NYU Langone MEDICAL CENTER

DIVISION OF INFECTIOUS DISEASES AND IMMUNOLOGY

CLINICAL GRAND ROUNDS

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FELLOW, INFECTIOUS DISEASES
NEW YORK UNIVERSITY SCHOOL OF MEDICINE

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CHIEF COMPLAINT

64 year old male

Fever, shortness of breath, non-productive cough, fatigue x 2 weeks

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DAY 1

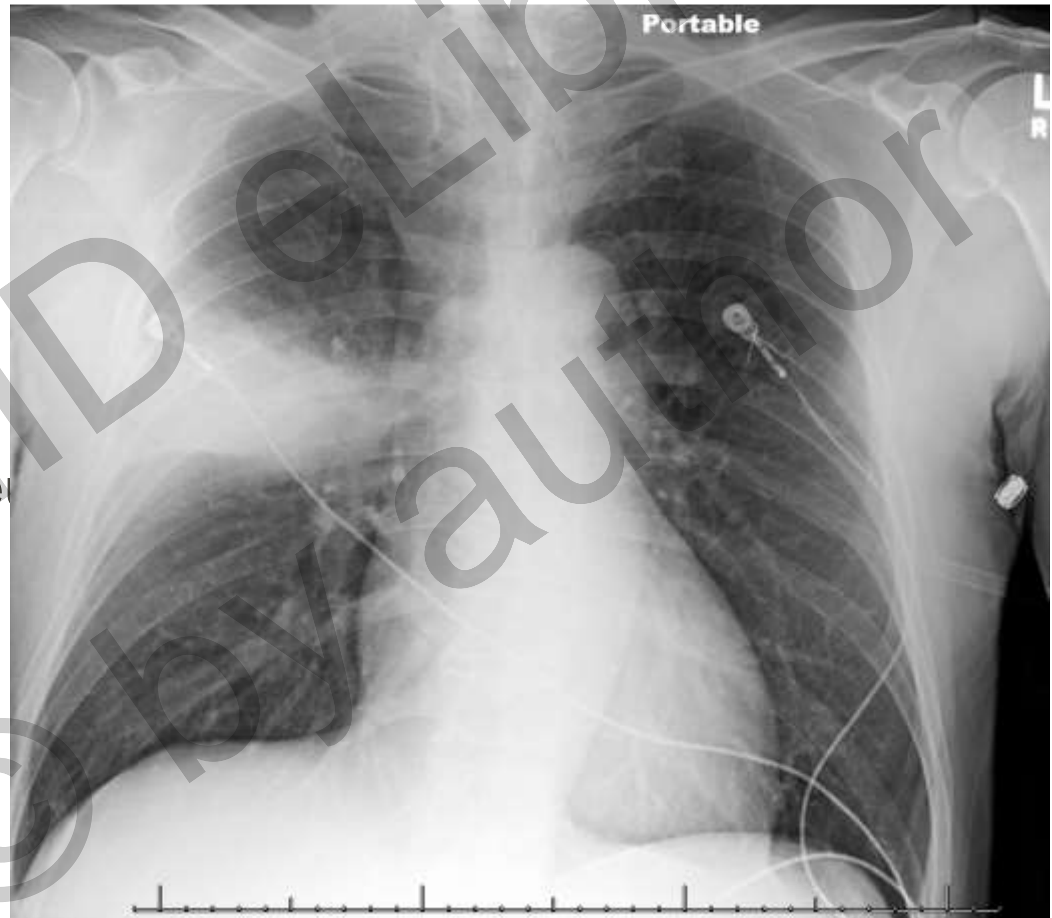
WBC 16 ×10^9/L

Admitted for two days

Community acquired pne

Levofloxacin

Sent home



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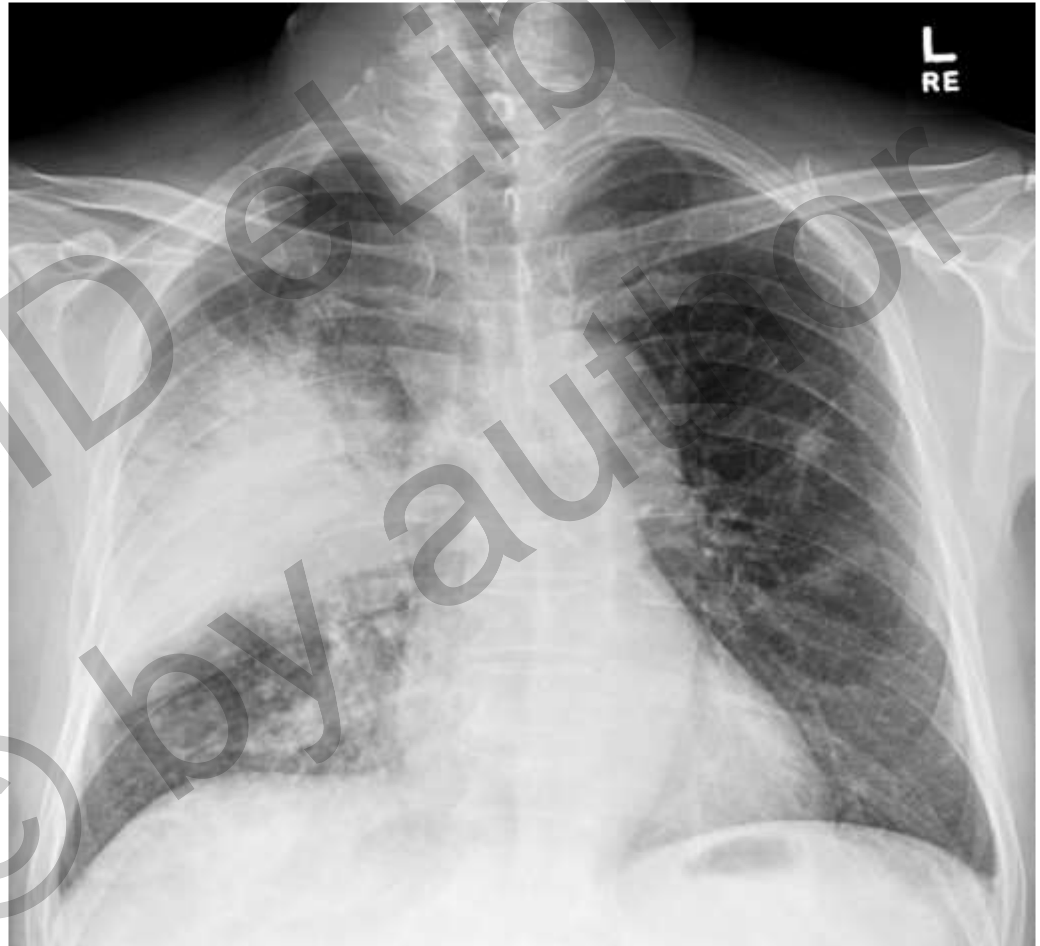
DAY 4

Worsening symptoms

WBC 18 $\times 10^9$/L

Linezolid and Cefepime

Multi-focal pneumonia



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ECCMID PANEL DIFFERENTIAL DIAGNOSIS

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PAST MEDICAL/SURGICAL AND FAMILY HISTORY

Benign Prostatic Hyperplasia

Appendectomy

Family History non-contributory

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SOCIAL HISTORY

Living in New York City x 30 years

Originally from rural China- Last travel back April to May 2016

Works as a private driver within/outside NYC, often drives people upstate

Family recently made compost in the backyard, but not himself

Recent travel, returned two weeks before onset of symptoms:

Las Vegas→ San Francisco→ Yosemite→ Las Vegas by bus

Unknown HIV status, no risk factors. No tobacco, alcohol, drug use

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DAY 4

Worsening hypoxia and hypotension

Transferred to Medical Intensive Care Unit

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DAY 5

Sputum stain and culture without any organisms seen or grown

Respiratory pathogen PCR panel negative

Mycobacterial smears x 3 negative

Urine Legionella Antigen negative

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ECCMID PANEL DIFFERENTIAL DIAGNOSIS

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DAY 6

Electively intubated for bronchoscopy with broncho-alveolar lavage

Serum galactomannan positive at 1.10 (<0.5 EIA index)

Serum beta-D-glucan positive at >500 (<60 pg/mL)

Urine histoplasma antigen positive at >20 (<0.4 ng/mL)

