

Henry Ford Health

## Henry Ford Health Scholarly Commons

---

Infectious Diseases Articles

Infectious Diseases

---

5-1-2021

### Pulmonary nodules in a lung transplant recipient

Anita B. Shallal

*Henry Ford Health*, ashalla2@hfhs.org

Robert J. Tibbetts

*Henry Ford Health*, rtibbet1@hfhs.org

George Alangaden

*Henry Ford Health*, galanga1@hfhs.org

Jonathan Williams

*Henry Ford Health*, jwilli24@hfhs.org

Follow this and additional works at: [https://scholarlycommons.henryford.com/infectiousdiseases\\_articles](https://scholarlycommons.henryford.com/infectiousdiseases_articles)

---

#### Recommended Citation

Shallal A, Tibbetts R, Alangaden G, and Williams J. Pulmonary nodules in a lung transplant recipient. *Am J Transplant* 2021; 21(5):1975-1977.

This Article is brought to you for free and open access by the Infectious Diseases at Henry Ford Health Scholarly Commons. It has been accepted for inclusion in Infectious Diseases Articles by an authorized administrator of Henry Ford Health Scholarly Commons.

# Pulmonary nodules in a lung transplant recipient

Anita Shallal<sup>1</sup>  | Robert Tibbetts<sup>2</sup> | George Alangaden<sup>3</sup>  | Jonathan Williams<sup>4</sup>

<sup>1</sup>Division of Infectious Diseases, Henry Ford Hospital, Detroit, Michigan

<sup>2</sup>Department of Pathology, Henry Ford Health System, Detroit, Michigan

<sup>3</sup>Division of Transplant Infectious Diseases, Henry Ford Hospital, Detroit, Michigan

<sup>4</sup>Infectious Disease, Henry Ford Healthcare System, Detroit, Michigan

**Correspondence:** Jonathan Williams, Infectious Disease, Henry Ford Healthcare System, Detroit, MI, USA.

Email: jwilli24@hfhs.org

**Keywords:** antibiotic: antifungal, basic (laboratory) research/science, clinical research/practice, infection and infectious agents – fungal, infectious disease, lung disease: infectious, lung transplantation/pulmonology, pathology/histopathology

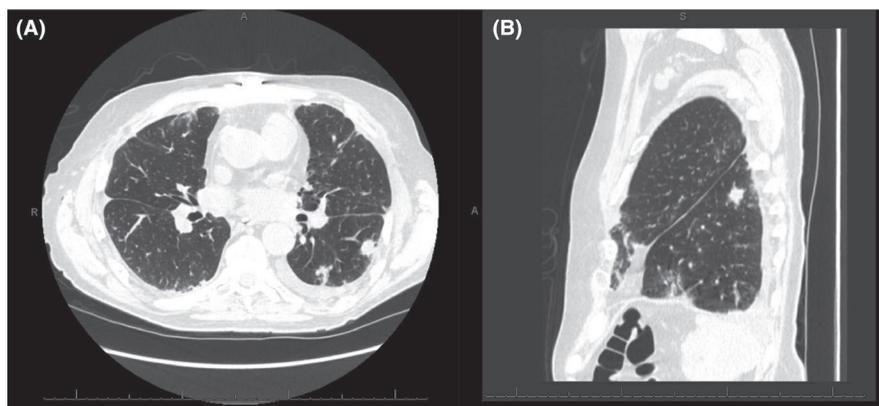
A 72-year-old man presented with a 1-month history of cough, shortness of breath, weight loss, and fatigue. Ten months earlier he underwent bilateral lung transplantation (cytomegalovirus [CMV] donor negative/recipient positive, Epstein-Barr virus [EBV] recipient positive) for idiopathic pulmonary fibrosis, with basiliximab and methylprednisolone induction followed by tacrolimus and prednisone maintenance. Early posttransplantation course was complicated by bilateral anastomosis stenosis with pseudomembrane formation and *Pseudomonas aeruginosa* pneumonia. Posttransplant, he did not require treatment for transplant rejection. The patient received antifungal prophylaxis with inhaled liposomal amphotericin-B and CMV prophylaxis with valganciclovir for the first 3 months after transplantation. At the time of hospitalization, he was receiving trimethoprim-sulfamethoxazole for prophylaxis and azithromycin for prevention of bronchiolitis obliterans syndrome.

