Pneumothorax, pneumomediastinum and pneumoperitoneum in a COVID-19 patient

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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.

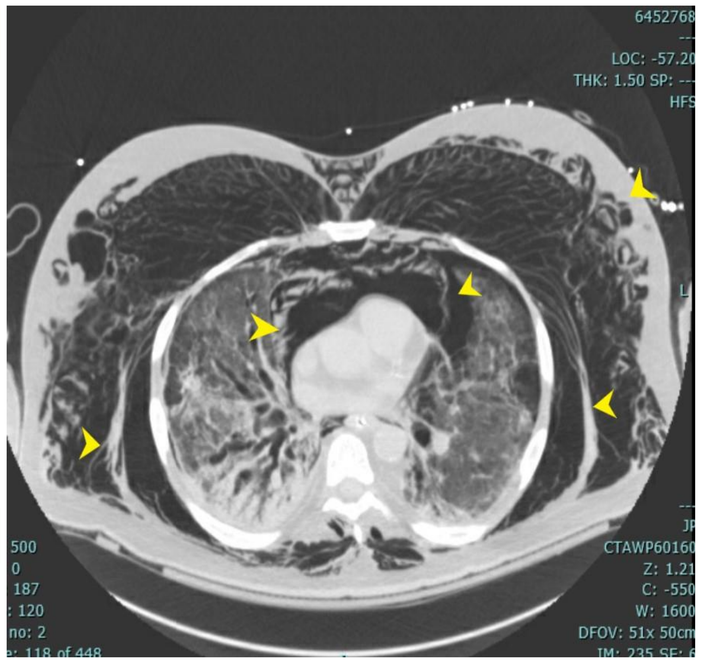

Figure 1: Arrows indicates Pneumothorax, Pneumomediastinum and subcutaneous emphysema

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

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