative SARS-CoV-2 nucleic acid results. However, in this epidemic situation, it seems that it has never happened. It

needs to be treated according to COVID-19 infection, and the spread of COVID-19 needs to be effectively controlled as early as possible. The problem of nucleic acid reagent detection is a concern in the early stage of the epidemic. There are many false-negative results. The distinction between COVID-19 and non-COVID-19 patients requires efficient nucleic acid reagent screening. This requires early development by laboratories or inspection-related companies. Efficient and accurate detection of SARS-CoV-2 nucleic acid reagents can help control the epidemic, and this can reduce the psychological stress and improve the social operation efficiency in patients with a non-COVID-19 infection.

In terms of treatment, patients with COVID-19 infection do not currently have any evidence that the treatments for the SARS-CoV-2 virus is effective. In this case, the patient was treated with amoxicillin, oseltamivir, Jinshuibao, and oral rehydration salt in the early stage of fever. Oseltamivir has the effect of treating and preventing early influenza. The patient's blood showed a bacterial infection. Xilin meets the principle of symptomatic treatment. In the case of fever, there is an accelerated loss of body fluids. Symptomatic treatment with oral rehydration salts is given. Maintaining water and electrolyte stability under fever conditions is conducive to improving the disease and prevents the transition from mild to severe. Here, it is recommended to target COVID-19. Infected patients with a fever or decreased appetite should be treated with oral rehydration salts as early as possible to maintain the patient's body water and electrolyte balance and to prevent the disease from worsening. In addition, the use of Jinshuibao in the early stage of the case may help the disease's outcome. The main ingredient of Jinshuibao is fermented cordyceps powder. Jinshuibao capsules can improve individual immunity, protect the kidneys, and reduce serum levels of inflammatory factors, including TGF- β , TNF- α , and IL-6[6]. Patients with COVID-19 infection can be treated with Jinshuibao. Whether Jinshuibao helps will need to be further confirmation.

This study presents an undiagnosed patient with a new type of coronavirus infection. There is a general understanding of the process for the diagnosis of COVID-19 patients with mild infection in China. In the case of new infectious diseases, some special cases may occur. Think proactively about how to respond to such situations to improve the process of diagnosis and treatment.

In the context of the global epidemic of COVID-19, we need to strictly diagnose, hospitalize and discharge COVID-19-infected patients, strengthen the laboratory diagnosis process of COVID-19, and develop convenient and faster SARS-CoV-2 nucleic acid diagnostic tests. These are conducive to the prevention and control of the epidemic. In terms of treatment, there is currently no clear specific effective drug. Chinese herbal medicine or proprietary Chinese medicine has been reported to be helpful for the prognosis of COVID-19-infected patients. Early use of Chinese herbal medicine or proprietary Chinese medicine in patients with COVID-19 infection may be considered.

Screening should be performed at an early stage when a COVID-19 infection is suspected and should distinguish between patients with a COVID-19 infection and with a non-COVID-19 infection. Jinshuibao capsule may have a therapeutic effect on the infection of new coronavirus at an early stage, which needs further research.

Abbreviations

GP=general practitioner .COVID-19= coronavirus disease 2019. TGF- β =Transforming growth factor- β .TNF- α =tumor necrosis factor- α . IL-6=interleukin-6

Declarations

Ethics approval and consent to participate

This article does not involve the animal or human trials. Written informed consent was obtained from individual or guardian participants.

Consent for publication

The patient provided written informed consent to publish this case report. A copy of this written consent form is available for review by the editor-in-chief of this journal.

Availability of data and material

All data generated or analysed during this study are included in this published article.

Competing interests

The author declares that they have no competing interests.

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Authors' contributions

All authors have read and approved the manuscript. Each author has

contributed individually and significantly to the development of the

manuscript. zhiqian Wu was the main contributors in drafting the

manuscript. haibo xia, ronghui zhu. Jing Cao performed statistical analysis, literature research, and manuscript review and contributed to the intellectual content of the study. zhiqian Wu original new patients surveillance data to the paper and participated in writing of the manuscript.

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It is understood that all the current hospitalization expenses of the patients and their families' isolation costs are all free of charge. Thanks to the patient for providing the case. Patient's consent has been obtained to report the case.

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References

- 1 World Health Organization. Novel Coronavirus(2019-nCoV) Situation Report-22.
https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200211-sitrep-22-ncov.pdf?sfvrsn=fb6d49b1_22020.
- 2 Special Expert Group for Control of the Epidemic of Novel Coronavirus Pneumonia of the Chinese Preventive Medicine Association. An update on the epidemiological characteristics of novel coronavirus pneumonia (COVID-19)[J]. Chinese Journal of Epidemiology, 2020, 41(2): 139-144.
- 3 Strategy and Policy Working Group for NCIP Epidemic Response. Urgent research agenda for the novel coronavirus epidemic: transmission and non-pharmaceutical mitigation strategies. Chinese Journal of Epidemiology, 2020, 41(2): 135-138.
- 4 Wei-jie Guan, Zheng-yi Ni, Yu Hu, etc. Clinical characteristics of 2019 novel coronavirus infection in China. New England Journal of Medicine doi: 10.1056/NEJMoa2002032
- 5 General Office of National Health Commission. Prevention and control protocol for Novel Coronavirus Pneumonia version 5). http://www.gov.cn/zhengce/zhengceku/2020-02/22/content_5482010.htm. 21 February, 2020.
- 6 Improving effect of Jinshuibao Capsule on pneumoconiosis model rats and its mechanism [Author] Liu Wei; Jiang Shufan; Tu Lei; Hu Weizheng; Wang Tao; Wang Jing [Journal Name] Journal of China Pharmaceutical University-2018.49 (4) .476-482