Phaeomycotic Cyst Presenting as a Foot Abscess in a Diabetic Patient: A Case Report

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STATEMENT OF PURPOSE:
Phaeomycotic cysts of the foot are extremely rare infections of the deep soft tissue and subcutaneous tissue by dematiaceous fungi that have low virulence. Only three known cases of phaeomycotic cysts in the foot have been documented in literature. Phaeomycotic cysts can present like common soft tissue subcutaneous cysts in the foot and should be included in the differential diagnosis.

LITERATURE REVIEW:
Phaeohyphomycosis is a group dematiaceous fungi that can cause severe infections. More than 100 fungal species can be causative agents. These fungi are found in soil, wood, plants, and other organic material (1). Subcutaneous lesions normally are caused from traumatic implantation (2).

Clinical presentations vary and may mimic more common pathologies making diagnosis hard. Most cases are localized to the skin and presents with swelling, induration, or a mass (3). However, it can disseminate and cause systemic illness especially in immunocompromised patients (4). In an article by Ben-Ami et al, they estimated the incidence rate of 1.0 to 3.1 per 100,000 patients in a tertiary care hospital (5). However, the incidence in the general population is estimated to be much lower.

CASE STUDY:
We report a case of a seventy-two-year-old female with a past medical history of diabetes, breast cancer, myocardial infarction presented to clinic with a painful mass on the bottom of her right hallux that had been present for several months and increased in size (Fig. 1). Patient had denied any history of trauma or injury. Upon physical exam, a fluctuant mass was present plantarly to the right hallux. After initial examination, an MRI was ordered which demonstrated a 2.1 cm x 1.5 cm x 3.1 cm mass concerning for abscess. The cultures showed no growth. Due to pain and size of the mass, patient elected to proceed with surgical removal of the mass.

A 3 cm incision was made horizontally over the soft tissue mass of the plantar right hallux. Surgical resection of the soft-tissue mass was performed. The 3.5 cm x 2.1 cm x 0.8 cm firm, rubbery mass was located plantar to the sulcus of the hallux embedded in the subcutaneous layer with no bony involvement (Fig. 3). The tissue specimen taken intraoperatively was sent to pathology, which confirmed a phaeomycotic cyst histologically.

The mass shown consisted of a tan-gray, rubbery, soft tissue mass. Histology showed a well-circumscribed lesion with thick fibrous wall with central necrosis, neutrophils and macrophages (Fig. 4a). GMS stain highlighted yeast forms (Fig. 4b). Figure 4c shows brown pigment on hematoxylin-eosin stain. Post operatively, the patient had sutures removed at two weeks. At three weeks, they transitioned from a flat top shoe to regular shoes. Six weeks after surgery, they returned to all activities as tolerated.

ANALYSIS AND DISCUSSION:
Phaeomycotic cysts are extremely rare benign tumors with an annual incidence of three per 1 million throughout the entire body. It has been shown in literature that phaeomycotic cysts are more prevalent in immunocompromised or immunosuppressed patients. Having decreased cell-mediated immunity allows patients to have increased susceptibility to opportunistic fungi. This is consistent with our case report which presents a phaeomycotic cyst in an immunocompromised patient with history of breast cancer and type 2 diabetes (6).

The mode of transmission is thought to be from inoculation of soil, splinters, vegetables, or materials contaminated by fungi. In a case report by Sheik et al., they found approximately 60% of phaeomycotic cysts began as a splinter (7). In our case study, no splinter was seen in surgical excision and our patient does not have any trauma or inciting event.

Literature reviews have shown the gross appearance of phaeomycotic cysts includes a subcutaneous cyst or nodule present on exposed body parts, particularly distal limbs. Histology features have been described by several authors including fibrotic wall with lymphohistocytic infiltrate and granulomatous inflammation (7). Our case report is consistent with both characteristics. Surgical excision is the principle treatment of these tumors to allow pain relief and accurate diagnosis. If the total cyst is incompletely excised, local recurrence may occur. Our patient was completely pain free and returned to activity as tolerated six weeks after the mass with no recurrence one-year follow up (Fig. 5).

REFERENCES: