A 61 year-old Female with a Prior History of Tuberculosis Presenting with Hemoptysis

(See page 910 for the Photo Quiz.)

Figure 1. Axial (A) and coronal maximum intensity projection (B) images from a contrast-enhanced computed tomographic scan of the chest show numerous cavities with indwelling fungal balls (white arrows), as well as bronchiectasis (black arrows).

Diagnosis: Chronic Necrotizing Pulmonary Scedosporiosis.

Heavy growth of *Scedosporium apiospermum* was obtained from expectorated sputum and bronchoalveolar lavage samples. These cultures had positive results repeatedly over the course of several months. This, in combination with the patient’s clinical picture and imaging findings, supports a diagnosis of chronic necrotizing pulmonary *S. apiospermum* infection.

Chronic necrotizing pulmonary mycotic infection is a relatively rare disease that is gaining appreciation in the literature as a distinct clinical entity. It is almost exclusively described in patients with *Aspergillus* infections, referred to as chronic necrotizing pulmonary aspergillosis (CNPA). Here we report a similar disease process caused by another filamentous fungus, *S. apiospermum*.

*S. apiospermum* (sexual form, *Pseudoallescheria boydii*) is an opportunistic filamentous fungus that can be isolated from soil and contaminated water sources. It is found in temperate climate regions worldwide. The other major genus member, *Scedosporium prolificans*, is restricted to Australia, Spain, Portugal, and the southern United States, as well as California [1]. On the basis of clinical, radiographic, and histopathologic features, *Scedosporium* species can be virtually indistinguishable from *Aspergillus* species; however, management presents unique challenges.

Like *Aspergillus* species, *S. apiospermum* causes a wide spectrum of pulmonary disease ranging from allergic bronchopulmonary mycosis to uncomplicated fungal balls to more extensive cavitary disease with or without angioinvasion [1]. Within this disease spectrum, our patient presented with a semi-invasive chronic necrotizing pulmonary infection akin to CNPA. Typical presenting symptoms include chronic cough and intermittent hemoptysis. Systemic symptoms, such as fever and weight loss, are less common. Risk factors include moderate immunosuppression, such as that caused by diabetes mellitus or corticosteroid use [2–5]. This is in contrast to patients with invasive pulmonary mycoses and/or disseminated disease who are profoundly immunosuppressed as a result of solid-organ transplant, bone marrow transplant, or AIDS [6–8]. Previous lung damage with underlying cavitary disease is extremely common. In the largest series to date of patients with CNPA, more than 90% of patients had a prior history of mycobacterial disease [5]. In this series, the most common imaging
manifestations of CNPA included cavitation (100%), paren-
chymal consolidation (84%), pleural thickening (81%), fun-
gus balls (49%), and bronchiectasis (37%), all of which are
well seen on our patient’s scan (Figure 1). Other, less frequent
findings of CNPA have included bronchopleural fistula
(19%) and emphysema (14%), which were not seen in our
patient [5].

Because of the similar clinical and radiographic findings of
Scedosporium and Aspergillus species, microbiologic charac-
terization is critical to make the diagnosis. S. apiospermum
grows rapidly on standard mycologic media, such as Sabouraud glu-
cose agar, at 25°C. Macroscopically, colonies are initially white
and turn gray over time. Microscopic examination reveals ir-
regularly branching septate hyphae with a single oval conidium
with truncate bases forming on conidiophores (Figure 2, ar-
rows). This appearance can be easily distinguished from that of
the aggregate conidia of Aspergillus species, which project in
columns or chains from a unique flask-shaped vesicle at the end
of a long conidiophore.

Chronic necrotizing pulmonary scedosporiosis presents
unique management challenges. In vitro resistance to and clin-
cal failure of amphotericin therapy have been commonly re-
ported with scedosporiosis. Broad-spectrum azoles, such as
voriconazole and posaconazole, as well as caspofungin, show
superior in vitro activity [9]. Recent reports of consistent clinical
success with voriconazole have made this the antifungal drug of
choice [10]. Duration of treatment is not yet well defined.

Our patient was not a candidate for surgical resection because
of poor pulmonary functional capacity and the extensive nature
of her lesions. For management of her hemoptysis, selective
embolization of 4 right bronchial arteries was performed. She
began voriconazole therapy and has significantly improved,
having not had progression of her hemoptysis or required
hospitalization during the past 6 months.

Acknowledgments

Potential conflicts of interest. D.N. has been a consultant for Pﬁzer,
Inc, and LifeCell Corporation. D.J.D. has been a consultant for Osiris
Therapeutics. All other authors: no conﬂicts.

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