Started on liposomal Amphotericin 5 mg/kg

Received stress dose Hydrocortisone for septic shock

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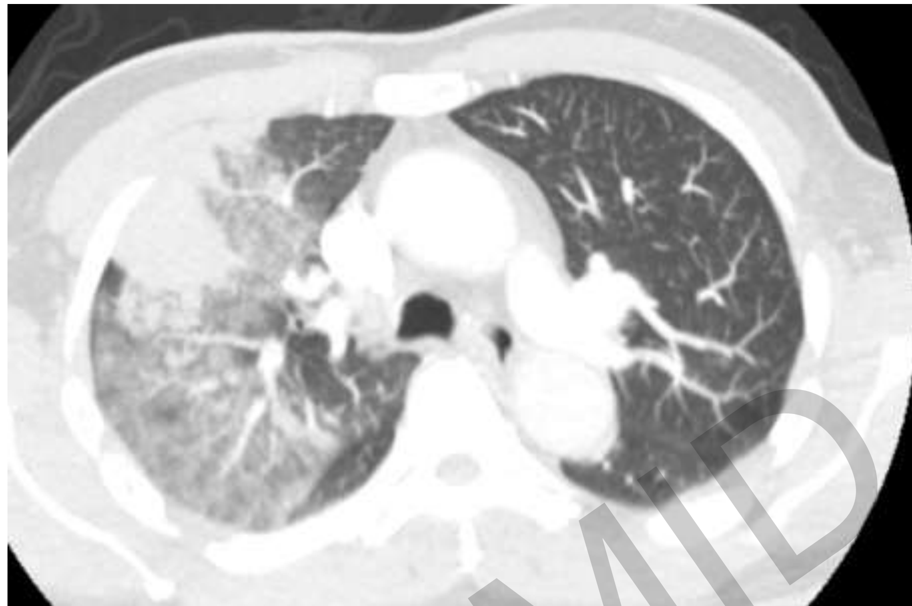
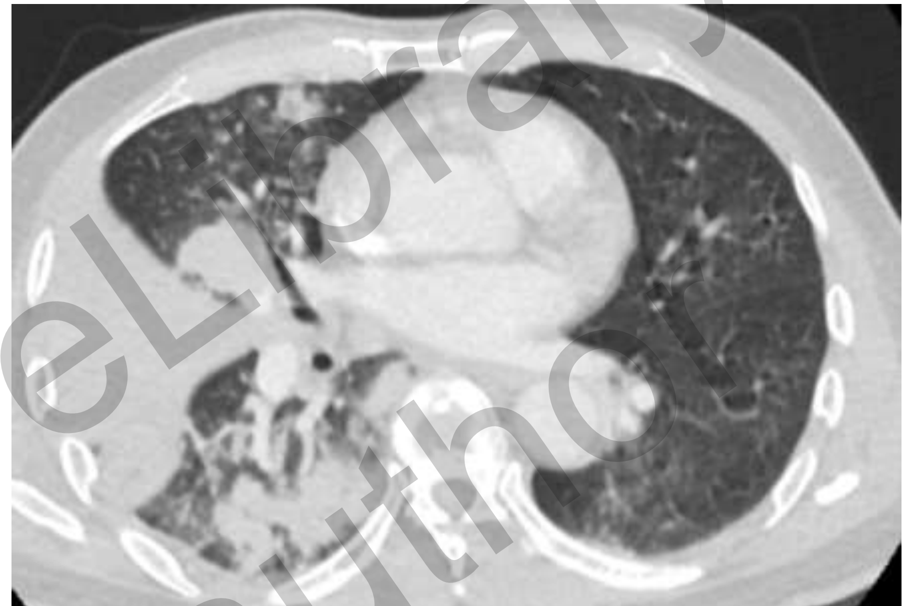
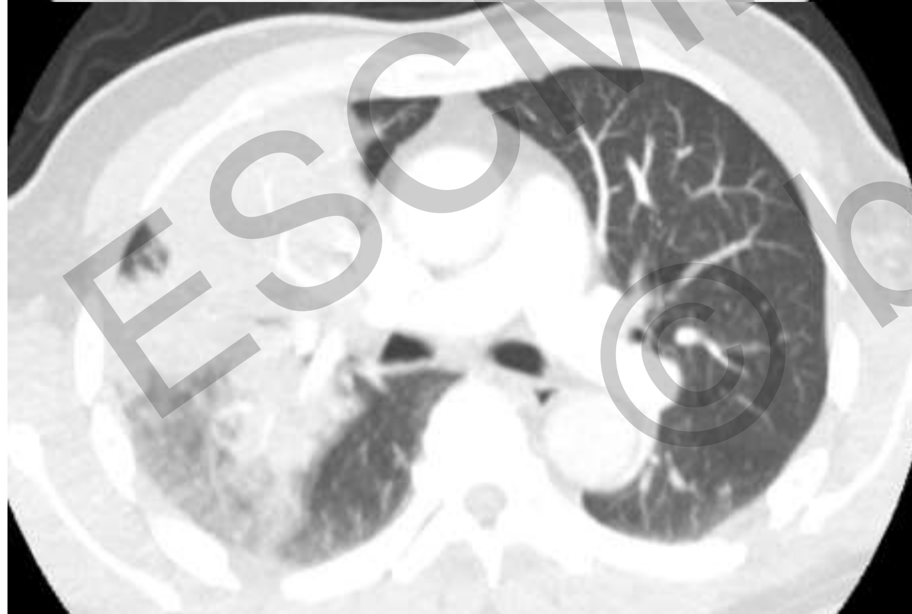
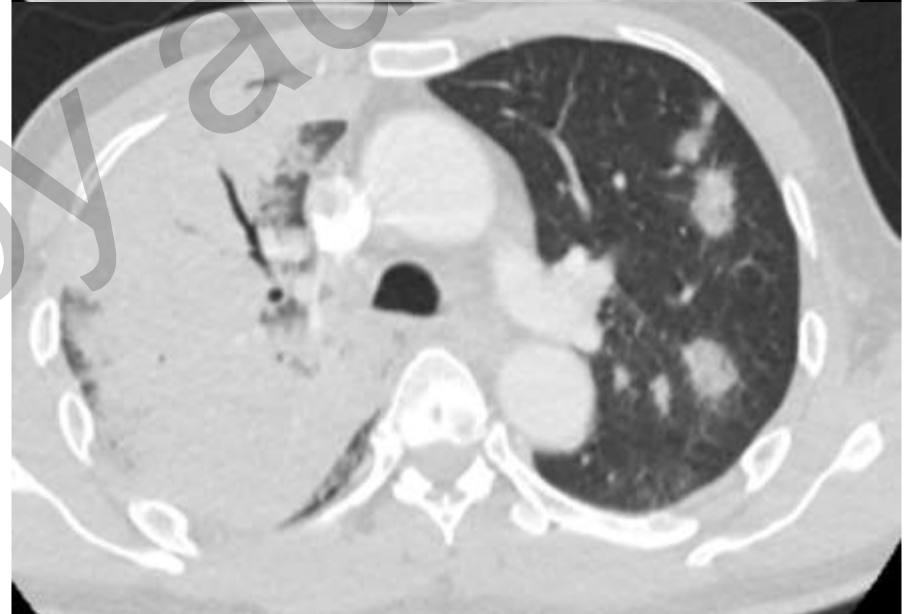
DAY 1

