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Multiple Spontaneous Gaseous Lesions in a Severely Neurologically Ill Patient after COVID-19

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Introduction

Typical radiologic findings of pulmonary involvement by Coronavirus disease-2019 (COVID-19) are ground-glass opacities. Some reports have been published on findings such as subcutaneous emphysema and pneumothorax caused by COVID-19. We describe a case of spontaneous extended subcutaneous emphysema accompanied by pneumothorax, pneumomediastinum, and pneumoperitoneum without direct involvement of lung parenchyma in a tracheostomized patient with severe hypoxic brain damage after COVID-19 infection.

Case report

A 21-year-old female patient had a history of an in-car traffic accident resulting in cardiac arrest and consequent hypoxic brain injury. Since the accident, she underwent tracheostomy and ventriculoperitoneal shunt operations and became persistent vegetative status. Complaining of diffuse swelling at the face and neck, increased respiratory rate, and hypotension, she was referred to the emergency room of our hospital from a nursing hospital where she had been hospitalized for long-term conservative care. Before 3 weeks of transferring, she was infected with COVID-19 and recovered without any complications. On palpation, generalized edema on the cervical and upper thoracic regions and crepitus was observed. CT scans revealed multiple gaseous lesions, such as extended subcutaneous emphysema from the face to upper chest wall, pneumothorax, pneumopericardium, pneumomediastinum, pneumoperitoneum, and pneumoretroperitonum (Fig. 1 and 2). Including inflammatory markers, laboratory tests were non-specific. Bilateral chest tubes were placed, oxygen was applied via the airway, and intravenous antibiotics were administrated. Afterward, the patient became hemodynamically stable, and cervical edema and subcutaneous emphysema also subsided. Follow-up imaging at 2 weeks showed resorption of the gaseous lesions (Fig. 3).

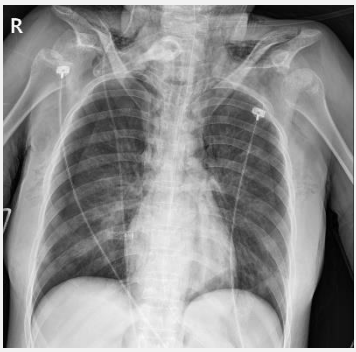

Fig. 1. Chest X-ray showing bilateral pneumothorax, pneumomediastinum and chest wall subcutaneous emphysema.

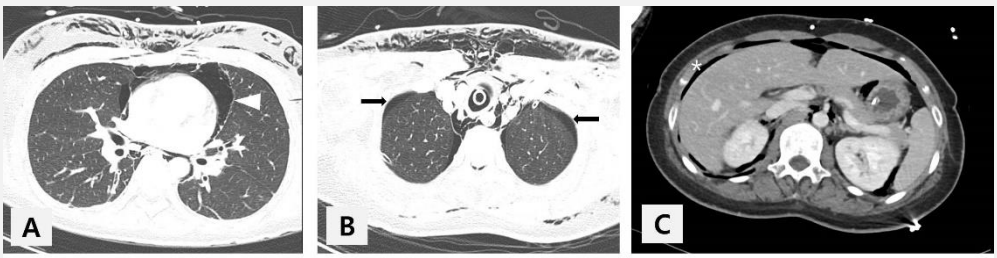

Fig. 2. A CT scan of the chest and abdomen with contrast media. (A) Axial image of chest CT reveals pneumopericardium (asterisk). (B) Axial image of chest CT shows extensive subcutaneous emphysema in anterior chest wall, along with bilateral pneumothorax with chest tube insertion status (arrow). (C) Axial image of abdomen CT shows pneumoperitoneum (asterisk).

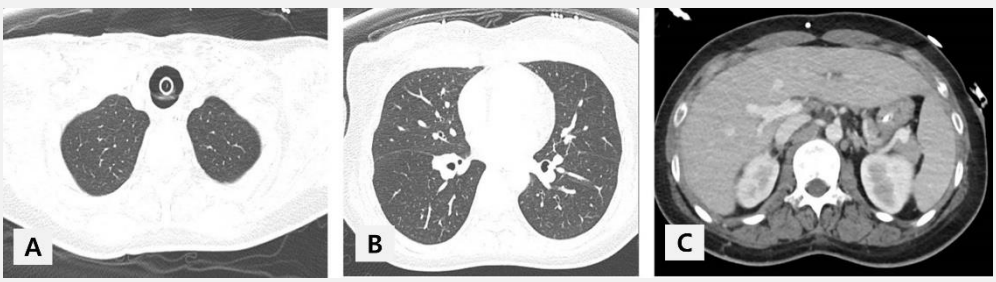

Fig. 3. Follow-up CT scan with contrast media. (A) Chest CT shows resolution of pneumothorax. (B) Chest CT shows absorption of pneumopericardium. (C) Abdomen CT demonstrates resolved pneumoperitoneum.

Conclusion

Extended emphysematous lesions in multiple organs can be one of the complications after COVID-19 infection.