

## Using endoscopic ultrasound-guided fine needle aspiration to diagnose mediastinal cryptococcosis



**Fig. 1** Computed tomography (CT) scan of the chest, showing hilar adenopathy.

A 33-year-old woman from Zimbabwe with AIDS and a CD4 count of 6 cells/mm<sup>3</sup>, non-compliant with antiretroviral therapy, presented with severe headaches, vomiting, fevers, and a productive cough. Physical examination revealed tachycardia, a temperature of 39.4°C, clear lungs, and an absence of meningeal signs. Laboratory studies showed a white blood cell count of 4.8 and hemoglobin of 10.1 g/dL. A lumbar puncture was consistent with cryptococcal meningitis (cryptococcal antigen titer 1:32768), and the patient had positive blood cultures growing *Cryptococcus neoformans*. The admitting chest radiograph was unremarkable.

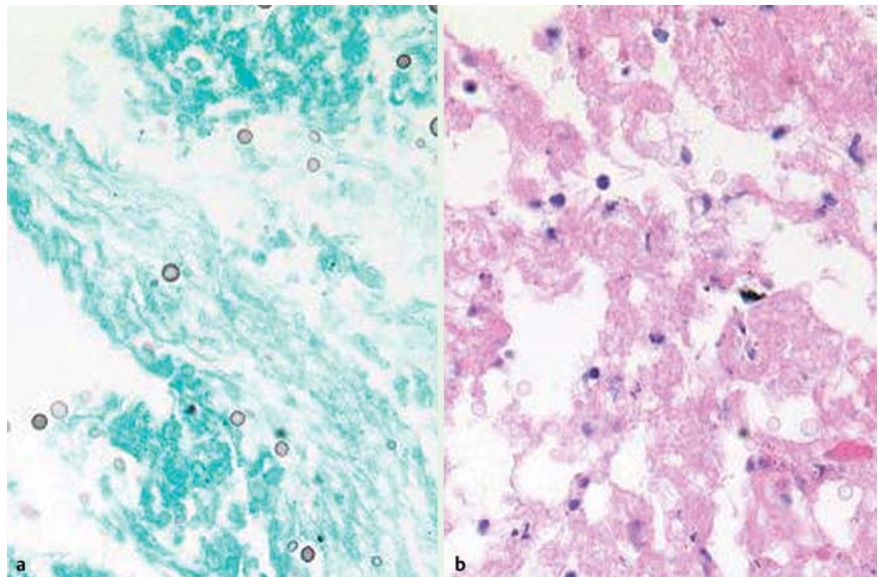
Amphotericin B and flucytosine were given. Her repeat lumbar puncture 2 weeks later showed an unchanged cryptococcal antigen titer, and she continued to have high fevers (39.4–40°C) and cough. Tuberculosis was ruled out. A computed tomography scan of the chest, abdomen, and pelvis revealed bilateral multiple moderately enlarged mediastinal and hilar lymphadenopathy, patchy infiltrate in the right lung, and mild hepatomegaly (▶ **Fig. 1**).

Endoscopic ultrasound (EUS) was performed to evaluate the mediastinal lymphadenopathy. Images showed a large heterogeneous hypoechoic mass extending from the subcarinal space to the distal peri-esophageal space (▶ **Fig. 2**). The mass was sampled by fine-needle aspiration (FNA) biopsy, revealing cryptococcosis and aspergillosis (▶ **Fig. 3**). The patient then asked to leave the hospital and was placed on oral voriconazole.

EUS-guided FNA has emerged as an important diagnostic imaging modality. It is



**Fig. 2** Endoscopic ultrasound (EUS) revealing lymphadenopathy (arrows).



**Fig. 3** Cryptococcus on histopathological staining using: **a** Grocott's methenamine silver (40×); **b** hematoxylin and eosin (40×). (Aspergillus not shown.)

a non-surgical method to obtain tissue sampling from mediastinal lesions, with the advantage of real-time ultrasound guidance [1]. EUS can identify lymph nodes as small as 3 mm, particularly in the celiac, subcarinal, and aorto-pulmonary areas [2]. Pulmonary cryptococcus has rarely been diagnosed via EUS-guided FNA. Concurrent diagnoses of patients with pulmonary cryptococcal isolates are common, especially in patients with HIV infection [3]. Here, aspergillus was concomitantly found. It has been shown that EUS with FNA has a 97% accuracy rate for tissue confirmation, and should be the test of choice especially for evaluating posterior mediastinal lymphadenopathy [4,5].

In conclusion, we report a non-traditional modality to diagnose pulmonary cryptococcus using EUS with FNA.

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**Competing interests:** None

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