DAY 8









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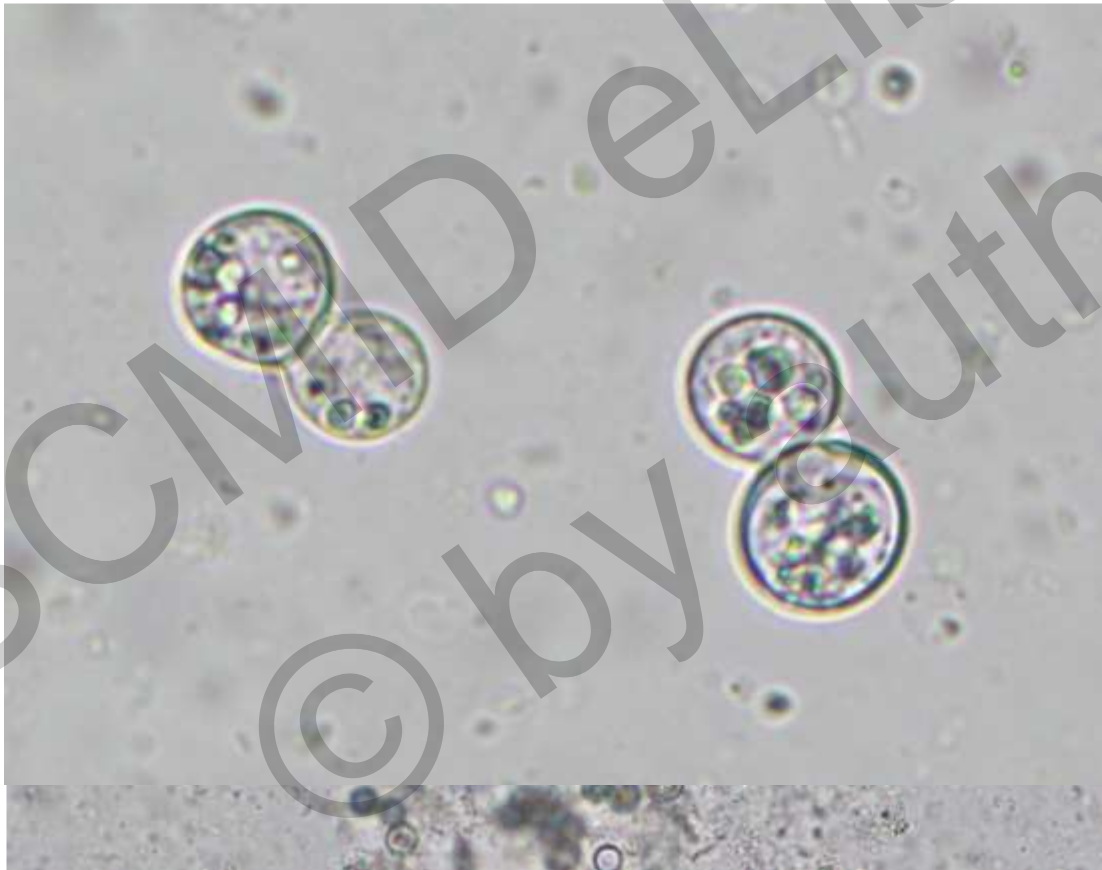
DAY 15

