Case Report

Respiratory Distress with Minimal Exertion: A Case of 2019 Novel Coronavirus (COVID-19) Pneumonia

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Abstract

Description

COVID-19 is a new coronavirus that can cause severe respiratory distress. Interestingly, patients can present with COVID-19 and appear relatively well but with significant hypoxia, even with minimal movement. The authors present the case of a well-appearing gentleman who became acutely short of breath while undergoing chest imaging, stating he could not breathe. He tested positive for COVID-19 and recovered. His presentation, clinical course and imaging findings are discussed.

Keywords

Acute Respiratory Distress Syndrome; COVID-19; SARS-CoV-2; pandemics; respiratory tract infections; coronavirus infections; pneumonia; dyspnea

Introduction

An outbreak of pneumonia associated with a novel coronavirus, now commonly known as COVID-19, emerged in Wuhan, China, in December 2019. For most of 2020, this novel virus that had been causing severe illness globally, becoming a pandemic—an outcome that has not been seen since the Spanish Flu of 1918.[1] Typically, patients with COVID-19 pneumonia present with fever, shortness of breath, non-productive cough and fatigue.[2] Some are extremely ill, with acute respiratory distress requiring mechanical ventilation. However, some patients can present with COVID looking relatively well while at rest, with respiratory distress only occurring with exertion, even only minimal exertion. The authors present such a case. The patient came in with a history that was consistent with pneumonia. He appeared relatively well as long as he did not have to speak, move or hold his breath. Even minimal exertion dropped his oxygen saturation precipitously.

Case Presentation

A 61-year-old male presented to our emergency department with the chief complaint of cough and fever that had been gradually worsening over the last 10 days since admission to the hospital. The patient reported no medical problems and denied any medication use on a daily basis. The patient did not smoke, drink or use drugs of any kind. He stated he was unable to take a deep breath without significant amounts of coughing and that it took him several seconds to breathe more easily. He reported having a fever at home that did not improve with antipyretics. He also reported a mild headache.

On the physical exam, the patient was tachypneic with a respiratory rate of 27 breaths/minute. While he was giving his history, his oxygen saturation went from 99% on room air down to 90%. It took greater than 10 seconds for his oxygen saturation to return to normal after he finished speaking. He was febrile, with a temperature of 100.8°F. His blood pressure was 173/82 mm Hg, and his pulse was 103 beats per minute. The exam was also indicative of a dry cough.

Given his fever and tachypnea, an initial workup for sepsis was ordered. Results demonstrated typical mild lymphopenia, elevated D-dimer and elevated procalcitonin. His labs were other-

wise unremarkable. Chest radiograph demonstrated multilobar pneumonia. (**Figure 1**) His chest computed tomography demonstrated ground-glass opacities noted throughout the lungs, most prominent in the right upper lobe and left lower lobe. (**Figure 2**)

Etiologies such as atypical pneumonia, organizing pneumonia and malignancy were considered, but given the patient's clinical picture, COVID-19 was at the top of our differential.

The patient was placed in respiratory isolation and subsequently admitted for further testing, treatment and observation. Throughout his emergency department stay, the patient remained stable without evidence of impending deterioration as long as he did not exert himself—even minimal movement caused him to desaturate. The patient's COVID-19 test then came back positive. He was treated with 1 g ceftriaxone IV, 500 mg azithromycin IV in the ED and 1 oral dose of ivermectin 16.5 mg inpatient. The patient's clinical course never significantly deteriorated. He did not require intubation or ventilatory support. He was discharged on hospital day 14 with ambulatory room air saturation of 94% and normal labs. He was instructed to strictly quarantine himself for another 14 days.

Discussion

There are currently 7 types of coronaviruses that infect humans, 4 of which generally cause mild, self-limited illnesses of the upper respiratory and gastrointestinal tracts.[3,4] In 2002, Severe Acute Respiratory Syndrome, caused by the coronavirus SARS-CoV, swept across Guangdong, China, resulting in over 700 fatalities.[5] Common symptoms include fever, myalgias, headache, nonproductive cough, dyspnea and, in 30-40% of cases, diarrhea.[4] Middle East Respiratory Syndrome coronavirus (MERS-CoV) was first detected in Saudi Arabia and resulted in over 800 deaths.[4] Spread by zoonotic transmission, specifically by camels, MERS commonly presents with similar symptoms as SARS but has also been noted to cause sore throat, pneumonia, vomiting and acute renal impairment. Fatality rates for SARS and MERS have been reported as 9% and 36%, respectively.[4]

As the COVID-19 coronavirus has an 82% nucleotide match with SARS-CoV, it was named SARS-CoV-2. An estimated 81% of patients will have a mild flu-like illness. Our patient presented with the frequently reported symptoms of fever, cough and dyspnea.[6] Severe disease will develop in 5% of patients, including acute respiratory distress syndrome (ARDS), septic

