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A Walking Case of Extensive *Klebsiella pneumoniae* Mimicking Lung Cancer

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Disclosure

I have no financial disclosure or conflict of interest with the presented material in this presentation.

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Why is this case important?

- Different lung pathologies may have similar clinical presentation
- Accurate diagnosis yields correct and effective treatment
- Early diagnosis can avoid treatment delay
- Highlights importance of screening & eliminates modifiable risk factor

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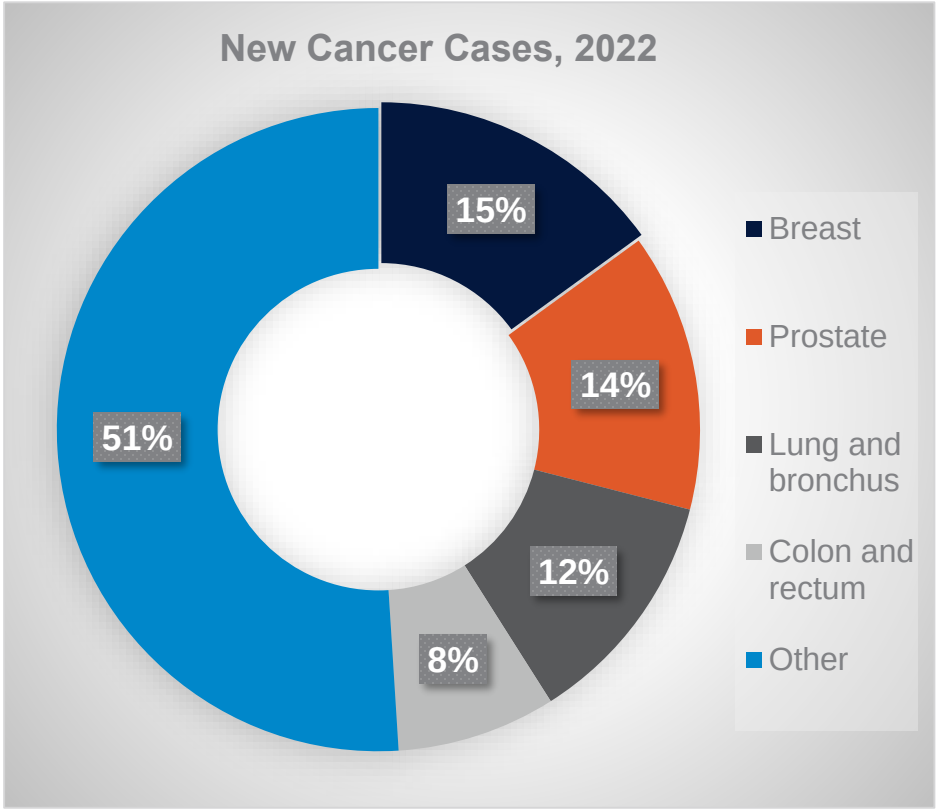
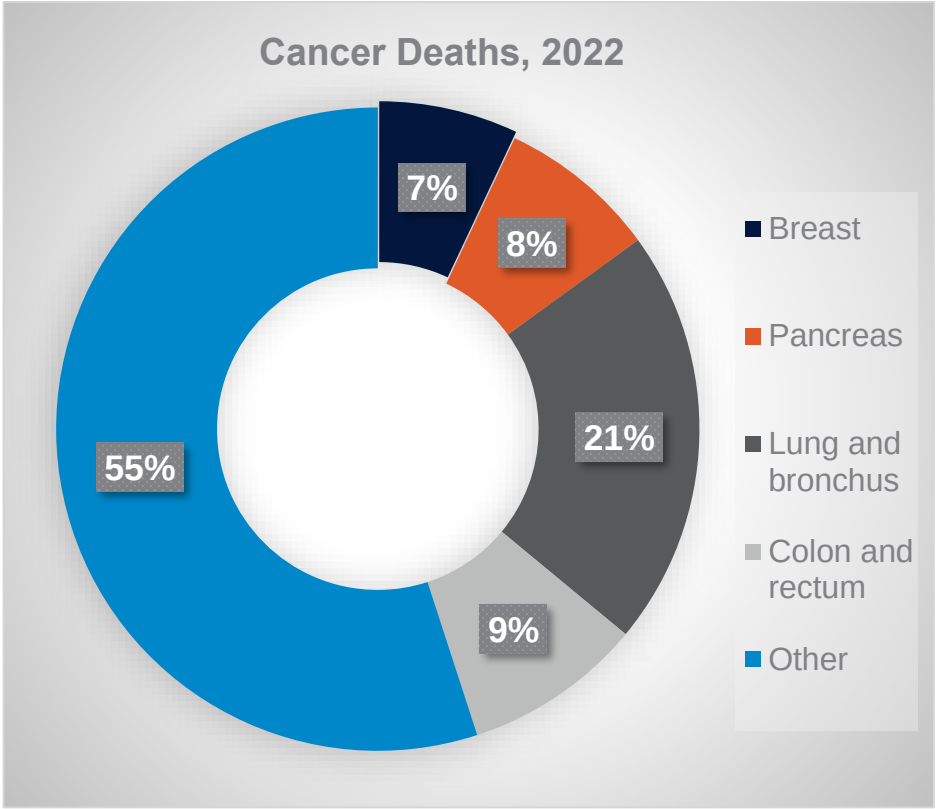
Cancer Stats at a Glance





