

A Healthy Athletic Male with Covid-19 Infection Who Presented With Pneumothorax

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Abstract

COVID-19 infection pandemic caused by novel corona virus has impacted the whole world ubiquitously. Most common presenting symptoms of COVID-19 infection are fever, constitutional symptoms, respiratory symptoms and GI symptoms. COVID-19 infection primarily targets lungs which can potentially lead to ARDS. However, initial studies and multiple case reports have reported various other clinical presentations. In this case report, we describe a case of COVID-19 infection presenting with spontaneous pneumothorax.

Keywords: COVID-19; Pneumothorax; Hydroxychloroquine

Introduction

The COVID-19 infection pandemic caused by the novel corona virus (SARS-CoV-2) has impacted the whole world ubiquitously [1]. Rapid progression of SARS-CoV-2 has resulted in high morbidity and mortality [2,3]. The most common presenting symptoms of COVID-19 infection are constitutional symptoms, respiratory symptoms, and GI symptoms [3]. COVID-19 infection primarily targets the lungs which can potentially lead to ARDS and multi organ failure requiring ICU admission and ventilator support [2,4]. Studies have also reported various other less common clinical presentations of SARS-CoV-2 infection including cardiomyopathy and encephalitis [5]. So far, pneumothorax has not been reported as a common presentation of COVID-19 infection. In this report, we describe a case of COVID-19 infection presenting with spontaneous pneumothorax.

Case Report

A 58-year-old Caucasian male with past medical history of hypertension presented with a chief complaint of shortness of breath (SOB). On presentation, the patient reported a two-week history of flu like symptoms including dry cough, malaise, fatigue, and fever. The patient visited his primary care physician where he was tested for COVID-19. A day prior to presenting to the ED of our hospital, the patient felt left sided chest pain, worsening SOB with exertion, and a cough productive of blood tinged sputum. The patient had no prior history of lung disease. Family history was noncontributory. There was no history of smoking or substance abuse, neither was there any history of recent travel or sick contact. Review of systems was otherwise negative.

On presentation, the patient was hemodynamically stable with oxygen saturation of 97% on room air. CT scan of chest was obtained in the ED which showed a left-sided pneumothorax and bilateral extensive ground glass opacities. The appearance of the lung fields on CT scan was suggestive of COVID-19 infection (Figure 1).

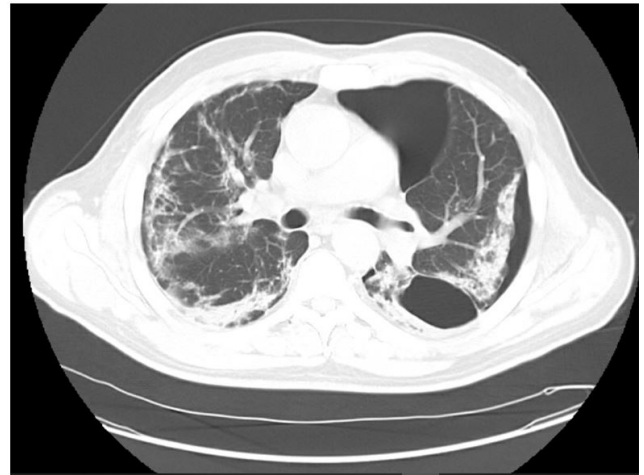


Figure 1:

Surgery was consulted in the ED for evaluation and placement of a chest tube. A chest tube was placed in the left pleural space and the patient was admitted to the ICU. Blood work showed elevated D-dimer 0.87 (Normal Value <0.5) and interleukin [6] 0.45 (Normal Value <5).

The patient remained stable and continued to improve. After the COVID-19 test came back positive, patient was started on Azithromycin and Hydroxychloroquine. On ICU day 2, the patient was transferred to a regular medical floor. Workup for influenza, mycoplasma and legionella were all negative. Blood cultures remained negative. Workup for autoimmune diseases including RF and ANA was also negative.

Repeat chest X-ray on day 4 showed no residual pneumothorax and the chest tube was removed (Figure 2). Patient completed 5 days of Azithromycin and Hydroxychloroquine. Patient was discharged home in stable condition with a referral for outpatient follow up.



Figure 2:

Discussion

Most COVID-19 infections have minimal to no symptoms. Respiratory symptoms are the most common presenting complaints in symptomatic patients [2]. Studies have also reported gastrointestinal symptoms including nausea, vomiting and diarrhea. Prior studies have also demonstrated that patients with comorbidities including hypertension, diabetes mellitus, cancer and chronic kidney disease, have worse outcomes [7]. Pneumothorax is a very rare presenting symptom of COVID-19. A recent case report published by Sun et al reported a case of COVID-19 infection who developed pneumothorax [8]. Like our patient, their patient also did not have a prior history of smoking, previous pneumothorax, or lung disease. This suggests that possibility of developing pneumothorax in patients with no prior lung disease. Pneumothorax has been reported in patients with viral pneumonia previously [9]. Several prior studies have reported spontaneous pneumothorax in patients who were infected with severe acute respiratory syndrome (SARS) coronavirus. The exact pathophysiology is unknown, however, the hypothesized mechanism for development of pneumothorax in these patients is diffuse alveolar injury leading to lung parenchymal rupture and pneumothorax. In a prior study of 6 patients with SARS-CoV infection, who developed pneumothorax, all the patients had high levels of D-dimer and LDH, suggesting some association of disease severity with development of pneumothorax [9]. However, unlike those patients, our patient did not have elevated LDH, and D-dimer was minimally elevated. This suggests that even less severe lung disease can present with pneumothorax. This patient was treated for COVID-19 infection and pneumothorax and was discharged home in stable condition. This case report is unique as it highlights the rare complication of pneumothorax with COVID-19 infection that was successfully treated. Physicians should be aware that patients presenting with spontaneous pneumothorax, with or without the usual signs and symptoms

associated with COVID-19, should be evaluated for COVID-19 infection during this pandemic.

Conclusion

This retrospective, nationwide study aims to identify factors that contributed towards Malta's favorable outcomes during the first wave of the COVID-19 pandemic. Timely and effective public health interventions and widespread access to testing for COVID-19 undoubtedly played an important role in curbing the spread of COVID-19. Thorough infection control policies at MDH are likely to have significantly prevented nosocomial spread and decimation of the workforce.

A rigorous and remote surveillance system for patients diagnosed in the community and a low threshold for admission meant that patients with moderate-severe disease were identified early and managed accordingly. Patients admitted to hospital with moderate-severe disease were treated with HCQ+AZI combination, in line with evidence available at the time. All patients were discharged home with no deaths reported in this group. No adverse events were noted in patients on combination therapy.

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