



Case illustrated

Pneumonia with normal computed tomography of the chest: An atypical presentation of Pneumocystis

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A 34-year-old woman presented with productive cough for two months, associated with subjective fevers and dyspnea on exertion. Work up included screening for HIV, which eventually confirmed a new diagnosis of AIDS, finding CD4 cells of 6% and 69 cells per mm³. Subsequent imaging and sputum testing found negative results for all the following tests: CXR, nasopharyngeal respiratory viral multiplex polymerase chain reaction, routine sputum culture, and conventional CT chest (Fig. 1A and B). A sputum sample was sent for *Pneumocystis jirovecii* direct fluorescent antibody (DFA) staining, which found several apple-green fluorescent cysts (Fig. 2). Patient was started on two tabs of sulfamethoxazole-trimethoprim (800-160-mg orally every eight hours) without steroids. All respiratory symptoms resolved within two weeks of treatment, and patient completed a three week course. Antiretroviral therapy was started one day after pneumocystis pneumonia diagnosis, and the patient is clinically doing well on one month follow up.

PJP is one of the most common pulmonary infections affecting patients with AIDS. Diagnosis of PJP often requires visualization of *Pneumocystis jirovecii* in tissue, bronchoalveolar lavage fluid, or sputum sample. Using DFA staining on sputum samples will confirm a diagnosis of PJP [1], but testing sensitivity ranges from around 50% for expectorated sputum to about 90% for induced

sputum [2]. Common CXR findings in a patient with PJP include bilateral perihilar infiltrates, but atypically, nodules, pleural effusions, pneumatoceles, and pneumothorax may also occur. Utilization of CT imaging highlights subtle interstitial infiltrates, unmasking faint ground-glass opacities, cystic lesions, and thoracic lymphadenopathy that can be hidden in CXR images [3]. A normal CXR can occur in over one third (2–34%) of all HIV-related PJP [4], but patients with PJP and a normal CXR usually have abnormal CT imaging [5].

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Conflicts of interest

The authors have no conflicts to disclose.

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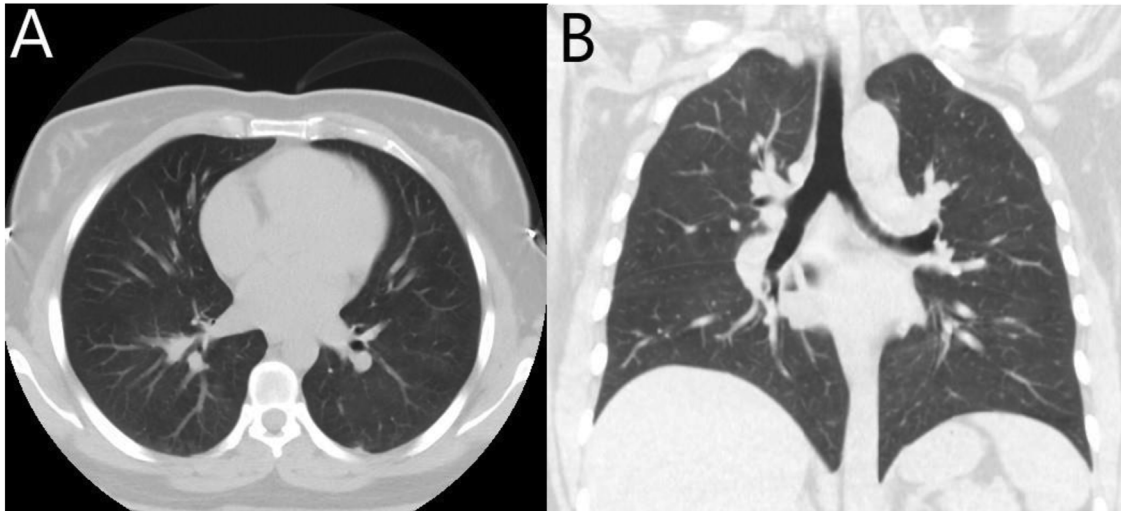


Fig. 1. CT Chest in Axial (A) and Coronal (B) sections shown in lung windows finding normal pulmonary parenchyma.

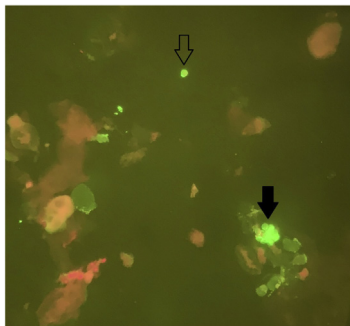


Fig. 2. *Pneumocystis jirovecii* DFA showing several apple-green fluorescent cysts in a cluster (solid arrow) and a single cyst (open arrow) photographed under 400× Magnification using Nikon Fluorescence Microscope.

Consent

"Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request".

CRediT authorship contribution statement

Aldon Li: Conceptualization, Visualization, Supervision, Writing - original draft, Writing - review & editing. **Aung Tun:** Validation, Writing - review & editing. **Robert Beck:** Validation, Writing - review & editing.

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