

# Respiratory Failure Associated with Vaping-Induced Lung Injury



Jason Chang, MD, Mingwei Yu, MD, Christian Espana Schmidt, MD, FACP

Department of Medicine, Danbury Hospital



## INTRODUCTION

- Vaping-associated pulmonary injury (VAPI) is associated with severe and often life-threatening respiratory failure and frequently mistaken for common pulmonary illnesses such as bacterial pneumonia or COVID-19 infection.
- The rarity of this disease poses significant challenges to timely diagnosis and management especially in the current era of COVID-19 pandemic.

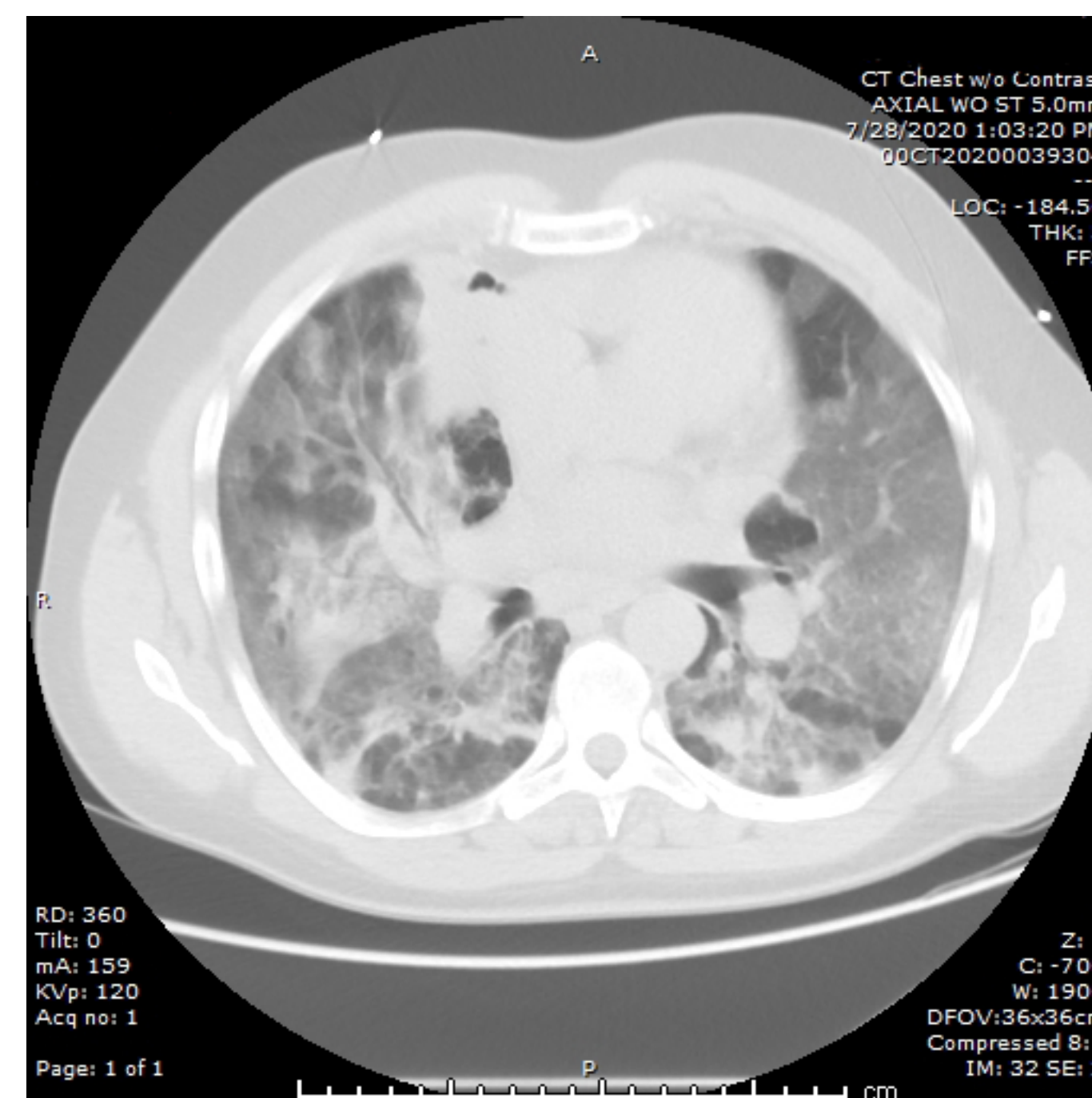
## CASE PRESENTATION

- A 43-year-old male presented with progressively worsening dyspnea, productive cough of rusty sputum, and high-grade fever for 2 weeks.
- He was admitted for acute hypoxic respiratory failure, and quickly moved to the critical care unit due to rapidly declining status.
- Initial workups were significant for elevated CRP and procalcitonin level, positive drug screen for cocaine, but normal white blood cell count.