Broncho-alveolar lavage culture consistent with fungal elements



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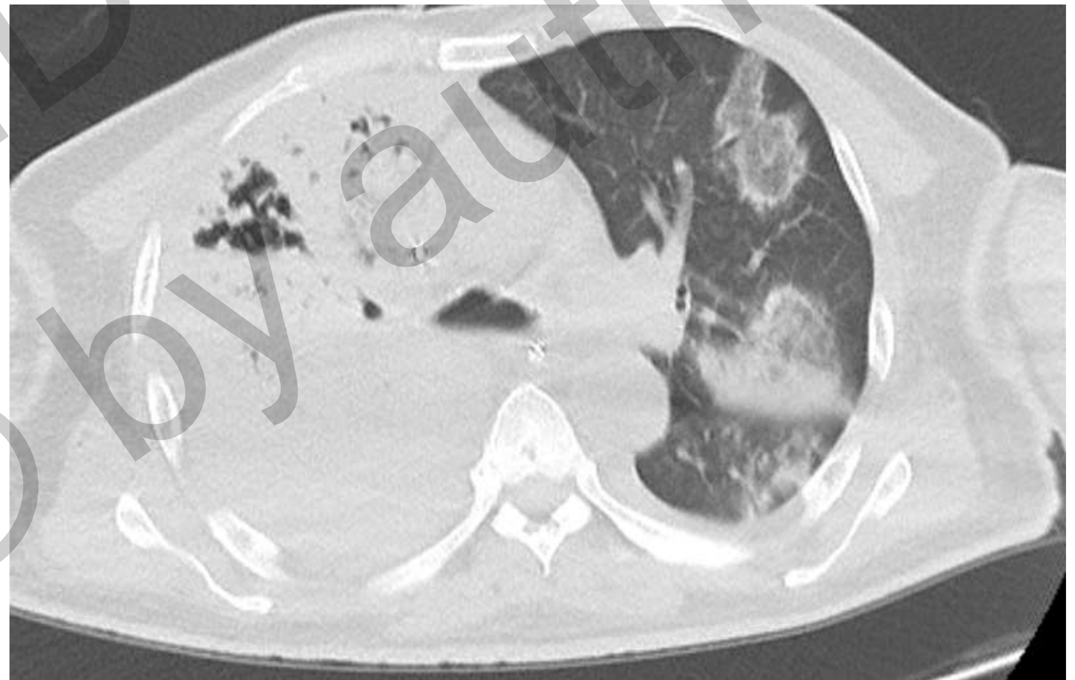
DAY 15

DAY 10 of liposomal Amphotericin therapy

Increasing ventilator requirements

SaO2 low on FiO2 100%



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WHAT ACTION SHOULD BE TAKEN?

