Pneumocystis Jirovecii Presenting as Nodular Pulmonary Opacities

Alan J. Hunter, MD¹ and David J. Steinhardt, BA²

¹Division of Hospital Medicine, Department of Medicine, Oregon Health & Science University, Portland, OR, USA; ²School of Medicine, Oregon Health & Science University, Portland, OR, USA.

KEY WORDS: infection disease; HIV/AIDS; radiology; pulmonary diseases.

J Gen Intern Med 31(7):814

DOI: 10.1007/s11606-016-3618-1

© Society of General Internal Medicine 2016

A 53-year-old man with untreated, advanced HIV and a CD4 count of 7 cells/mm³ was diagnosed with progressive multifocal leukoencephalopathy (PML) following a four-week prodrome of progressive confusion, ataxia, and dysarthria. During evaluation, he was also found to have large pulmonary nodules on computed tomography (CT) of the chest concerning for a granulomatous infection or malignancy (Fig. 1). Biopsy revealed fungal organisms on Gomori methenamine silver (GMS) stain, consistent with *Pneumocystis* species. The patient was started on trimethoprim/sulfamethoxazole and highly active antiretroviral therapy (HAART) therapy, but expired of his progressive PML. An

Figure 1. CT chest, abdomen, pelvis: multinodular, conglomerate pleural based mass of the right lower lobe and right lung base as well as two pleural based left nodules.

autopsy confirmed *Pneumocystis jirovecii* within the pulmonary nodules, but no malignancy (Fig. 2). In HIV patients, *Pneumocystis jirovecii* presents with bilateral interstitial ground-glass opacities in approximately 90 % of patients. Additionally, atypical presentations are well described and may include cysts (30 %), lymphadenopathy (10 %), small or large nodules (5 %), and rarely consolidations or a spontaneous pneumothorax.^{1,2} Due to the wide range of radiologic findings associated with *Pneumocystis jirovecii*, diagnostic confirmation can be obtained via tissue biopsy. In a patient whose CD4 count is below 200 cells/mm³, *Pneumocystis jirovecii* prophylaxis with trimethoprim/sulfamethoxazole is indicated regardless of diagnostic uncertainty. Clinicians should be aware of atypical presentations of *Pneumocystis jirovecii*, as they may be confused with malignancy, granulomatous processes, or other lung disease.

Figure 2. Lung biopsy (Autopsy): lung cavity contains necrotic material and copious microorganisms consistent with *Pneumocystis*.

Corresponding Author: Alan J. Hunter, MD; Division of Hospital Medicine, Department of Medicine Oregon Health Science University, 3181 SW Sam Jackson Park Rd, BTE 119, Portland, OR 97239-2997, USA (e-mail: huntera@ohsu.edu).

Compliance with Ethical Standards:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

REFERENCES

1. Boisselle PM, Crans CA Jr, Kaplan MA. The changing face of *Pneumocystis carinii* pneumonia in AIDS patients. *AJR Am J Roentgenol*. 1999;172(5):1301-9.
2. Kanne JP, Yandow DR, Meyer CA. *Pneumocystis jirovecii* pneumonia: high-resolution CT findings in patients with and without HIV infection. *Am J Roentgenol*. 2012;198:W555-61.

Received September 5, 2015

Revised December 11, 2015

Accepted February 1, 2016

Published online February 22, 2016