

Introduction

- E-cigarette or vaping product-associated lung injury (EVALI) was recognized as a new entity in 2019.
- The pathology of the disease is still poorly understood. A comprehensive pathophysiological basis for the lung injury seen in these patients is yet to be established.
- E-cigarettes use-associated injury (E-VALI) is a respiratory illness that can mimic various pulmonary illnesses such as:
 - Acute fibrosis
 - Pneumonitis
 - Diffuse alveolar damage
 - Organizing pneumonia

Clinical Case

- A 33-year-old male with no prior medical history arrived at the ER presenting with acute respiratory failure and was placed on invasive mechanical ventilation.
- The patient's spouse indicated he has been vaping nicotine and THC products in conjunction with intermittent cigarette use for roughly five years.
- Findings of emphysema due to pneumomediastinum in the clinical setting of recent e-cigarette use were factors that led to E-VALI as a diagnosis of exclusion after pertinent workup excluded other differential diagnoses.
- Despite experiencing a fluctuating initial transition from mechanical ventilation to independent breathing, the patient managed to recover sufficiently to be discharged home in a stable condition without the need for respiratory support.

References

- Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products | Electronic Cigarettes | Smoking & Tobacco Use | CDC. (2021, August 3). Centers for Disease Control and Prevention. https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html
- E-cigarette, or vaping product, use Associated Lung injury (EVALI). (2022, August 11). Yale Medicine. <https://www.yalemedicine.org/conditions/evali#:~:text=Sheets%20%3E%20Yale%20Medicine,E%2Dcigarette%2C%20or%20Vaping%20Product%2C%20Use%20Associated%20Lung%20Injury,breath%2C%20cough%2C%20and%20chest%20pain>
- Zulfiqar, H. (2023, June 25). Vaping-Associated pulmonary injury. StatPearls - NCBI Bookshelf. <https://www.ncbi.nlm.nih.gov/books/NBK560656/>

Physical exam:

- General: Acutely Ill, Alert, Oriented in Person, Oriented in Time, Oriented in Place and Other, In acute distress
- HEENT: Normocephalic, PERRLA, EOMI and Moist Oral Mucosa, EET in place
- Heart: Regular Rate and Rhythm (tachycardic)
- Lungs Sounds: Bilateral Scattered Wheezes.
- Abdomen: Normal bowel Sounds, Soft, Depressible and Distention

Suggested diagnostic criteria of EVALI

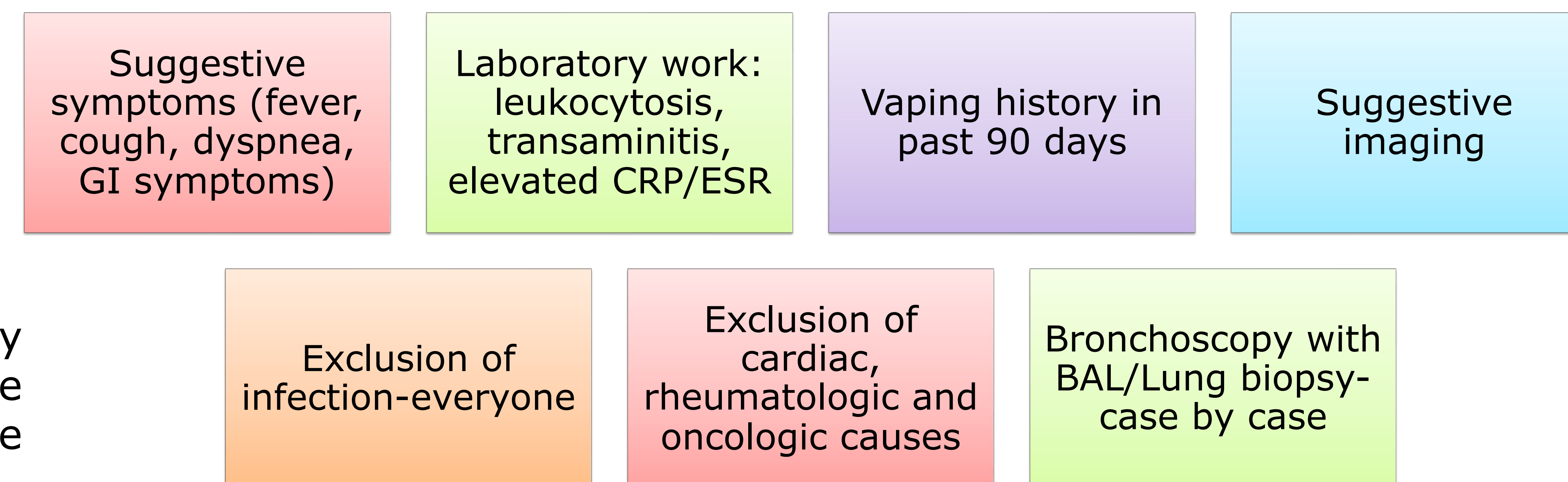


Fig. 1. CXR Pneumomediastinum overlying tissues

Discussion

- While EVALI remains a clinical diagnosis three elements should be present:
 - the use of an e-cigarette in the 90 days preceding initial symptoms
 - pulmonary infiltrates on a plain chest radiograph or chest CT
 - the absence of other possible etiologies, such as infection
- E-VALI can be present with an array of symptoms such as cough, chest pain and/or shortness of breath.
- In the summer of 2019, the Centers for Disease Control and Prevention (CDC) began to investigate a steep rise in hospitalizations linked to the use of vaping products
- By February 2020, the CDC had recorded over 2800 hospitalizations due to EVALI, with 68 deaths caused by the condition.

Prognosis:

- A significant number of patients may end up requiring non-invasive or invasive mechanical ventilation.
- A recent study of 98 patients showed:
 - 76% of the cases needed supplemental oxygen
 - 22% required non-invasive ventilation (NIV)
 - 26% required intubation and mechanical ventilation.
 - Poor prognostic indicators include a patient age of more than 35 years.

Learning Points

- As a Family medicine physician, it is imperative to know to the toxic habit of our patient to guide and to prevent further impact into their health.
- As the long-term consequences are yet to be defined, guidelines are still developing.
- We propose appropriate early interventions could have a significant impact to reduce the risk of serious long-term complications.