National cancer institute. Cancer stat facts: common cancer sites. NIH. 04 Apr.2023.

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Presentation in ED

- 40 yo M recent immigrant from Honduras with history of smoking 1 PPD x 27 years
- Presented with: dyspnea, cough, chills, fever, weight loss
- Vitals: RR 32, HR 128, 37.8 C, sat 97% on room air, 116/68
- Exam: cachectic, right-sided crackles & decreased breath sounds
- Labs: WBC 29.2, neutrophil 86.2, Hb 8.5, Na 126, AST 219, ALT 151, ALP 219
- CXR: profound airspace consolidation of right upper and midlung
- CTA chest: large 11.3 x 15.5 x 23.6cm right upper lobe mass with areas of heterogeneous enhancement tiny areas emphysema

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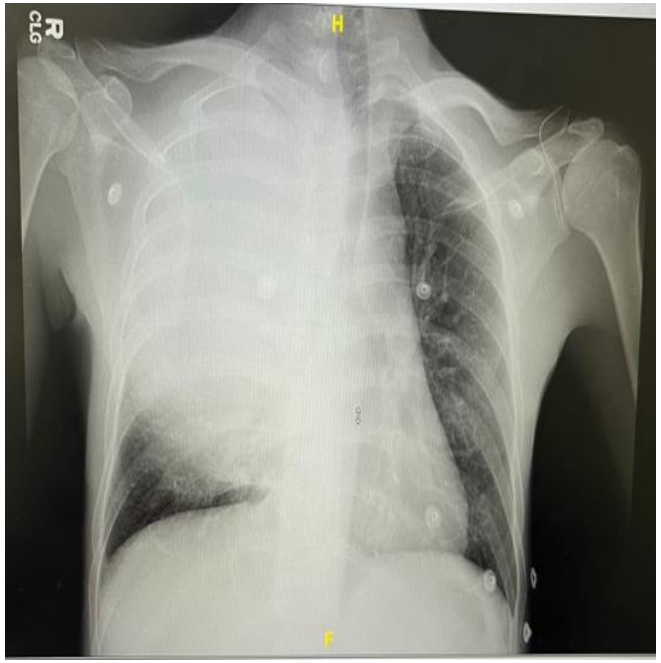
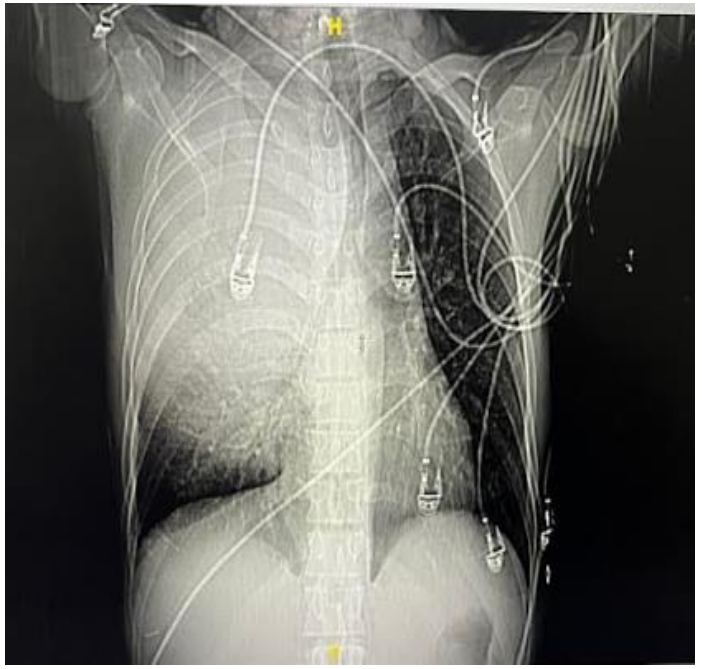
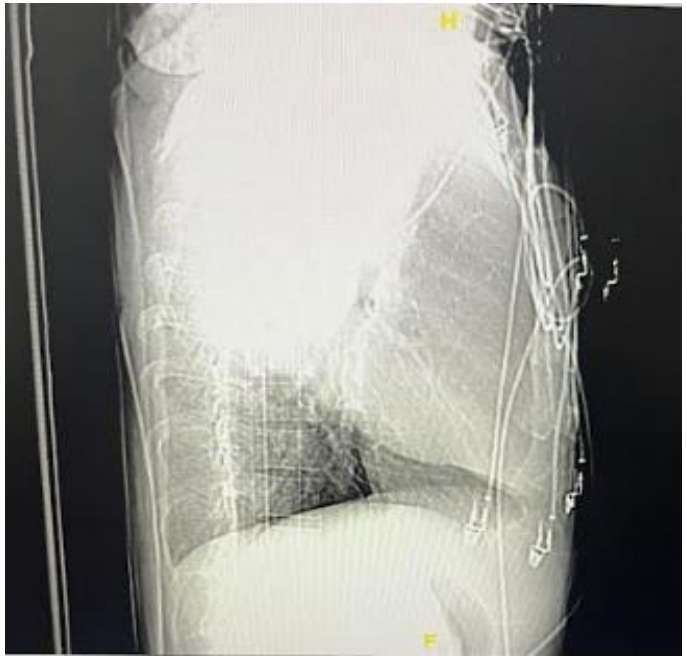
Imaging on Admission