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DAY 16

Taken for urgent R pneumonectomy → placed on ECMO

Post-op: Voriconazole (over Itranoconazole) added to regimen

Steroids held

- Concern for bronchial stump dehiscence
- Active upper GI bleeding

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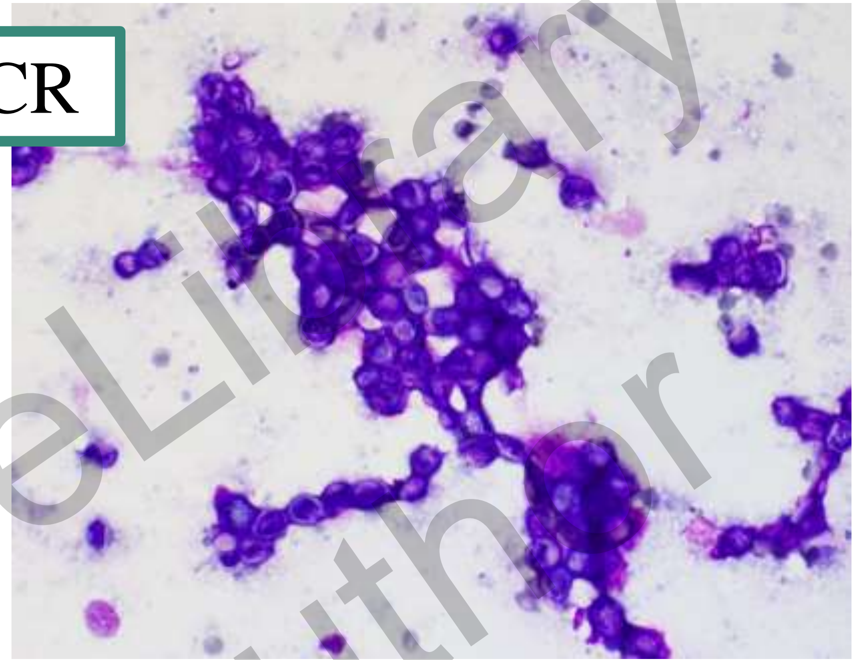
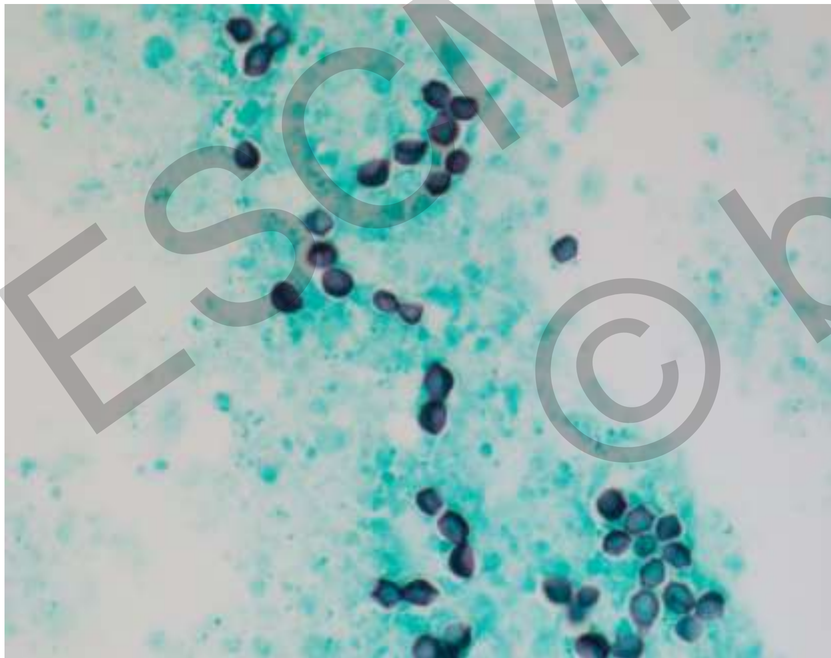
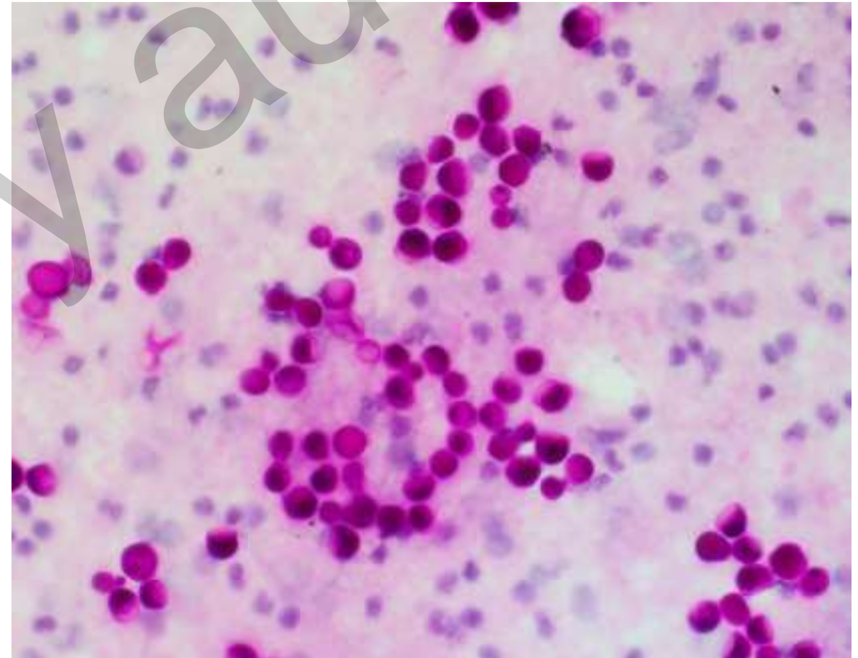
Clinical Practice Guidelines for the Management of Blastomycosis: 2008 Update by the Infectious Diseases Society of America
Antimicrob Agents Chemother. 2000 Jun;44(6):1734-6
Antimicrob Agents Chemother. 2009 Apr;53(4):1648-51

