



LETTER TO THE EDITOR

Endobronchial Cryptococcosis in a Non-HIV Immunocompromised Patient



Cryptococcosis (pulmonary infection and meningitis) is a potentially fatal fungal disease. Its risk factors include lymphomas, sarcoidosis, liver cirrhosis (LC), long-term steroid treatment, and human immunodeficiency virus (HIV) infection.^{1,2} Karnak et al³ carried out an English-language literature review and found 228 cases of endobronchial fungal infection: *Aspergillus* spp. ($n = 121$), *Coccidioides immitis* ($n = 38$), *Zygomycetes* spp. ($n = 31$), *Candida* spp. ($n = 14$), *Cryptococcus* spp. ($n = 13$), and *Histoplasma capsulatum* ($n = 11$). We report here a case of endobronchial cryptococcosis (EBC) in a non-HIV immunocompromised patient with alcoholic LC and diabetes mellitus.

A 71-year-old male patient with alcoholic LC and diabetes mellitus presented with bloody sputum and a productive cough without fever. Two years previously, he had had a pulmonary abscess in the right upper lobe, and chest radiography after antimicrobial treatment had revealed a cavity in the same lobe. Physical examination found no evidence of abnormal auscultation on his chest; he had normal respiratory function. Chest radiography and computed tomography (CT) indicated a thickening of the cavity wall and surrounding infiltrate and ground-glass opacity in the right upper lobe (Figure 1A). Sputum culture to identify pathogenic bacteria (*Streptococcus pneumoniae* or *Haemophilus influenzae*) or acid-fast bacillus (*Mycobacterium tuberculosis* or *M. avium* complex) were negative. Laboratory findings included neither serum cryptococcal antigen positivity nor elevation of serum (1-3)- β -D-glucan, with normal ranges for white blood cell count and C-reactive protein. Fiber-optic bronchoscopy (FBS; Figure 1B) was performed to identify respiratory pathogens. A white plaque-like mucosal lesion was observed at the orifice of the right upper bronchus. Histological evaluation of the endobronchial biopsy specimen showed inflammation containing encapsulated yeast (Figure 1C). Fungal culture of the specimen (Figure 1C) was positive for *Cryptococcus* sp., and led to a definitive diagnosis of EBC.

The patient was treated with oral fluconazole 200 mg/day. Follow-up 5 months after starting treatment confirmed improvements on both CT (Figure 1A) and FBS (Figure 1B) images. Antifungal treatment was continued as FBS specimen culture remained positive for *Cryptococcus* sp.

Several previously published papers have described the characteristic FBS finding for EBC as a white plaque-like mucosal lesion.^{4–6} Therefore, our image concerning EBC is instructive for clinicians. Malabonga et al⁷ used FBS sampling techniques for cryptococcal pneumonia ($n = 11$) in patients with HIV infection. They found that bronchoalveolar lavage fluid samples were positive (direct stains) for organisms in 9 of 11 patients, transbronchial biopsy samples were positive (special histological stains) in 6 of 8 patients, and bronchial washings were positive (direct smear) in 7 of 10 patients. In

addition, a comparison of FBS findings before and after treatment of EBC with fluconazole have clearly demonstrated improvements in the mucosal lesions.^{6,8} FBS appears to be a useful approach to identify the pathogen and to observe improvements in mucosal lesions. EBC should be included in the differential diagnosis of any form of airway lesions in HIV and non-HIV immunocompromised patients.

