MULTIPLE DISCHARGING SINUSES: AN UNUSUAL PRESENTATION CAUSED BY ABSIDIA CORYMBIFERA

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Abstract

A case of zygomycosis presenting with non-healing multiple discharging sinuses in a diabetic patient is reported here. The debrided tissue on histopathological examination revealed dense infiltration with aseptate fungal hyphae. Potassium hydroxide mount showed hyaline aseptate hyphae suggestive of zygomycosis. On culture, Absidia corymbifera was isolated. The patient responded to surgical debridement and therapy with amphotericin B followed by itraconazole.

Key words: Discharging sinuses, Absidia corymbifera, zygomycosis

Case Report

A 60-year-old male, retired constable by occupation came with multiple non-healing ulcers over the left leg present for the past one year. One year ago, he was treated for swelling in the leg associated with chills and rigors. During the course of treatment, patient developed multiple ulcers over the left leg, which failed to heal. Patient was a known diabetic on treatment for many years.

On examination of the left leg, the patient had multiple discharging sinuses with unhealthy granulation tissue and areas of scar tissue with non-pitting pedal edema (Fig. 1). Radiological examination did not reveal any bony involvement.

The patient was treated with appropriate antibiotics according to wound swab culture, which grew Proteus mirabilis and Escherichia coli on two separate occasions. Since the ulcers did not heal in spite of antibiotic therapy, the surgeon suspected fungal etiology.

Tissue biopsy was done and sent for microbiological and histopathological examination. The potassium hydroxide (KOH) mount revealed broad aseptate fungal elements. Histological examination of haematoxylin and eosin stained sections of the wound biopsy showed features of hyperkeratosis and of chronic inflammation with broad aseptate fungal hyphae with right angle branching consistent with mucormycosis (Fig. 2).

The specimen was cultured on Sabouraud dextrose agar (Hi-Media) and incubated at 37°C and 25°C. Growth was observed within three to four days as a white cottony growth almost filling the test tube. In lactophenol cotton blue mount wide hyaline aseptate hyphal elements and sporangiophores with prominent funnel shaped apophyses bearing the sporangium, were seen. The sporangia were pear-shaped and had prominent conical collumellae (Fig. 3).

The growth, macroscopically and microscopically, was consistent with Absidia species.
The treatment was surgical as well as medical. The sinuses were laid open and excised. Tissue was again sent for fungal culture and histopathological examination. The same fungus was isolated. The patient was started on amphotericin B followed by itraconazole. The patient responded without any toxic effects and the wound healed well.

**Discussion**

Mucormycosis is an infection with fungi of class zygomycetes and order mucorales. The organisms most commonly implicated belong to the genus Rhizopus (about 90% of all cases). Infection primarily affects the immunocompromised patient, the poorly controlled diabetic and patients with iron overload states and excessive burns. The use of broad-spectrum antibiotics has also been associated with an increased risk of mucormycosis. Mucormycosis has been reported occasionally in immunocompetent individuals, usually following trauma. Zygomycetes characteristically invade blood vessels, leading to thrombosis and infarction, with subsequent tissue necrosis and eschar formation. The resultant necrotic tissue favors further growth of the fungus and limits penetration of systemic antifungal agents. Because of the mortality associated with mucormycosis, immediate aggressive treatment is required including control of the underlying disease process, surgical intervention and administration of amphotericin B. Surgical debridement is intended to remove necrotic tissue and obtain a disease free margin. The favorable outcome in this patient may be related to suspicion of fungus and intervention on those lines. The genus *Absidia* currently contains 21 species. The most commonly isolated species is *Absidia corymbifera*. It is the only recognized pathogen among the other *Absidia* species. It accounts for perhaps 2 to 3% of culture–confirmed cases of zygomycete infection. The organisms are ubiquitous. Infection occurs as a result of the inhalation of spores or the direct inoculation of spores into the tissues. Rhinocerebral, cutaneous, pulmonary and disseminated forms of mucormycosis with this species have been described.

Some of the other *Absidia* species are *Absidia coerulea*, *Absidia cylindrospora*, *Absidia glauca* and *Absidia spinosa*.

*A. corymbifera* grows readily upon subculture on routine mycology media, growing more rapidly at 37°C than at 25°C and it is capable of growth at temperatures up to 48°C to 52°C, which distinguishes it from the other *Absidia* species. *A. corymbifera* produces a woolly colony which can fill a petri-dish in 24h. Initially, the colony is white, but it changes to grey-brown to olive green on the surface with no colour in the reverse.

The microscopic features are the presence of branching sporangiophores arising from stolons between rhizoids, conical collumellae and funnel-shaped apophyses. Since *Absidia* spp. are ubiquitous in nature, they are also common laboratory contaminants. Thus, their isolation in culture requires cautious evaluation.

Nevertheless, the growth of this fungus, particularly from clinical samples of patients with immunosuppression or diabetes mellitus, should be regarded as potentially significant. Also, the visualization of typical hyphae of zygomycetes group of fungi on direct microscopic examination, of particularly a
Sterile body sites, should be considered significant even if the culture yields no growth.

We took multiple samples from different sites in the leg to rule out any possibility of contamination. Due to the mortality associated with mucormycosis, immediate aggressive treatment, including control of underlying disease process, surgical intervention and administration of amphotericin-B is indicated. Surgical debridement is intended to remove necrotic tissue and obtain uninfected bleeding margin. The favorable outcome in this patient may be related to the localized nature of the disease process at diagnosis and to the immediate surgical intervention together with the antifungal therapy.

This case illustrates the importance of clinical suspicion, isolation of the fungus, histopathological confirmation followed by multimodal treatment in the form of surgical debridement and antifungal agents. There should always be a high index of suspicion of fungal infection in non-healing wounds especially if the patient is a diabetic or immunosuppressed.

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References


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