- CT of the chest with contrast showed extensive groundglass opacities characteristic for COVID-19 infection.
- He was empirically treated for community-acquired pneumonia with high suspicion of concomitant COVID-19 infection, however, his symptoms failed to improve and he was on the verge of intubation.
- He was tested three times for COVID-19 infection with high-sensitivity PCR, but each time he tested negative.
- Given his history of incarceration and homelessness, tuberculosis was considered, however, this was also ruled out.
- Other plausible causes of his illness including autoimmune diseases, fungal infections, and acute HIV infection were also explored, but all were eventually ruled out.

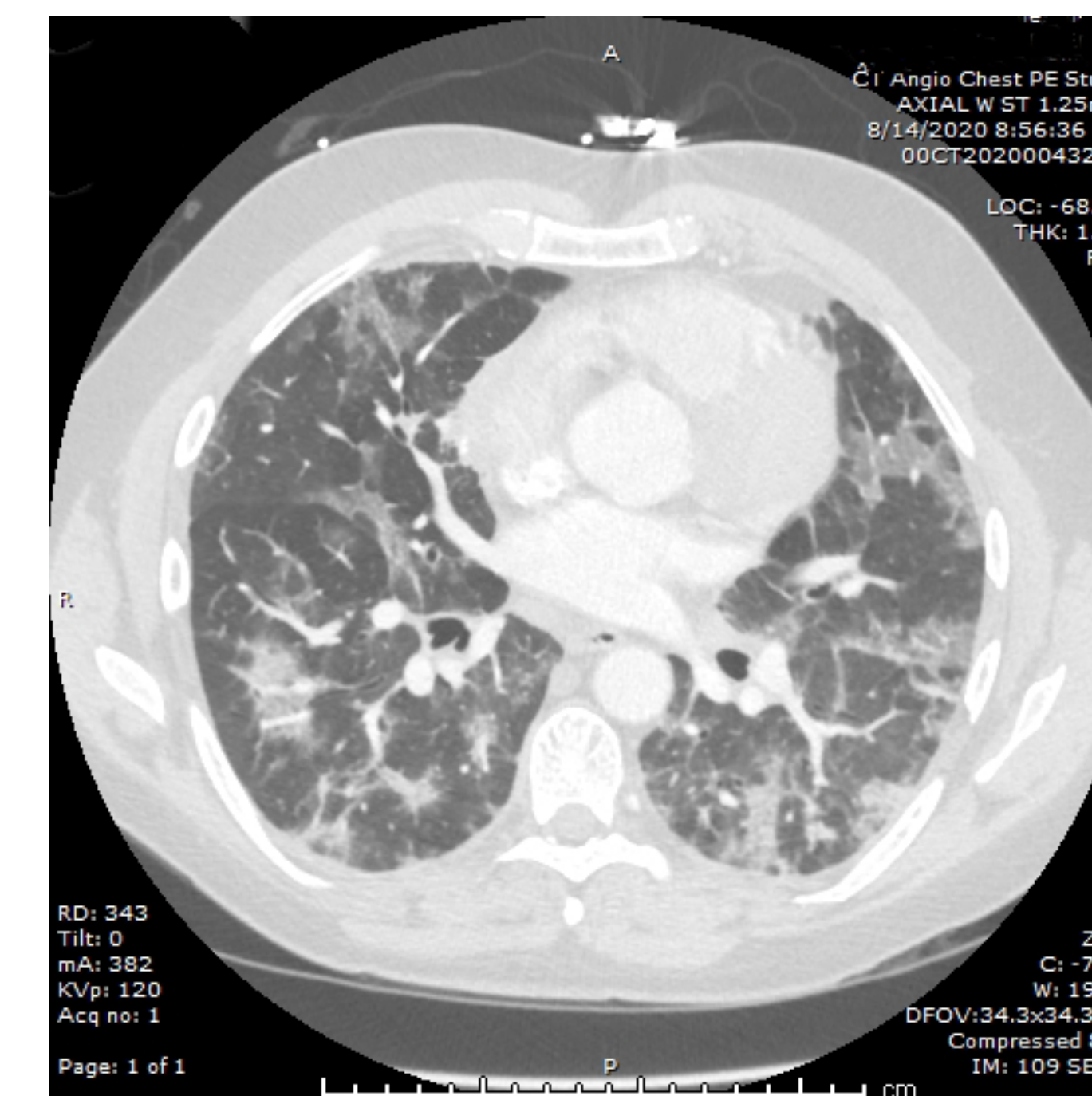
## CASE PRESENTATION

- Upon further investigation of his social history, it was discovered that he has been vaping on daily basis for many months.
- He was started on high-dose intravenous steroids and experienced marked clinical improvement within a few days.
- Mechanical ventilation was avoided and eventually he was discharged home without need for any oxygen support.

