# Phaeohyphomycosis of the Foot – A Case Report

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## Abstract

We describe a case of an 80 year old African American male presenting to the office for what appeared to be an abscess on the dorsum of his right foot. Following MRI and a needle biopsy, the diagnosis of phaeohyphomycosis was made and the mass was then surgically removed. The patient was subsequently placed on prophylactic fluconazole for 10 days with no reoccurrence of the mass since surgery. Phaeohyphomycosis is an opportunistic fungal infection defined by pigmented hyphae branches of its infecting organisms. Because its clinical appearance is similar with cutaneous abscesses, lipomas, epidermal inclusion cysts and other mimics, it is purely a histopathologic diagnosis. Treatment for phaeohyphomycosis includes surgical excision, antifungal therapy or a combination thereof.

## Discussion

An 80 year old African American male presented to the office with a chief complaint of a tender soft tissue mass on top of his right foot (*Figures 1-2*). He relates an insidious onset and does not recall specific blunt or puncture trauma, but he does often bump his foot secondary to gait and balance issues. He states the mass had been present for several months, but recently has become more inflamed, tender and was now draining. The patient subsequently went to see his primary care physician who placed him on oral Keflex secondary to associated cellulitis. His primary care physician also recommended podiatric evaluation at that time. The patient was referred to our clinic and seen approximately 2 weeks later.

His medical/surgical history revealed prostate cancer status post excision of his prostate gland, hypertension and a history of a CVA. No frank immunodeficiency was identified. Upon evaluation there was a 4 x 3 cm firm, nodular mass noted to the dorso-medial 1st metatarsal neck area. Modest tenderness was noted with palpation. There was a small encrusted area noted medially consistent with his history of a draining lesion. Radiographic evaluation revealed focal increased soft tissue thickness and density suggestive of non-osseous mass effect. There was no focused periosteal reaction or suggestion of erosion. In-office ultrasound revealed a slightly hypoechoic mass with heterogeneous appearance deep and a more homogeneous effect superficially, measuring approximately 2.94 x 2.29 cm.

An MRI was ordered, which revealed a 3.3 x 2.3 x 1 cm conspicuous circumscribed lobular mass adjacent to the 1st metatarsal shaft between the cortex and the overlying skin. The lesion demonstrated intermediate internal T1 signal that was isointense with skeletal muscle and High PD/T2 signal with peripheral outer enhancement. Ganglion, myxoma, and giant cell tumor were suggested but sarcoma could not be ruled out because the peripheral enhancement was more irregular than typically seen with a ganglion.

On follow up evaluation the MRI results were reviewed and a needle biopsy was performed. The caseous contents were extracted and submitted for pathologic identification and for culture and sensitivity. During tissue manipulation purulent contents were extruded from the medial encrusted area. Pathological evaluation (*Figure 3*) of the aspirate revealed a diagnosis of Phaeohyphomycosis and the culture of the contents was negative for bacteria. Surgical excision was recommended. After cardiac clearance the patient was taken for excision of the lesion (*Figure 4*).

Following excision the patient was placed on 50 mg fluconazole PO daily for a total of 10 days. The sutures were removed 17 days following excision. There was a small granular area of superficial desquamation noted along the central portion of the incision, so wound care was continued until this area was dry. There was no evidence of residual mass effect or tenderness. He was released to resume normal shoe wear and increase ambulation as tolerated. He was seen 2 weeks later and released to follow up as needed.

## Conclusion

Phaeohyphomycosis is an opportunistic fungal infection characterized by melanin pigment within the hyphae of its infecting organisms. It was originally described by Ajello in 1974 as a "condition of dark hyphal fungus"(1). There are 3 types of pheoid, or melanin containing, fungal infections: eumycetoma (madura foot), chromoblastomycosis and phaeohyphomycosis. The differences between these infections are characterized by the tissue samples (2, 3, 4).

Mycetomas can be either bacterial (actinomycetoma) or fungal (eumycetoma) in origin, and are characterized by a granulomatous infection that presents with a triad of tumefaction (swelling), sinus tract formation and granular discharge. The discharge contains characteristic grains of varied color, referred to as sclerotia, which contain either fungal hyphae or bacterial filaments (5). Mycetomas can be difficult to treat, often requiring long-term pharmacological therapy and surgical resection (6).

Chromoblastomycosis is a fungal infection characterized by verrucous, nodular lesions that are refractory to treatment. Extradermal extension of this infection is rare and histopathologic evaluation reveals clusters of fungal organisms known as muriform cells, pathognomonic for this condition. The most prevalent causative agent is *Fonsecaea pedrosoi*, an organism commonly found within the soil of tropical regions (7, 8).

Phaeohyphomycosis differs from eumycetoma and chromoblastomycosis in that its tissue samples contain pheoid septate hyphae, pseudohyphae, yeast or a combination thereof (9). Phaehyphomycosis can also be classified relative to its location of infection: superficial (epidermal), cutaneous/corneal, subcutaneous or systemic (10, 11). Various infecting organisms can present in these locations, ranging from *Piedraia Hortae* (superficial) to *Wangiella dermatitidis* (systemic) (2). The most common cause of cutaneous infection is trauma, secondary to inoculation by a splinter or thorn (12).

## Figures

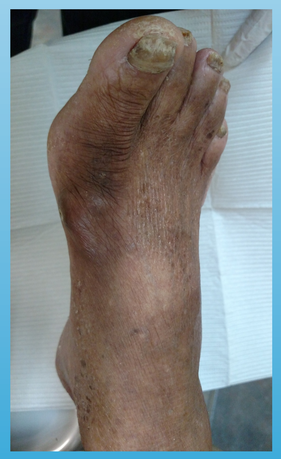

***Figure 1. AP - Clinical Appearance***

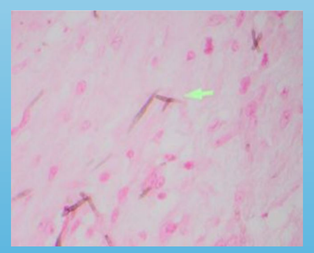

***Figure 3. Photomicrograph***

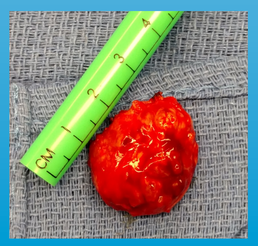


***Figure 4. Specimen post-excision***

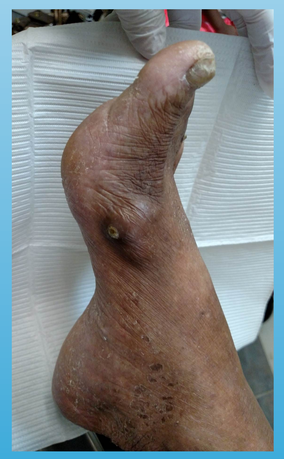

***Figure 2. Lateral - Clinical Appearance***

## Conclusion (cont'd)

Treatment for phaeohyphomycosis includes antifungal therapy and complete surgical excision. Current recommendations for antifungal therapy are based on previous case reports and small series studies, with voriconazole, fluconazole, terbinafine, amphotericin B and itraconazole all being used with some success. (12, 13, 14). It is especially imperative to start antifungal therapy for those patients experiencing recurrent cases or those who are immunocompromised (2, 15). For immunocompromised individuals, antifungal treatment should be at least 6 months in duration (14). Combination therapy of these medications can also be performed, but the clinician should be wary of possible side effects of these drugs such as liver and kidney damage. Itraconazole 200mg QD is an acceptable initial regimen, titrated accordingly based on the severity of the infection. However, surgical excision should be performed concomitantly if at all possible.

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