On examination, he was afebrile. Breath sounds were diminished in the right base. He had a normal white blood cell count of  $8.3 \times 10^3/\mu\text{l}$  and an elevated C-reactive protein of 2.8 mg/dl. Contrast tomography (CT) of the chest revealed right pleural effusion and nodular opacities in the right and left lower lobes (Figure 1). He was initiated on

ceftriaxone and azithromycin for suspected pneumonia. Thoracentesis demonstrated exudative pleural effusion and *Staphylococcus haemolyticus* was isolated on fluid culture. The serum *Aspergillus* galactomannan was elevated at 2.56 index. The fatigue, weight loss, and positive EBV serology was concerning for concomitant lung malignancy or posttransplant lymphoproliferative disorder (PTLD), and a bronchoscopy and transbronchial biopsy was performed. No evidence of malignancy was found on pathology. The macroscopic and microscopic appearance of the pathogen isolated from bronchoalveolar lavage is shown in Figures 2 and 3. The patient underwent additional treatment.

## 1 | Questions

1. The clinical presentation and lung nodules seen in Figure 1 is most consistent with:
  - a. A community-acquired bacterial pneumonia
  - b. A respiratory viral infection
  - c. An opportunistic mold infection
  - d. Pulmonary toxicity due to medication



**FIGURE 1** Axial (A) and sagittal (B) contrast tomography of the chest demonstrating scattered bilateral nodular and consolidative opacities



FIGURE 2 Macroscopic features of colonies on culture plate

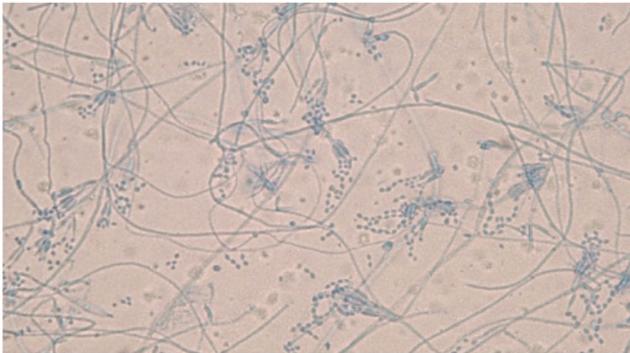


FIGURE 3 Lactophenol cotton blue stain demonstrating microscopic features of the pathogen (400× magnification)

2. Which of the following is an independent risk factor for invasive mold infections after lung transplantation?
  - a. Double lung transplant
  - b. Epstein-Barr virus infection
  - c. Augmented immunosuppression for rejection
  - d. Bronchiolitis obliterans
  
3. The patient's serum *Aspergillus* galactomannan antigen was positive. Which of the following may cause a false-positive galactomannan test?
  - a. Use of antifungal prophylaxis
  - b. Infection with a non-*Aspergillus* mold
  - c. Crossreactivity with cephalosporin antibiotics
  - d. Respiratory colonization with *Candida* sp.
  
4. Based on the microbiology shown in Figures 2 and 3, what is the appropriate initial treatment?
  - a. Voriconazole
  - b. Flucytosine
  - c. Amphotericin B
  - d. Trimethoprim-sulfamethoxazole

#### ORCID

Anita Shallal  <https://orcid.org/0000-0002-1940-3622>

George Alangaden  <https://orcid.org/0000-0001-8076-776X>

To complete this activity and earn credit, please go to <https://www.wileyhealthlearning.com/ajt>