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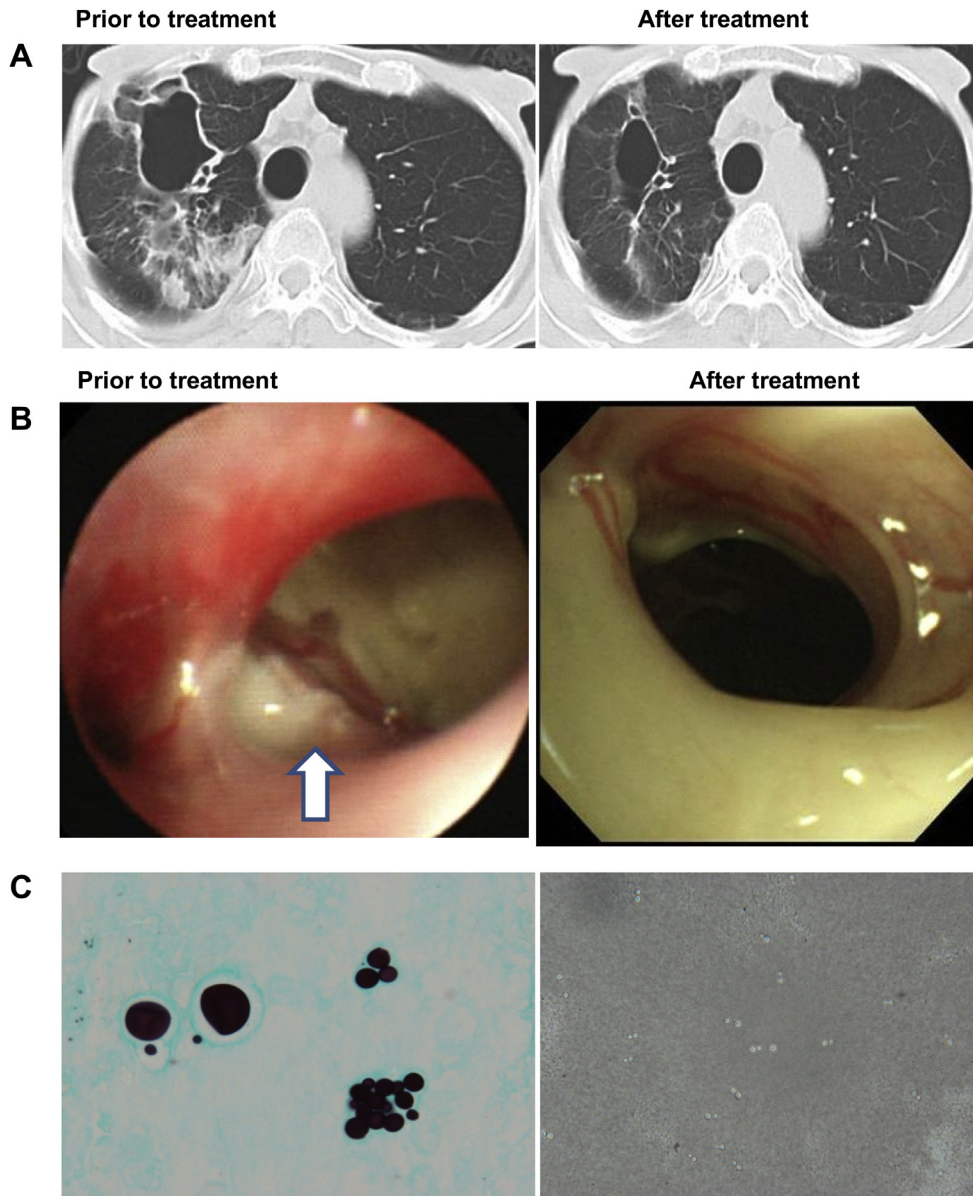


Figure 1 Computed tomography (CT) of the patient's chest (A, left side) indicated a thickening of the cavity wall and surrounding infiltrate and ground-glass opacity in the right upper lobe. Fiber-optic bronchoscopy (FBS; B, left side) was performed and a white plaque-like mucosal lesion (arrow) was observed at the orifice of the right upper bronchus (B₂). Histological evaluation of the endobronchial biopsy specimen showed inflammation containing encapsulated yeast, as indicated by Grocott methenamine silver staining (C, left side, magnification 1000 \times). Fungal culture of the specimen (C, right side, magnification 400 \times) was positive for *Cryptococcus* sp. as indicated by Indian ink staining. Follow-up CT (A, right side) and FBS (B, right side) were performed 5 months after starting treatment and improvements in both the CT and FBS images were confirmed.