Pneumothorax, pneumomediastinum and pneumoperitoneum in a COVID-19 patient
Raziye Ecem Akdogan, Turab Mohammed, Camila Trejo-Parades, Rahul Mutneja
University of Connecticut Internal Medicine Department

Introduction

- There are a few case reports and case series of spontaneous pneumothorax and pneumomediastinum in intubated patients with COVID-19.¹

- Here we present a COVID-19 patient who had the rare combination of pneumothorax, pneumomediastinum, pneumoperitoneum, and subcutaneous emphysema.

Case description

- A 62-year-old male with a history of OSA on CPAP was admitted for progressive respiratory failure from COVID-19 pneumonia.

- He received Plaquenil and azithromycin along with convalescent plasma.

- On hospital day 5, he was intubated due to hypoxic respiratory failure.

- Despite four weeks of intubation patient’s family refused tracheostomy and wanted to continue endotracheal intubation.

- On week four, the patient became hypotensive and developed worsening hypoxia.

- Chest X-ray confirmed extensive subcutaneous emphysema with right-sided pneumothorax.

- Computed tomography of the chest and abdomen showed pneumomediastinum and pneumoperitoneum.

- A chest tube was placed, and the pneumothorax and subcutaneous emphysema later decreased, but he became progressively hypotensive, and he sustained cardiac arrest and passed away.

Figure 1: Arrows indicate Pneumothorax, Pneumomediastinum and subcutaneous emphysema

Figure 2: Showing extensive subcutaneous emphysema extending from the neck to thigh with air around the heart

Discussion

- The aggressive nature of the COVID-19 leads to progressive alveolar damage and rupture and resultant hypoxemia.²

- Ventilator-induced lung injury (VILI) from prolonged mechanical ventilation could lead to barotrauma related alveolar rupture.³

- Alveolar rupture leads to formation of the subpleural bleb and the subsequent pneumothorax.⁴

- Occasionally escaped air dissect along the perivascular and peri bronchial vascular sheath into the mediastinum, retroperitoneum, subcutaneous tissue leading to pneumomediastinum, pneumoperitoneum, or subcutaneous emphysema.⁵

- If there is a new onset hypoxia, dyssynchrony with the ventilator or rapidly progressive hemodynamic instability in a patient with the COVID-19, these complications should keep in mind, and early imaging studies and urgent intervention should be considered.

References