Source: HCA Meditech

Left figure: XRAY 5/30 with profound airspace consolidation of right upper lung (RUL) & right middle lung (RML).

Middle & Right figure: CTA chest 5/30: large 11.3x 15.5x 23.6cm right upper lobe mass with areas of heterogeneous enhancement tiny areas emphysema

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Differential Diagnosis

Infectious

- Pneumonia
- Pulmonary tuberculosis
- Pulmonary abscess
- HIV

Noninfectious

- Pulmonary cancer
- COPD
- Pulmonary fibrosis

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Hospital Course

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- Started empiric Piperacillin/Tazobactam and Cefepime
- Oxygen supplement: 2L nasal canula to keep sat >90%
- Blood culture: Gram negative rods- *Klebsiella pneumoniae*
- IR guided biopsy of RUL lung mass
- Bronchoscopy x 2 with purulent secretions and biopsies obtained
- *Klebsiella pneumoniae* isolated from sputum & blood culture sensitive to Ceftriaxone
- HIV negative
- AFB sputum negative x 3
- AFB smear negative x 3

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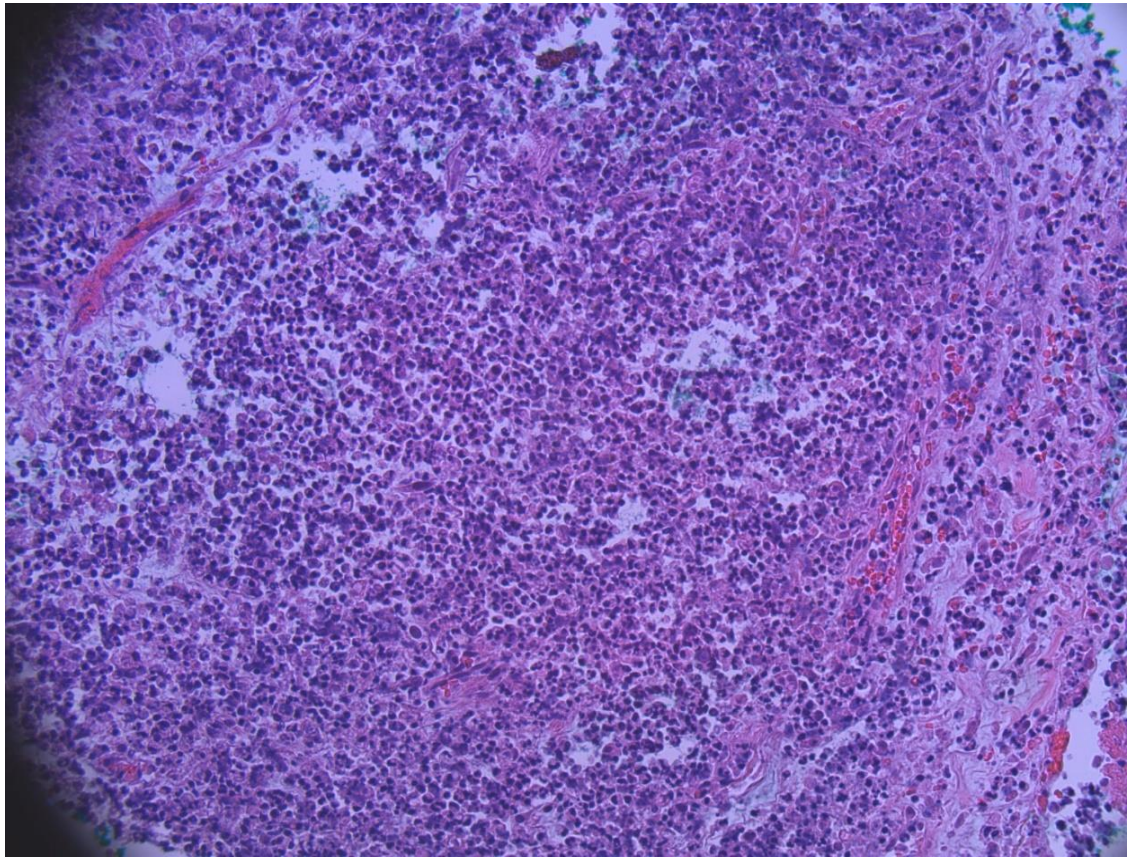
Result

Right lung, mass, image-guided core biopsy:

- Extensively necrosis with acute inflammation
- No malignancy identified
- GMS and AFB negative for fungus and mycobacteria
- Comment: Findings may represent a lung abscess.
- Image shows neutrophils in a necrotic background. (H&E 10x)



Source: Spec # Su22:OP:1977

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Result

RML Bronchoalveolar lavage (BAL) biopsies:

- Benign respiratory mucosa with acute & chronic inflammatory infiltrate
- Mixed inflammatory cells, macrophages, reactive bronchial epithelial cells
- Fragment of fibroadipose tissue
- No malignancy identified
- GMS negative for fungus

