IDCases 32 (2023) e01786

Contents lists available at ScienceDirect

IDCases

journal homepage: www.elsevier.com/locate/idcases

When dyspnea is a Hickam's Dictum

Annette Abraham *, Nicholas Moore, Sarah E. Sansom

Division of Infectious Diseases, Rush University Medical Center, Chicago, IL, United States of America

ARTICLE INFO

Keywords:
Histoplasmosis
Pneumocystis jirovecii
Mycobacterium avium complex
Pneumonia
HIV
AIDS

ABSTRACT

Synchronous opportunistic infections are luckily rare in people living with HIV (PLWH) in the era of highly effective antiretroviral medications. We describe the case of a middle-aged man who presented with diarrhea and shortness of breath and was found to have pneumocystis pneumonia, disseminated histoplasmosis and disseminated mycobacterium avium complex infection along with a new diagnosis of human immunodeficiency virus (HIV) infection. This case highlights that individuals who remain undiagnosed with HIV infection for a long time can still present with concurrent infections and clinicians should remain aware of this.

Case

A 41-year-old male without any notable past medical history presented with 3 weeks of progressive watery diarrhea associated with severe fatigue and one week of non-productive cough and dyspnea. He was afebrile, tachycardic (140 beats/min), hypertensive (162/99 mmHg) and had oxygen saturation of 97 % on room air. He appeared chronically ill but was not in distress. Screening for HIV was reactive and later confirmed positive, and subsequent testing revealed an absolute CD4 count of 28 cells/mm^3 and viral load of 721,988 copies/mL. His hospital course was complicated by acute renal failure requiring hemodialysis and acute hypoxic respiratory failure requiring intubation. Imaging revealed extensive bilateral interstitial pulmonary opacities and multiple enlarged retroperitoneal lymph nodes. Bronchoscopy was performed. Direct fluorescent antibody (DFA) smear from bronchoalveolar lavage (BAL) demonstrated a large cyst with honeycomb appearance fluorescing bright green at an excitation wavelength of 490–500 nm (Fig. 1a) and was identified as *Pneumocystis jirovecii*. Bronchoalveolar lavage (BAL) specimen was plated on an inhibitory mold agar plate and grew *Histoplasma capsulatum*, colonies of which appear as a white mold with a cotton consistency, after 15 days of incubation at 25 °C (Fig. 1b). This dimorphic ascomycete also grew in regular blood cultures and AFB blood cultures and was seen as yeast phagocytosed within a segmented neutrophil (Fig. 1c). In addition, AFB blood cultures showed positive staining bacilli on the Kinyoun stain which was identified as *Mycobacterium avium* complex (MAC) (Fig. 1d).

Our patient was initiated on intravenous Liposomal amphotericin B 3 mg/kg/day for disseminated histoplasmosis and was later transitioned to oral itraconazole 200 mg twice daily. Oral trimethoprim-sulfamethoxazole was initiated for *Pneumocystis jirovecii*. He received oral ethambutol 15 mg/kg/day, oral rifabutin 1500 mg once daily and intravenous amikacin for disseminated MAC infection. Azithromycin was deferred due to concern for prolongation of Qtc with concurrent azole use. Antiretroviral therapy consisting of oral abacavir, lamivudine and dolutegravir was initiated. He had a prolonged hospital stay but recovered completely.

Concurrent infection with *Pneumocystis jirovecii*, *Histoplasma capsulatum* and *Mycobacterium avium* complex is a very rare entity among patients living with HIV in the era of highly effective antiretrovirals [1]. This case highlights the occurrence of these synchronous infections in individuals with Acquired Immune Deficiency Syndrome (AIDS). These coinfections portend significant morbidity and mortality but can be successfully treated with appropriate antimicrobials, antiretroviral therapy, and supportive care [2,3].

CRediT authorship contribution statement

Annette Abraham: Writing – original draft. **Nicholas Moore:** Writing – review & editing. **Sarah E. Sansom:** Conceptualization, Writing – review & editing.

Ethical approval

Not applicable.