Blastomyces dermatitidis by PCR

NECROTIZING PNEUMONIA WITH FUNGAL YEAST FORMS DIFFUSELY INVOLVING AIRSPACES OF ALL LOBES, OBSTRUCTING BRONCHIOLES, AND INVOLVING ONE HILAR LYMPH NODE







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DAY 25

Worsening hypoxia and increasing pressor requirements

Restarted on steroids: Methylprednisolone 1 mg/kg

Also started on inhaled Amphotericin

Clin Infect Dis 2010 Jul 1;51(1):e1-3
Medicine (Baltimore). 2016 May; 95(18): e3538

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DAY 55

Course complicated by:

Stenotrophomonas maltophilia ventilator associated pneumonia

VRE faecium bacteremia

Hepatotoxicity- Voriconazole discontinued after 2 weeks of therapy

Blastomyces Urine antigen was positive, followed for response

Discharged to rehabilitation facility, ventilator dependent

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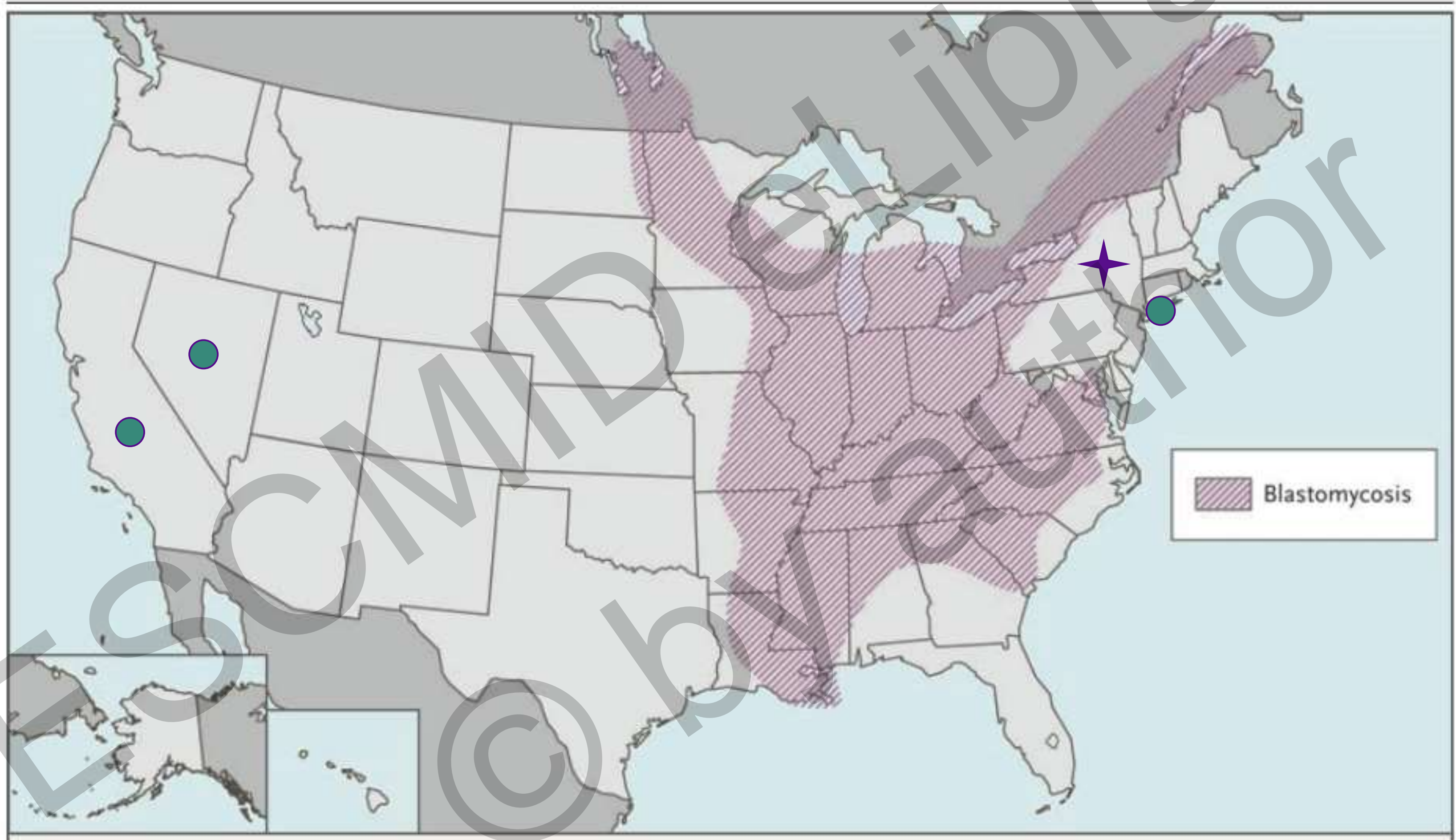
ENDEMIC REGIONS FOR BLASTOMYCOSIS