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Result

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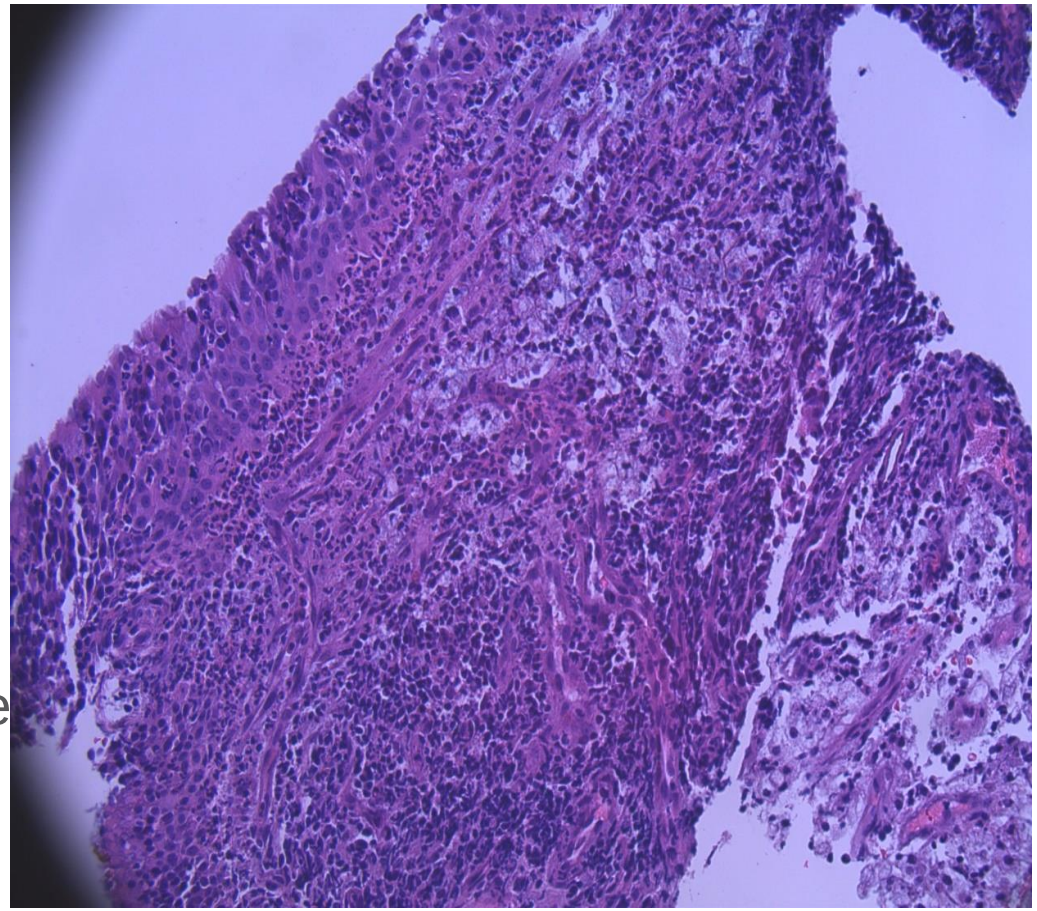
- SU23:OP:2101 Lung, right upper lobe, biopsies:
  - Bronchial mucosa with severe acute inflammation and focal histiocytes.
  - Other fragments showed necrosis and acute inflammation.
  - GMS and AFB negative for fungus and mycobacteria
  - (H&E stain, 20x magnification)
- RML biopsies: bronchial mucosa with marked chronic active inflammation
- CD163: diffusely positive in foamy appearing macrophages



