

COVID-19 complicated by strange pulmonary fibrosis

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Case report

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Abstract

Background

The lung CT of COVID-19 has characteristic changes, showing scattered ground-glass changes extrapulmonary zone. However, we observe a case of early infection of COVID-19 in a patient who did not show classic CT changes, but shows characteristic pulmonary fibrosis.

Case presentation

We reported a patient who was infected in the early stage of the COVID epidemic without any treatment. The extrapulmonary zone showed symmetrical and diffuse fibrotic changes.

Conclusions

the lungs of COVID-19 may not show scattered ground-glass changes, but show symmetrical, diffuse pulmonary fibrosis in extrapulmonary, suggests that there may be other mechanisms other than infection involved in the changes in the lungs.

Background

COVID-19 poses a huge challenge to global health, but its pathogenic mechanism is not completely clear. The lung CT of COVID-19 has characteristic changes, showing scattered ground-glass changes outside the lungs, which is used as one of the criteria for diagnosing COVID-19. However, we have observed a case of early infection of COVID-19 in a patient who did not show classic CT changes, but shows characteristic pulmonary fibrosis.

Case Presentation

A 78-year-old male patient was admitted to the hospital after a week of due to decreased appetite and fatigue & panting. The patient had no fever, no cough. Two weeks before admission, there was a history of travel in COVID-19 epidemic area, with no previous history of basic lung disease and heart disease. Admission examination: blood pressure: 80 / 56mmHg, finger oxygen saturation 76%, weak breath sounds in both lungs, blood cell analysis: white blood cell count: $13.12 \times 10^9 / L$, lymphocyte percentage: 2.1%, procalcitonin: 0.34ng / ml, blood creatinine: 228umol / L, arterial blood gas analysis: PaCO₂: 32.1mmHg, PaO₂: 81mmHg, COVID-19 nucleic acid ORF1ab gene +, N gene +, Lung CT shows symmetrical and diffuse extrapulmonary fibrosis(Fig.). The patient was diagnosed with COVID-19 (critically severe), acute respiratory distress syndrome. After admission, non-invasive ventilator-assisted ventilation and anti-infection treatment were given. He died of respiratory failure 11 days later.

Discussion

COVID-19, as a new emerging infectious disease, poses a serious challenge to the health system of all countries. The CT of COVID-19 show symmetrical scattered glassy changes in bilateral extrapulmonary zone(1). The mechanisms through which severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes lung damage are only partly known, but plausible contributors include a cytokine release syndrome triggered by the viral antigen, drug-induced pulmonary toxicity, and high airway pressure and hyperoxia-induced acute lung injury secondary to mechanical ventilation(2). However, this patient had not received any treatment before admission and had no history of underlying lung disease, so lung injury caused by drugs and artificial ventilation was not considered. The case shows that the lungs of COVID-19 may not show scattered ground-glass changes, but show symmetrical, diffuse pulmonary fibrosis in extrapulmonary, suggests that there may be other mechanisms other than infection involved in the changes in the lungs.

Declarations

Ethics approval and consent to participate This study meets the requirements of the Declaration of Helsinki. The data acquisition and writing of this manuscript were approved by the Ethics Committee of Xiaogan Central Hospital.

Consent: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Availability of data and materials The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare there are not competing interests

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Authors' contributions: The first author participated in patient diagnosis and treatment, data collection, literature search, and manuscript writing, and the second author participated in patient data collection and manuscript writing.

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Figures



Figure 1

Lung CT shows diffuse, symmetry, and fine mesh changes in both extrapulmonary zone.