

# The Development of Pulmonary Hypertension after COVID-19 Infection in a Patient with Chronic Restrictive and Obstructive Lung Disease

Christina Duechle, OMS-III<sup>1</sup>, Dakota Becker-Greene, OMS-III<sup>1</sup>, Lindsay Tjattas-Saleski, DO<sup>1</sup>

<sup>1</sup>Edward Via College of Osteopathic Medicine, Carolinas Campus, Spartanburg, SC

<sup>2</sup>Spartanburg Regional Healthcare System, Church Street, Spartanburg, SC

<sup>3</sup>Edward Via College of Osteopathic Medicine, Auburn Campus, Auburn, AL

## Background

The long-term effects of COVID-19 infection remain relatively unknown but have been demonstrated to influence both restrictive and obstructive lung diseases. The patient discussed in this case presented to the Emergency Department for the second time in two months with an NSTEMI and a past medical history of chronic asthma, severe scoliosis, and past COVID-19 infection. They were ultimately diagnosed with type three pulmonary arterial hypertension.



## References and Acknowledgements

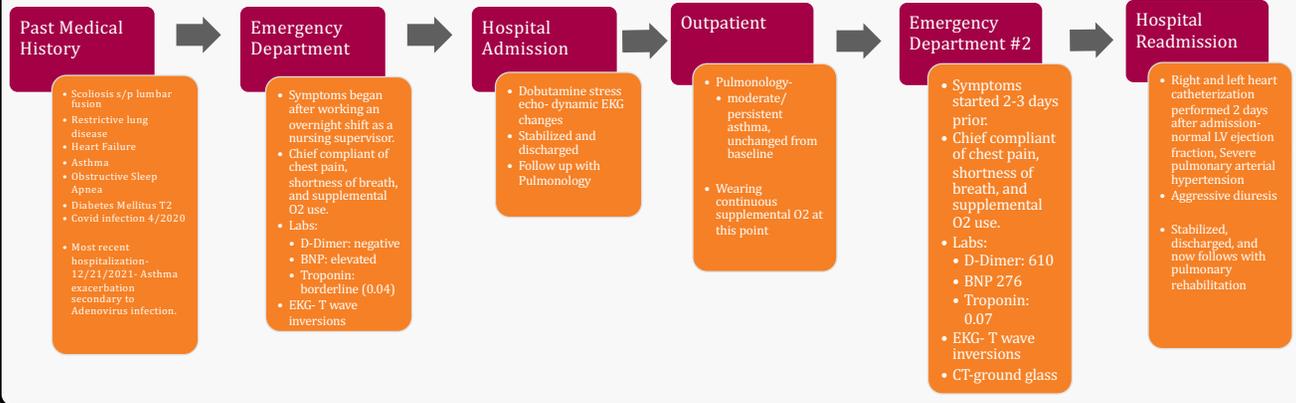


Edward Via College of  
Osteopathic Medicine-  
Carolinas Campus  
St. Luke's Medical Center  
- Columbus, NC

## Case Description

51-year-old female with established severe scoliosis, asthma, and past COVID-19 infection reported to the emergency department for exertional substernal chest tightness with radiation to her back for the past 2-3 days.

## Timeline of Events

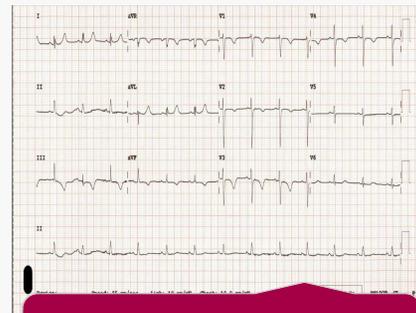


## Conclusions

Evidence suggests that COVID-19 infection can lead to extensive pulmonary interstitial and alveolar inflammatory infiltrates. Even in patients without prior cardiac conditions, COVID-19 infection has been associated with an increased risk of developing PAH, regardless of infection severity (8). Moreover, severe scoliosis exerts multiple adverse effects on the cardiorespiratory system, compromising chest-wall movement and contributing to restrictive ventilatory disorders by reducing forced vital capacity (9-11). In patients with severe scoliosis who contract COVID-19, the risk of pulmonary arterial hypertension, acute myocardial injury, and acute respiratory distress syndrome is heightened (8). Given these risk factors observed in our patient, the progression to severe disease may not be entirely unexpected; however, it prompts consideration of pre-emptive measures to potentially mitigate disease severity.

The presented case underscores the significance of vigilant monitoring and comprehensive management in patients with co-existing chronic lung diseases and COVID-19 infection. Early identification of risk factors, prompt intervention, and multidisciplinary collaboration between pulmonary and cardiac specialists are imperative to optimize patient outcomes and potentially ameliorate the onset and progression of pulmonary hypertension following COVID-19 infection.

## Figures



**Image 1. EKG during initial Emergency Department Visit, 3/26/2022**

**Table 1. Notable Initial Labs Taken at second ED on 04/22/2022 at 19:01**

Lab	Value	Normal Range
Troponin	0.07 ng/mL	0.00-0.03 ng/mL
B-Type Natriuretic Peptide (BNP)	276 pg/mL	0-100 pg/mL
RDW	15.7%	12-15%



**Image 2. Cardiac Catheterization, 4/25/2022 (day 3 of admission)**