## IMAGING

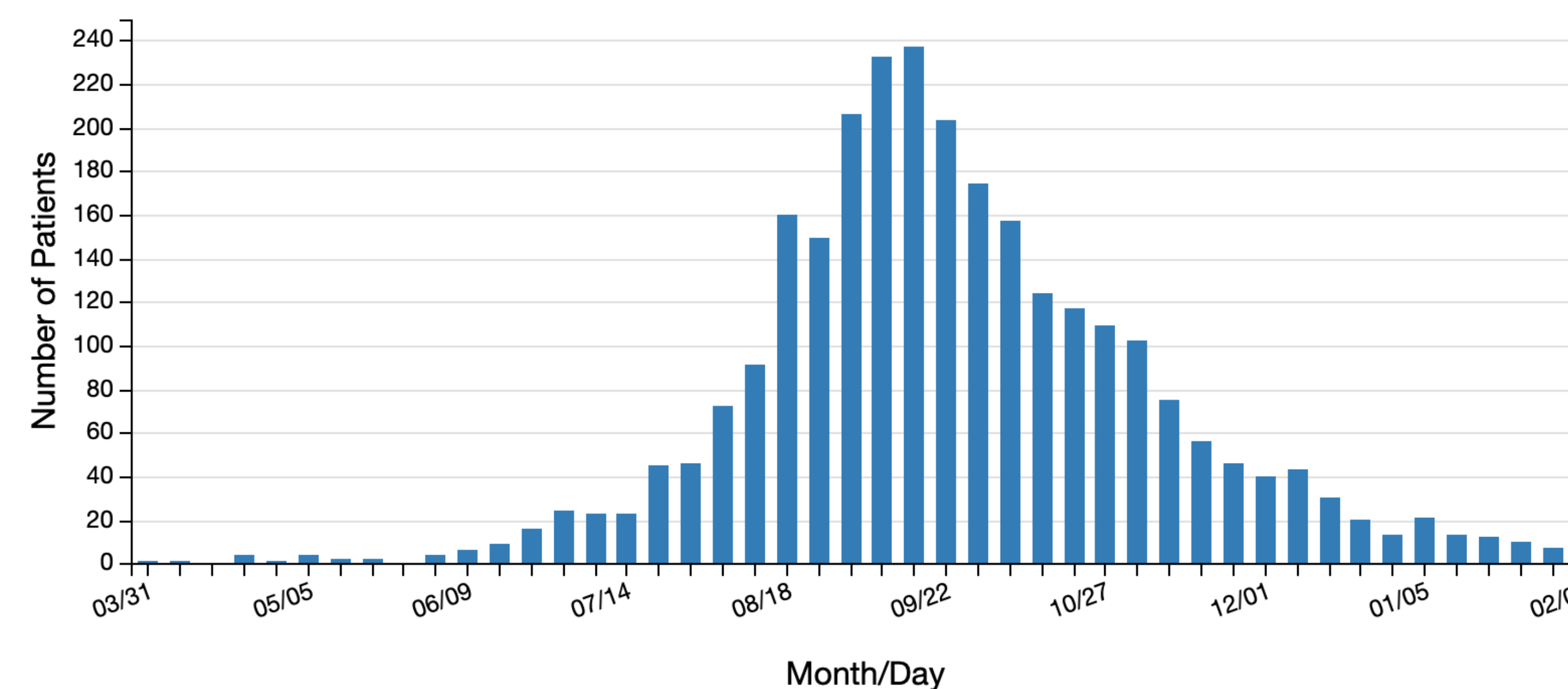


CT chest without contrast at time of initiation of systemic steroids.



CT angiogram of chest about a week post-treatment with systemic steroids.

Dates of symptom onset and hospital admission for patients with lung injury associated with e-cigarette use, or vaping — United States, March 31, 2019–February 15, 2020



Source: United States Center for Disease Control and Prevention

## DISCUSSION

- Vaping is the process of inhaling an aerosol created by heating a substance such as nicotine or tetrahydrocannabinol (THC) with a battery-operated electronic device such as an electronic cigarette (e-cigarette).
- Systemic glucocorticoids have been used in a majority of patients with EVALI, but the efficacy has not been well-studied. In our case, the initiation of high-dose systemic steroids brought about drastic clinical improvement.

## CONCLUSION

- Substances-induced lung injury is under-diagnosed and often mimics many common infections.
- This particular case underscores the importance of a detailed history including frequently-overlooked social habits in diagnosing patients with diseases of uncommon etiologies.

## REFERENCES

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