Source: SU23:OP:2101

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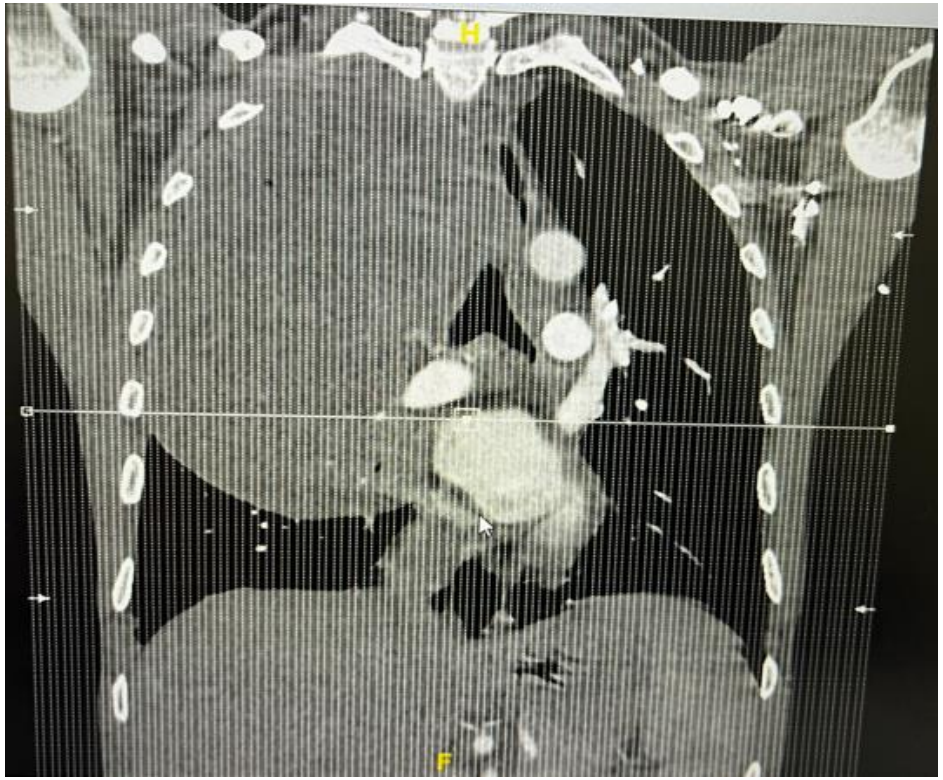
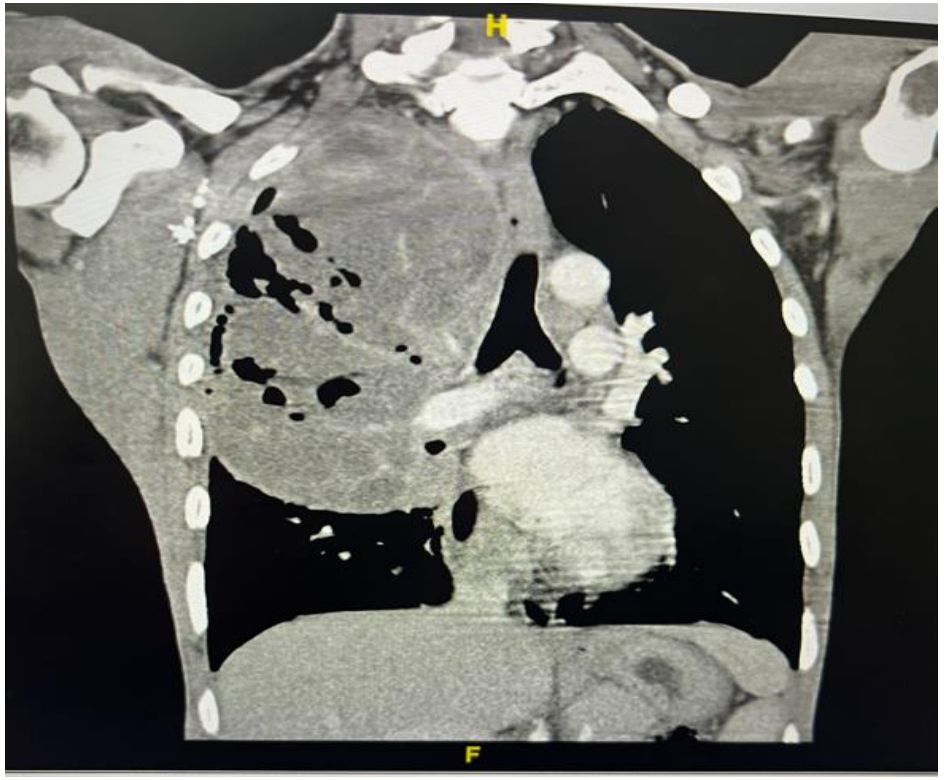
CT chest (on admission vs after bronchoscopy)





