

An extremely rare case of COVID-19: bilateral spontaneous pneumothorax

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Abstract. – COVID-19 is a disease caused by the SARS-CoV-2 infection which causes pneumonic infiltration in both lungs. This research paper is meant to present our case of a 31-year-old male who experienced bilateral spontaneous pneumothorax. The rarity of this condition cannot be underestimated considering pneumothorax from COVID-19 is quite uncommon.

Key Words:

COVID-19, Spontaneous pneumothorax, Case report.

Introduction

Coronavirus emerged in December 2019 (named SARS-CoV-2 in January 2020) and was quickly declared a pandemic by the World Health Organization^{1,2}. Diagnosis on anyone potentially infected is made by a Real-Time Reverse Transcription Polymerase Chain Reaction (RTR-PCR) duplication of a swab taken from the nasopharyngeal region of the patient³. SARS-CoV-2 infection causes a wide range of clinical manifestations from asymptomatic cases to respiratory failure⁴. Having spread rapidly since the day it emerged, the virus has exceeded 412 million cases and 5.8 million deaths worldwide as of February 15, 2022 (<https://www.worldometers.info/coronavirus/>).

Coronavirus causes respiratory system issues by allowing pneumonic infiltration into the lung. The occurrence of pneumothorax as a result of COVID-19 is quite rare, although there are numerous cases of unilateral pneumothorax in the literature⁵. Currently, there is only one documented example of bilateral pneumothorax due to COVID-19. Consequently, we wanted to present our case of a young man who developed bilateral pneumothorax during coronavirus, as we believe that it is unique and will contribute to the literature.

Case Report

This case documents a 31-year-old male patient admitted to the emergency room with complaints of poor general condition and shortness of breath five days after a positive COVID-19 PCR result. HGB: 13.7 g/dl, WBC: 16.8×10^3 /uL, CRP: 6.1 mg/L and other biochemical parameters were observed to be normal. Posterior-anterior chest X-rays showed bilateral lung infiltration. The patient, whose oxygen saturation (SpO₂) was 78%, was treated with hospitalization. On the fifth day, a sudden increase in oxygen demand and chest pain developed, and subsequent chest X-rays showed a pneumothorax had developed in the right lung. After the closed tube drainage was applied, the patient became stable. However, three days later the patient began experiencing left chest pain. The X-ray revealed that pneumothorax returned this time in the left lung. The closed tube drainage was again applied (Figure 1), though it was later stopped after significant improvement was noted in his condition (Figure 2). Since there was no sign of further problems in the follow-up, the man was discharged having made a full recovery.

Discussion

Pneumothorax is divided into two groups: spontaneous and traumatic. Spontaneous pneumothorax can be classified as primary or secondary. Primary spontaneous pneumothorax is the type that occurs in people without chronic lung disease or a history of trauma. Secondary spontaneous pneumothorax is the type that occurs in people with pulmonary pathology, such as emphysema and cystic fibrosis⁶. Among the causes of pneumothorax developing in COVID-19 patients, smoking history and structural lung disease can