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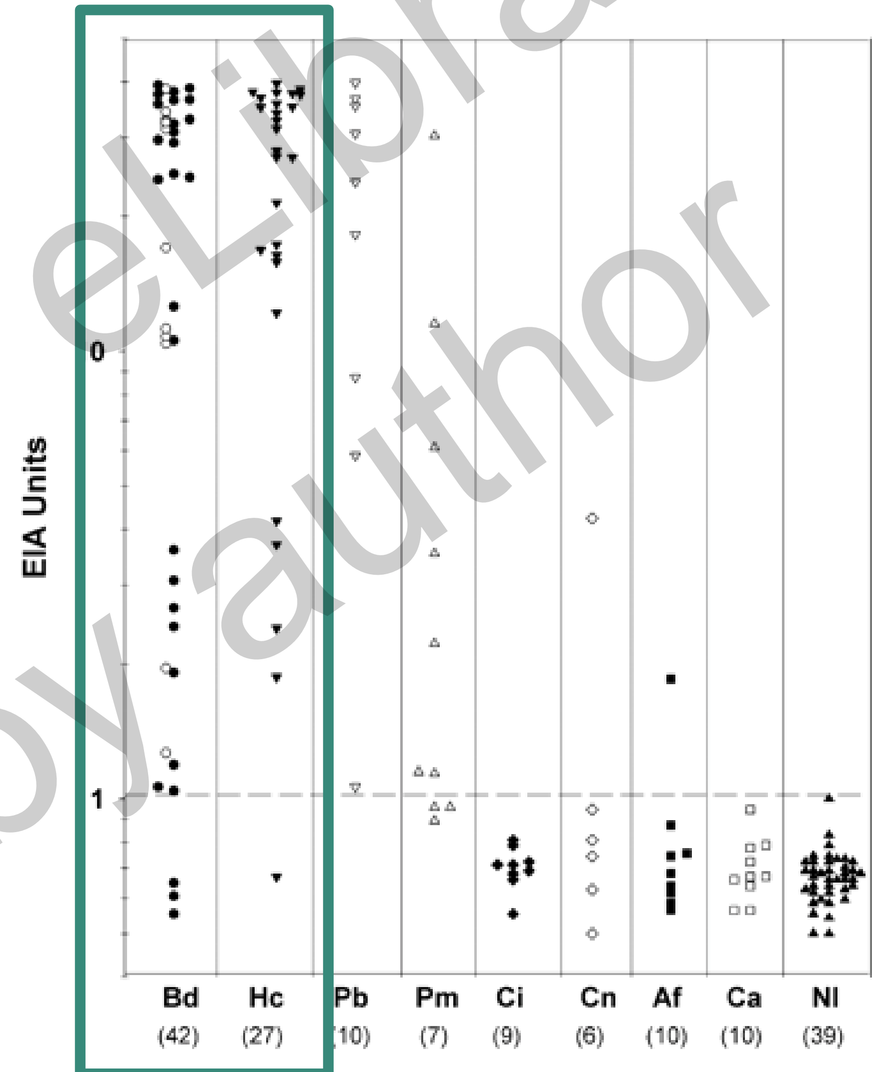
 N Engl J Med. 2007 Apr 5;356(14):1456-62.

DIAGNOSTICS

Blastomyces Urine antigen:

- 88% sensitive
- 100% specific
- High cross-reactivity with Histoplasma
- Decreases with therapy but can persist for months to years



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Diagn Microbiol Infect Dis. 2011 Feb;69(2):187-91
Clin Infect Dis. 2011 Sep;53(5):448-54

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TAKE HOME POINTS

Blastomycosis should be considered in differential for atypical CAP

Travel history is key but not definitive, epidemiology may be changing

Voriconazole is an alternative to Itraconazole when enteric absorption is unreliable

Consider steroids for patients with ARDS secondary to Blastomycosis

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THANK YOU

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