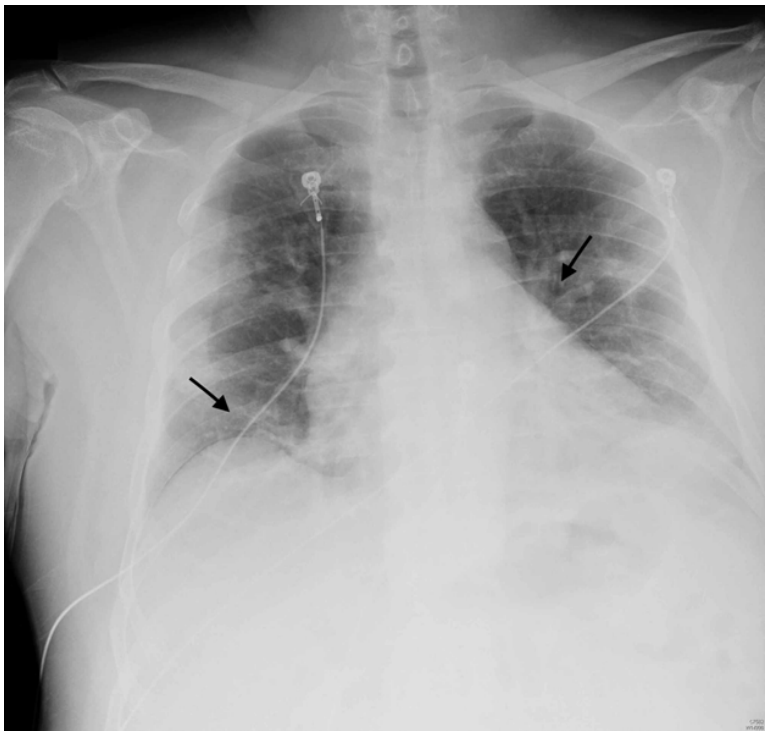

Figure 1. Chest radiograph demonstrating multifocal pneumonia (arrows).

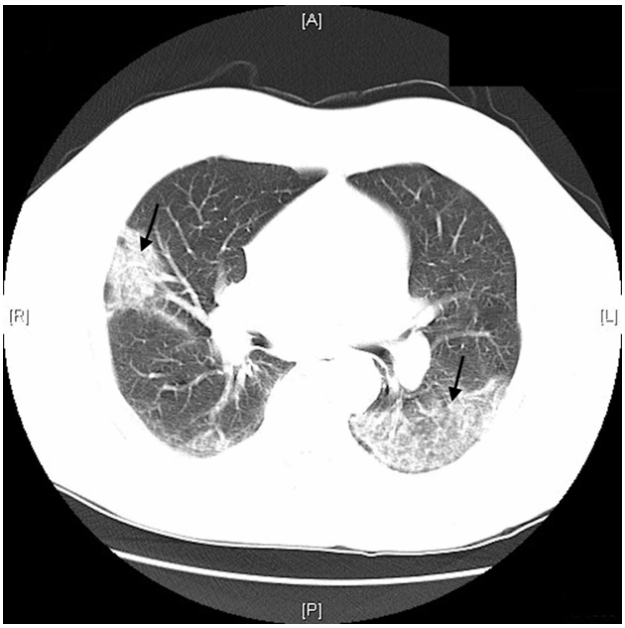

Figure 2. Bilateral ground glass opacities (arrows) on chest computed tomography (CT).

shock and respiratory failure requiring mechanical ventilation.[5] Mortality rates early in the pandemic were noted to be as high as 11–15%, as patients who died had developed ARDS and multi-organ failure over a short period of time. Later reports note rates closer to 2–3%.[7]

The most common laboratory findings in patients include decreased albumin, elevated C-reactive protein, elevated lactate dehydrogenase and lymphopenia.[8] CT chest findings in COVID-19 patients demonstrate bilateral ground glass opacities—most likely peripheral—initially and progress to multilobar consolidations.[9,10] The patient presented in this case had the typical laboratory and chest CT findings for COVID-19.

Several medications are under investigation as treatment for COVID-19. On August 23rd, 2020, the U.S. Food and Drug Administration issued an emergency use authorization (EUA) for a COVID-19 convalescent plasma that is believed to reduce the duration of the illness and minimize the severity.[11] Remdesivir also proves to be a promising medication at this time.[7] Hydroxychloroquine has been among the most investigative treatment options. However, its efficacy has been doubted recently, and its side effect profile, mainly QT prolongation causing arrhythmias, makes this drug less desirable.[12] Convalescent plasma transfusion with neutralizing antibodies has been shown to result in significant clinical improvement in select patients with ARDS and is currently still under investigation.[13] Ivermectin is an anthelmintic agent that has been safely used for decades, and a consensus panel deemed it safe to use for any severity of COVID-19.[14] It works via selective inhibition of the host importin α/β transporter protein, which decreases translocation of SARS-CoV nucleocapsid protein from the cytoplasm to the nucleus. This altered nucleocapsid protein distribution disrupts viral propagation and survival.[15]

In our area, Orlando, Florida, new cases of COVID-19 have been erratically fluctuating every day, but there is no noticeable increase or decrease in the trend of cases over time. On September 8th, 2020, there were 2,324 new cases presented, but, in comparison, 1 month later, there were 2,904 new cases on October 8th, 2020.[16] The lowest number of new cases a day in Orlando, which was 810, occurred on September 27th, 2020. However, there are no distinguishable attributes over the course of the time period that explains why there were significantly less new cases that day.

Conclusion

Our patient presented with the commonly reported symptoms of fever, cough and dyspnea. On presentation, he was approximately 10 days into his illness, which was in the moderate to severe stage given his tachypnea and significant drop in oxygen saturation with minimal

exertion. Fortunately, he did not require mechanical ventilator support and was discharged from the hospital 14 days later. Although most patients will have mild symptoms, a significant number will develop severe disease, which can rapidly progress to respiratory failure and death.

Conflicts of Interest

The authors declare they have no conflicts of interest.

Drs. Fusco, Ganti, Houck, Lebowitz and Webb are employees of Osceola Regional Medical Center, a hospital affiliated with the journal's publisher.

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