* Correspondence to: Division of Infectious Diseases, Rush University Medical Center, 600 S Paulina St Suite 140, Chicago, IL 60612, United States of America.
E-mail address: annetteajoe@gmail.com (A. Abraham).

https://doi.org/10.1016/j.idcr.2023.e01786
Received 24 April 2023; Received in revised form 30 April 2023; Accepted 2 May 2023
Available online 3 May 2023

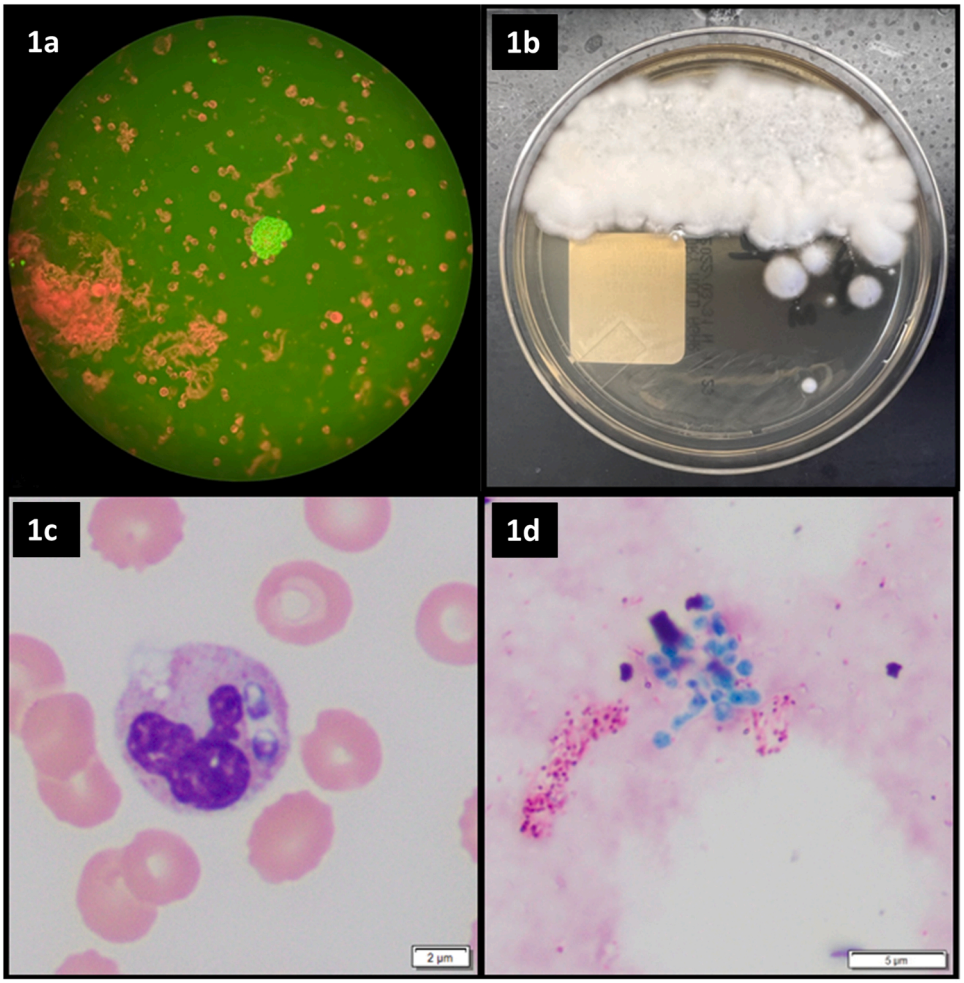

Fig. 1. (1a) Direct fluorescent antibody stain performed from the bronchoalveolar lavage fluid. (1b) Colony morphology of Histoplasma capsulatum on Sabouraud dextrose agar isolated from the BAL fluid after 12 days of incubation. (1c) Wright Giemsa stain showing yeast phagocytosed within neutrophils. (1d) Kinyoun stain performed from the Mycobacterium growth indicator tube after incubation onboard the Bactec MGIT system.

Consent

Not applicable

Funding

No funding.

Declarations of interest

None.

References

[1] Nevez G, Le Gal S. Pulmonary co-infection with *Pneumocystis jirovecii* and *Histoplasma capsulatum* in AIDS patients is not a rare event. Int J Infect Dis 2019;87:126–7. https://doi.org/10.1016/j.ijid.2019.08.012.

[2] Carreto-Binaghi LE, Morales-Villarreal FR, García-de la Torre G, Vite-Garin T, Ramirez J, Aliouat E, et al. *Histoplasma capsulatum* and *Pneumocystis jirovecii* coinfection in hospitalized HIV and non-HIV patients from a tertiary care hospital in Mexico. Int J Inf Dis 2019;86:65–72. https://doi.org/10.1016/j.ijid.2019.06.010.

[3] Dugan J, Grinsztejn E, Glasgow A, John A. Co-infection with Histoplasma Capsulatum and pneumocystis jirovecii in a patient with liver cirrhosis: a diagnostic dilemma. Chest 2020;158:A529–30. https://doi.org/10.1016/j.chest.2020.08.50.