A 79-year-old man presented with a 1.2-cm nodule on the left arm. The best diagnosis is:

- a. actinomycetoma
- b. aspergillosis
- c. chromoblastomycosis
- d. eumycetoma
- e. phaeohyphomycosis
Phaeohyphomycosis

Phaeohyphomycosis is characterized by pigmented hyphae in tissue. Various black molds may be causative, including Alternaria, Bipolaris, Curvularia, Exophiala, and Phialophora. In immunocompetent hosts, direct inoculation due to trauma or a splinter is the most common cause, resulting in a pseudocyst (Figure 1, inset) lined by histiocytes and giant cells (Figure 1) containing pigmented hyphae (Figure 2). Immunocompromised patients are more likely to develop disseminated lesions that lack the pseudocystic architecture. The brown hyphae have thick refractile cell walls and bubbly cytoplasm. Occasionally the cross-section of a hypha simulates a spore, but presence of other hyphal forms separates phaeohyphomycosis from chromoblastomycosis, which consists of round copper-colored spores that resemble copper pennies (Medlar bodies, sclerotic bodies) (Figure 3). Mycetomas consist of suppurative granulomas containing large grains of filamentous organisms (bacteria or fungi). Eumycetomas (Figure 4) are composed of fungal hyphae that may be pigmented, but unlike phaeohyphomycosis, the hyphae are organized in large collective grains. In actinomycetoma (Figure 5)

Figure 1. Phaeohyphomycotic pseudocyst (inset) lined by histiocytes and giant cells (H&E; original magnifications ×10 and ×40, respectively).

Figure 2. Pigmented hyphae of phaeohyphomycosis (H&E, original magnification ×600).

Figure 3. Round copper-colored spores of chromoblastomycosis (H&E, original magnification ×600).

Figure 4. Grains of filamentous fungi in eumycetoma (H&E, original magnification ×100).
the grains are composed of thinner filamentous bacteria, typically Nocardia or Actinomyces, which contrasts with the nonfilamentous bacteria clustered in botryomycosis. The hyphae of aspergillosis (Figure 6) are nonpigmented and have a propensity to invade blood vessels, resulting in cutaneous necrosis. These septate organisms have delicate cell walls and bubbly cytoplasm. The hyphae of zygomycosis have a similar propensity to invade blood vessels but thick, irregular, aseptate and hollow with refractile eosinophilic cell walls.²

REFERENCES