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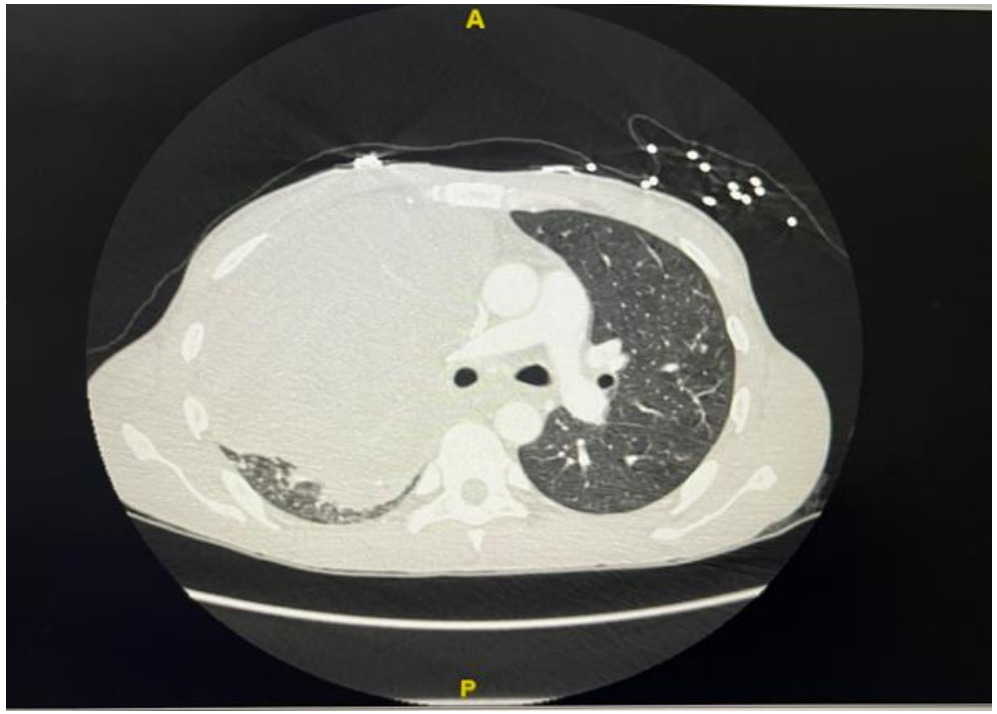
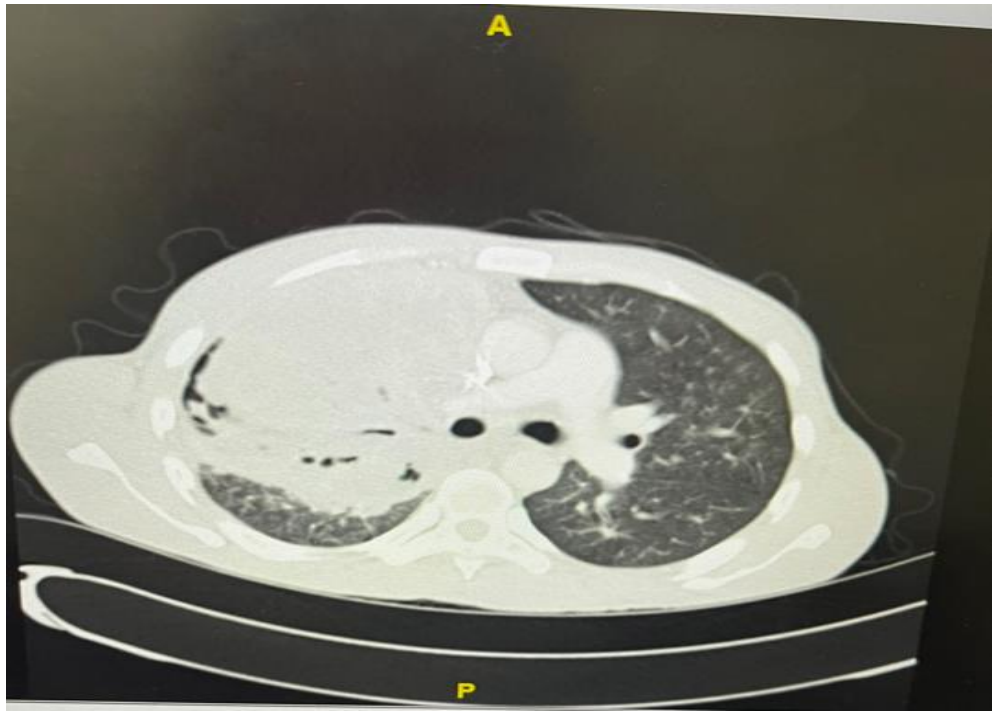
CT chest at the level of pulmonary artery (before vs after bronchoscopy)





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Conclusion- A Case of Friedlander's Pneumonia

- Severe form of community acquired pneumonia (CAP) caused by Friedlander's bacillus (*K. pneumoniae*)
- Prevalent in alcoholism, chronic pulmonary diseases, immunocompromised patients
- Discovered by German microbiologist Carl Friedlander in 1882
- Highest incidence in developing countries and in Asia
- Fulminant, lobular, abscess-forming pneumonia with predilection for right upper lobe
- Patient declined surgical evaluation for RUL abscess and agreeable to antibiotic
- Smoking cessation and routine screening strongly advised
- Repeat blood culture 6/7 negative
- Stable for discharge with 6 weeks of Amoxicillin/Clavulanate per Infectious Disease recommendations

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Summary Highlights

- Pulmonary evaluation approach: Infectious vs Noninfectious
- Vital role of histopathology in assisting with diagnosis
- Consider Friedlander's pneumonia in alcoholics, immunocompromised, recent immigrants/travel
- Routine screening for early detection and improve health
- Smoking is the most significant modifiable risk factor
- Bridge the health literacy gap to improve compliance

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