



# Anthrax vaccine induced acute eosinophilic pneumonia



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## Introduction

- Acute eosinophilic pneumonia (AEP) is an inflammatory process typically linked with new onset smoking/vaping
- Reported after influenza and PPSV-23 vaccines
- No reported cases clearly associated with the anthrax vaccine

## Case Presentation

### Day 1 (Presentation):

- 31yo AD man presents with fevers and dyspnea 3-4 days after 5<sup>th</sup> dose of anthrax vaccine
  - Non-smoker, no contributing history/meds
- Tried on antibiotics (abx) for CAP (Image 1)

### Day 4 (Admission):

- Returned in respiratory distress (vaccine+6days)
- Initial work-up;
  - leukocytosis, no peripheral eosinophilia, CXR (Image 2), CTPA (Image 3) showed bilateral multilobar pneumonia
- Thoracentesis;
  - straw colored exudate with eosinophil count at 8%
- Developed respiratory failure (NIPPV started)

### Day 11 (Diagnosis):

- Bronchoalveolar lavage;
  - **eosinophil count 26%**
  - pANCA/MPO (-), cANCA (-)
- Glucocorticoid therapy continued
- Stopped antibiotics

### Day 13 (Discharge):

- Resolution of respiratory insufficiency

### 2 weeks after discharge:

- Complete radiographic resolution (Chest x-ray)
  - Confirmed with CT HR at 1 month (Image 4)



Image 1: Chest x-ray 2 days prior to admission

Disease  
→  
Progression



Image 2: Chest x-ray at admission



Image 3: CTPA at admission

Disease  
→  
Resolution



Image 4: CT HR at 1 month

## Discussion

- Case demonstrates a previously undocumented complication of anthrax vaccine
- Anthrax vaccine induced AEP suggested by:
  - Strong temporal association
  - No exposures/smoking/medications to explain AEP, (91-100% of deployed service members with AEP smoked)
- Military has relatively high rates of disease
  - Incidence of 9.1 per 100 000 person-years
  - Skewed prevalence in Army service members
- Previous case series;
  - (Shore, 2004) 100% of active duty cases had received at least 1 dose of anthrax vaccine
    - No evidence of AEP in local community during study
- Suggest possible predisposition for AEP after anthrax vaccination in the AD population
- Further investigation is needed to establish relationship

## Conclusion

- ❖ This is the first reported case of anthrax vaccination induced AEP
- ❖ Anthrax vaccination may be a contributing factor to developing AEP in the active duty population

## References and Disclaimer

*The views expressed are those of the author(s) and do not reflect the official policy or position of the US Army Medical Department, Department of the Army, Department of Defense or the U.S. Government.*

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