

Spontaneous Pneumothorax as Clinical Presentation in a Patient with COVID-19

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ABSTRACT

Spontaneous pneumothorax as an initial presentation is very rare in COVID-19 patient. We present a case where the initial presentation was that of a mild disease and on investigation was found to have pneumothorax without any predisposing risk factors.

KEY WORDS

COVID-19, Spontaneous pneumothorax, Tube thoracotomy

INTRODUCTION

Declared a pandemic on March 11, 2020, coronavirus 2019 (COVID-19) has affected millions of individuals worldwide with significant morbidity and mortality.¹ The clinical manifestations include mild disease presenting with fever, cough or severe disease presenting as acute respiratory distress syndrome.²

Radiological findings predominantly include bilateral mid-lower zone opacities on chest radiographs with predominant computed tomography (CT) finding being bilateral ground glass opacities.³ We present a rare case of COVID 19 presenting with spontaneous pneumothorax without any predisposing risk factor.

CASE REPORT

A 48 years old man presented to the hospital with complaints of fever, cough, shortness of breath and myalgia. Fever occurred since 4 days prior to the time of presentation, and the highest temperature was 38.5 °C.

He had complaints of occasional cough and shortness of breath on exertion. There was no history of any other co-morbidity and predisposing factors like trauma, smoking or prior intubations. The patient was admitted with suspicion of COVID-19 and supportive medical therapy was started. On nasopharyngeal swab, SARS-CoV-2 was detected in the polymerase chain reaction (PCR). On chest radiograph, he was found to have left-sided pneumothorax (Fig. 1).

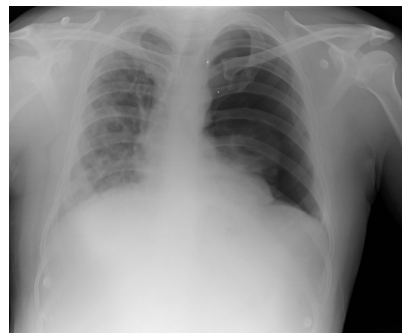


Figure 1. Left sided pneumothorax at the time of presentation

He underwent left lateral tube thoracotomy for pneumothorax and was connected to underwater seal bottle. He was started on intravenous dexamethasone, antibiotics and intravenous fluids. There was complete resolution of the left sided pneumothorax and the left lung appeared to expand on repeat chest radiograph after 18 hours (Fig. 2).



Figure 2. Chest X-ray after thoracotomy

With marked symptomatic relief and improvement on chest radiograph, the patient was shifted out of intensive care unit and kept in high dependency unit (HDU). Three days after shifting in HDU, repeat chest radiograph revealed complete expansion of left lung after which the chest tube was clamped and then removed. He was kept under observation for 2 more days and then discharged in stable condition with oral medications including vitamin D, zinc and dexamethasone. He was advised for home isolation for a week. His repeat nasopharyngeal swab after one week of discharge did not detect SARS-CoV-2 and his repeat chest X-ray didn't reveal any significant findings.

DISCUSSION

The wide spectrum of clinical presentation of COVID 19 includes asymptomatic patients to mild symptoms like fever and cough to severe illness like respiratory distress syndrome ultimately leading to death. The most common

symptom a patient with COVID 19 infection can have includes fever, cough, and shortness of breath. Other symptoms that have been reported are malaise, anosmia or respiratory distress. In a study by Huang et al. fever has been reported as the most common symptom followed by cough, myalgia and fatigue.⁴ Rarer clinical manifestations include diarrhea, headache and sputum production. Talking about radiological findings, mid-lower zone opacities in chest radiographs and bilateral ground glass appearance on CT are the most common manifestations. Pneumothorax may be a common late complication in patients with risk factors like trauma, smoking, chronic obstructive airway diseases or mechanical ventilation but initial presentation as pneumothorax is a very rare presentation of COVID-19.⁵

In a case report by Aydin et al. spontaneous pneumothorax was found in a young patient with COVID-19 with imaging studies showing bilateral irregular consolidation without any evidence of underlying lung disease that would have predisposed the patient to pneumothorax.⁶ Salehi et al in systematic analysis of imaging findings in 919 patients diagnosed with COVID 19 pneumonia found ground-glass opacities in 88% of cases with no finding of pneumothorax in any of the cases.⁷ Similarly in a descriptive study done by Chen et al. which included 99 patients of 2019 novel coronavirus pneumonia in Wuhan, China, only one patient had imaging finding suggestive of pneumothorax.⁸ The patient was a 26 year old male with no any predisposing risk factor or structural lung disease yet presented with pneumothorax. Pneumothorax may develop in COVID-19 pneumonia due to alveolar damage which increases mortality and morbidity.

Spontaneous pneumothorax can be a rare presentation of COVID-19 which may be secondary to micro vessel inflammation and capillary wall thickening with diffuse alveolar injury. This is associated with increased morbidity and mortality and should be taken into consideration and monitored vigilantly.

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