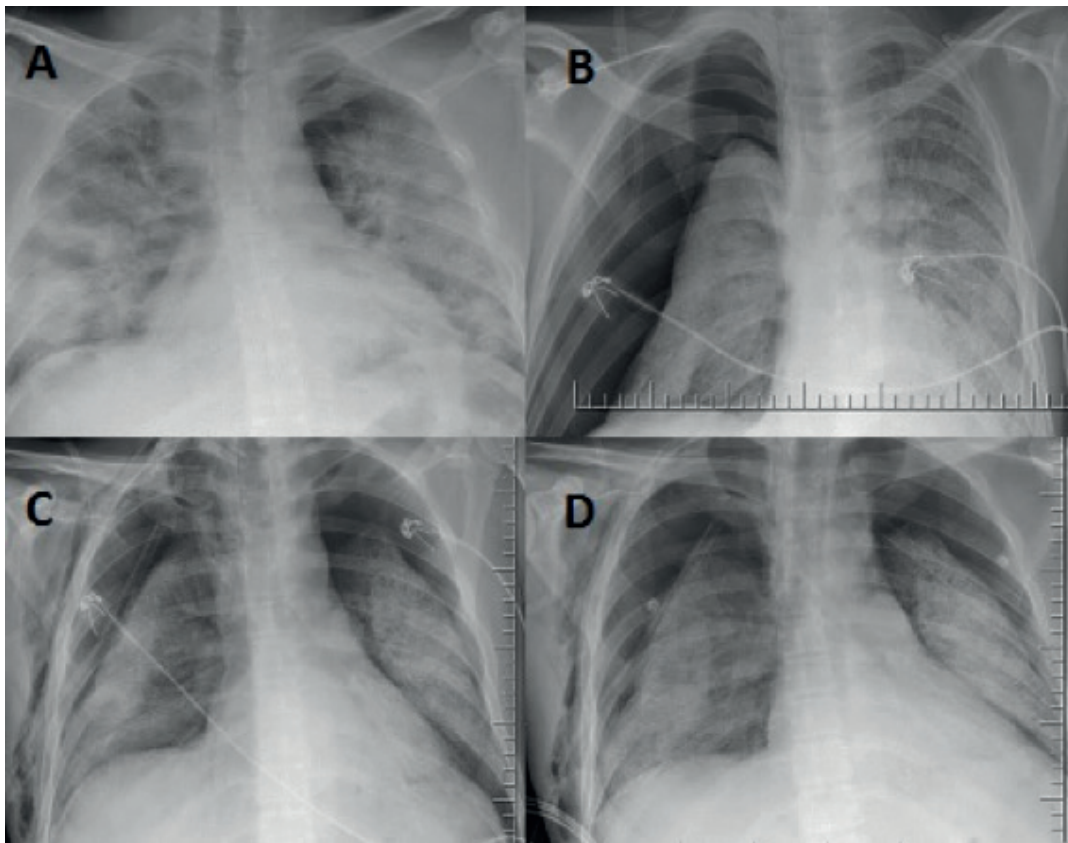


Figure 1. Posterior anterior chest X-ray (A) Widespread consolidated areas in both lungs (B) PNX in the right lung during follow-up (C) PNX is present on the left side after tube insertion on the right-side (D) Image of bilateral tube application.

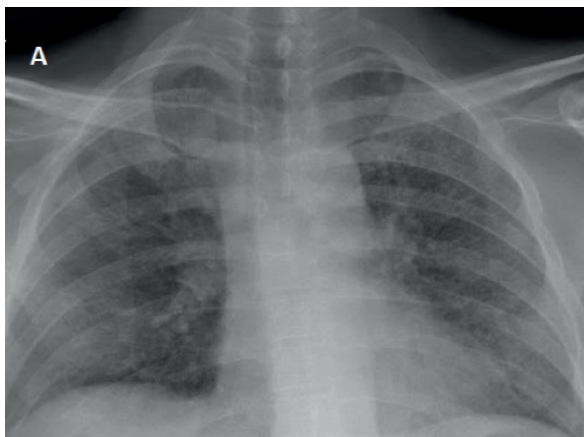


Figure 2. Posterior anterior chest radiograph does not show PNX in both lungs after tube therapy has been concluded.

be counted. Alveolar damage and a sudden alveolar pressure increase, which will occur in the case of a strong cough caused by a patient with severe COVID-19 pneumonia, may also cause pneumothorax². Chen et al⁵ found only one (1%)

case of pneumothorax in a study of 99 COVID-19 patients. When Zantah et al⁷ analyzed the data of 902 patients with positive COVID-19 PCR test results, they showed that six (0.66%) patients had developed pneumothorax in their follow-up. Four of these patients were associated with mechanical ventilation, though unilateral pneumothorax developed in all six⁷. In the study of COVID-19-related pneumothorax in which Alhakeem et al⁸ reviewed fifteen different publications, only one case of bilateral spontaneous pneumothorax was discovered, which was found in the study of López Vega et al⁹. This patient was a 67-year-old man with no history of chronic lung disease⁹.

Conclusions

COVID-19 often causes a ground-glass appearance and consolidation in the lung, causing pneumonic infiltration. Our COVID-19 case, which we demonstrated to have developed into bilateral pneumothorax, is valuable considering the rarity of

the condition. It can, therefore, provide an insightful contribution to the literature.

Funding

We have no financial or proprietary interest in any instrument or product used in this study.

Informed Consent

Informed consent was obtained from patient.

Conflict of Interests

The authors declare that they have no conflicts of interest.

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