Phialophora infection mimics pyogenic granuloma in a patient with a renal transplant

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INTRODUCTION

Dematiaceous fungi are a heterogeneous group of saprophytic organisms that, when introduced subcutaneously via trauma, can cause phaeohyphomycosis, a condition characterized most commonly by cysts, subcutaneous nodules, and flat or verrucous plaques.[1-3] Immunocompromised individuals are at an increased risk of developing phaeohyphomycosis, with renal transplants being the solid organ transplant most frequently reported to develop this fungal infection.[4-6] Here, we detail an unusual instance in which *Phialophora* infection in a patient with a renal transplant mimics a pyogenic granuloma (PG). Identification of phaeohyphomycosis is important because the disease can remain unresolved without appropriate intervention and has an increased potential to develop into disseminated disease in immunocompromised individuals.[5,7]

Abbreviation used:

PG: pyogenic granuloma

CASE REPORT

A 71-year-old patient with a medical history of multifactorial end-stage renal disease, 16 months after living donor kidney transplant, and on mycophenolate mofetil and tacrolimus for immunosuppression presented to our dermatology clinic with a growth on his right thumb persisting for several months. The patient stated that the lesion was tender and bled easily with minor trauma. An x-ray of the patient's hand had been obtained before the appointment to rule out bony involvement, and the patient's laboratory test results that had been drawn 1 week prior were all at baseline, including a tacrolimus level of 7.3 ng/mL. On examination, the lesion on the patient's thumb was a 1.2 cm × 1.2 cm red, erythematous, friable nodule (Fig 1). The appearance of the lesion was consistent with a PG; however, other diagnostic considerations, including neoplastic processes, lead us to perform a shave biopsy and send the biopsy specimen for pathology

Fig 1. Clinical photograph of the patient's lesion, located on the palmar surface of the distal thumb, before shave biopsy.

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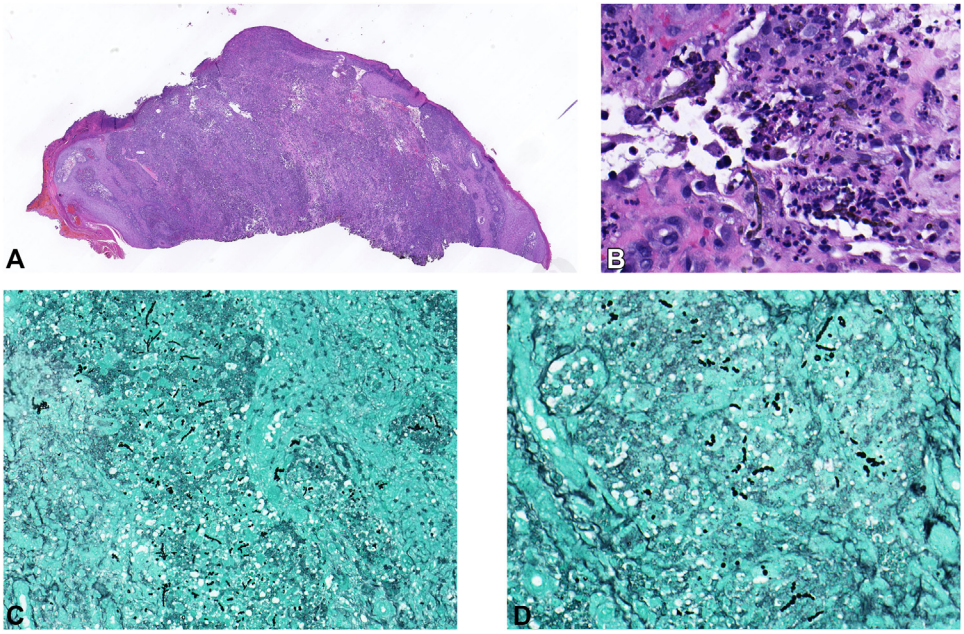

Fig 2. A, Low-power view of the biopsy specimen from Fig 1. **B,** High-power view of Fig 2, *A*, showing scattered fungal organisms in the form of hyphae and yeast-like elements in chains and clusters with brown pigmentation. **C,** Grocott methenamine silver staining of samples, highlighting scattered fungal organisms within the sample. **D**, High-power view of Fig 2, *C*. (**A** and **B,** Hematoxylin-eosin stain; **C** and **D,** Grocott methenamine silver stain; original magnifications: **A,** ×40; **B,** ×400; **C,** ×100; **D,** ×400.)

to confirm the diagnosis. Histopathologic examination of the biopsy specimen showed mixed dermal inflammation with a histiocytic and neutrophil-rich infiltrate, with many scattered, brown, pigmented fungal organisms in the form of hyphae and yeast-like elements in chains and clusters additionally highlighted with Grocott methenamine silver stain, suggesting a dematiaceous fungal infection (Fig 2). A sample was sent for speciation via polymerase chain reaction analysis, which confirmed that the lesion was indeed phaeohyphomycosis caused by a *Phialophora* species. The patient is currently undergoing treatment, which includes reducing his tacrolimus dose and adding itraconazole 200 mg daily in addition to weekly laboratory testing to monitor hepatic function.

DISCUSSION

Dematiaceous fungi are a heterogeneous group of saprophytic fungi that are typically found in the environment. These fungi are defined by their ability to produce melanin-like pigments, and although they are not normally pathogenic to humans, it is well documented that they can cause infection when introduced into the body.[1] Although the risk of an individual developing a dematiaceous fungal infection is low, immunosuppression after solid organ transplant has been shown to increase a patient's susceptibility to these fungi.[1,4,5] In a recent systematic review of dematiaceous infections in solid organ transplants, kidney transplants were found to account for 61% of reported cases and 73% of dematiaceous infections in patients with organ transplants were noted to be skin and soft tissue infections.[6] Skin and soft tissue infections caused by dematiaceous fungi have 3 subdivisions: chromoblastomycosis, eumycetoma, and phaeohyphomycosis. However, because of overlapping clinical features, they are differentiated histologically.[1] *Phialophora*, a genus of dematiaceous fungus that can cause phaeohyphomycosis, most often presents as cysts, subcutaneous nodules, and flat or verrucous plaques.[2,3] *Phialophora*, as well as other dematiaceous fungi, are not associated with the development of PG-like lesions; we were able to identify only 1 other case of a PG-like lesion arising from a dematiaceous fungal infection.[8] Thus, our finding of a *Phialophora* infection mimicking PG could be considered unique within the spectrum of cutaneous diseases that *Phialophora* and other dematiaceous fungi can cause in humans. Accurate and timely diagnosis of dematiaceous fungi is important, particularly in immunocompromised individuals because there is always a risk of development of disseminated

systemic disease. Even with the management of localized disease, evidence suggests that without the use of systemic antifungal treatment, surgical resection is less likely to be effective.[5,7]

Conflicts of interest

None disclosed.

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