

## Phaeohyphomycosis of Lower Limb: A Rare Case Report

Sushanta Chakma<sup>1\*</sup>, Sachin Kolte<sup>1</sup>, Preeti Sharma<sup>1</sup> and Malini R Capoor<sup>2</sup>

<sup>1</sup>Department of Pathology, Vardhman Mahaveer Medical College and Safdarjung Hospital, Delhi, India

<sup>2</sup>Department of Microbiology, Vardhman Mahaveer Medical College and Safdarjung Hospital, Delhi, India

### ABSTRACT

Phaeohyphomycosis is a chronic, progressive cutaneous and subcutaneous infection caused by melanised or dermaticeous fungi and characterized by the presence of brown mycelial structures on fine needle aspiration cytology. These fungi are associated with rural population, involved in various agricultural and outdoor activities. The clinical manifestations that includes superficial and deep local infection to disseminated infection. Herein, we describe the clinical and fine-needle aspiration cytology features of a case of phaeohyphomycosis caused by *Phialophora verrucosa*.

**Keywords:** *Phaeohyphomycosis, Phialophora Verrucosa*

### Introduction

Phaeohyphomycosis is a chronic, progressive cutaneous and subcutaneous infection caused by melanised or dermaticeous fungi. It was first described in 1920 in Brazil by Pedroso and Gomes as a verrucous dermaticeous of infectious origin<sup>3</sup>. The fungi causing phaeohyphomycosis are ubiquitous found in soil and dead decaying material including wood. These fungi have been reported worldwide with predominant cases from humid tropical and subtropical region of America, Asia, Africa and particularly from Amazon region of Brazil, Madagascar, Mexico and India<sup>2</sup>. In India it is mainly reported in the sub-Himalayan belt and western and eastern coast of India<sup>2</sup>. The causative agents produce combinations of dematiaceous yeast like cells, hyphae, and pseudohyphae in tissue. The sclerotic bodies seen in tissues from patients with chromoblastomycosis are absent in phaeohyphomycosis. The lesions are mainly located on lower extremities followed by upper extremities. Patients are predominantly male and usually aged 30 years or older. Infection usually occurs through traumatic skin inoculation with contaminated vegetable matter<sup>5</sup>. The disease is seen more in immunocompromised individuals. The rural population, involved in various agricultural and outdoor activities are at a higher risk. A small, single, localized papule, nodule, plaque, or verrucous lesion is seen at the site of inoculation. Severe clinical forms and dissemination via lymphatics/ hematogenous/ contiguous spread are rarely seen<sup>2</sup>.

Although, there are case reports describing the histopathological features of subcutaneous phaeohyphomycosis but the description about the aspiration cytomorphology is limited.

The most common aetiological agents are of the genera *Fonsecaea*, *Phialophora* and *Cladophialophora*, which are found as saprophytes in soil and plants. *Fonsecaea pedrosoi* is the commonly found in tropical region such as Amazon, as well as temperate regions of Latin America<sup>3</sup>. *Cladophialophora carrionii* is the most important agent in dry countries and desert regions such as Australia, South Africa and Cuba<sup>3</sup>. The disease can affect any age but is rarely seen before adolescence. It most commonly affects the limbs, particularly the lower legs and feet. Unusual sites of infection such as the genitalia and nose have also been reported.<sup>3</sup>

### Case Report

A 55-year-old housewife, resident of Delhi, presented to the surgery department with complaint of progressive two nodular swellings on the right leg for the last 6 months measuring 4x3x2 cm and 2x1x1 cm ( fig 1). Initially swellings were small in size which later increased. On local examination the swellings were non tender, soft and cystic. The patient gave history of trauma on the same site 4 months prior to the appearance of swellings. The patient did not give any history pertinent to immunocompromised state.

Fine-needle aspiration (FNA) yielded thick yellowish necrotic material. May Grunwald Giemsa stained cytosmears showed necrotic material and septate hyphae with acute angle branching (fig 2). Wooden splinters or thorns were not detected in the lesion. Faint, brown, moniliform fungal elements were found on the cytosmear. Sclerotic cells were not observed. Sample was cultured for multiple different pathogens, including fungi and

bacteria. Only one type of fungus grew on the media. On sabouraud dextrose agar (SDA) medium brown hairy colonies were observed (fig 3). On lactophenol cotton blue mount phaeoid septate fungal hyphae, small phialides with

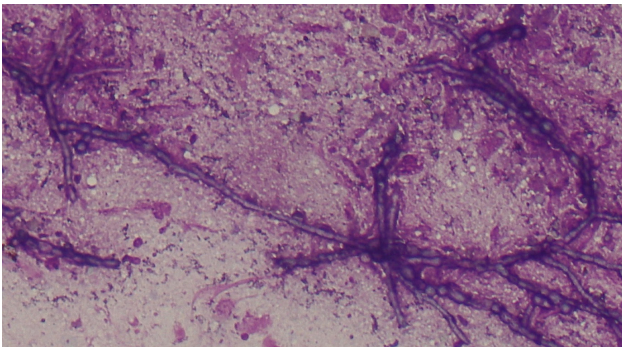
cup shaped collarettes and small ellipsoidal conidia (fig.4) were seen. Thus, based on cytomorphological and culture characteristics, final diagnosis of *Phialophora Verrucosa* of lower limb was rendered.



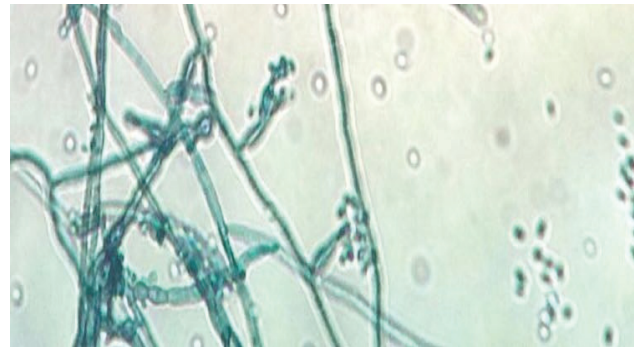
**Fig. 1:** Photograph showing two subcutaneous swellings.



**Fig. 3:** photograph on SDA agar showing brown hairy colony



**Fig. 2:** Microphotograph showing fungal septate hyphae.



**Fig. 4:** Microphotograph on lactophenol cotton blue mount revealed phaeoid septate fungal hyphae, small phialides with cup shaped collarettes and small ellipsoidal conidia.

## Discussion

Melanised or dematiaceous fungi are differentiated into three types based on the histologic findings i.e., eumycetoma, chromoblastomycosis and phaeohyphomycosis. In histology sections, eumycetoma shows the presence of grains which are closely packed fungal hyphae; whereas, chromoblastomycosis shows sclerotic bodies consisting of thick walled muriform cells<sup>1</sup>. Phaeohyphomycosis is characterized by the presence of dark brown mycelial structures in the involved tissue, which distinguishes it from the other clinical categories of disease caused by brown pigmented fungi<sup>1</sup>. Further, Phaeohyphomycosis can be categorized into 4 types by the region of the body in which the infection occurs: superficial, cutaneous, subcutaneous, and systemic. Early lesions of subcutaneous phaeohyphomycosis are small stellate-shaped pyogranulomatous foci. They enlarge slowly, coalesce, and form a single large cavity ranging from 0.4 to 7.0 cm or more in diameter. Because the cavity looks like a cyst, the lesion is called a phaeomycotic cyst<sup>5</sup>. Infection usually occurs through traumatic skin inoculation with contaminated vegetable matter. Patients are predominantly male and usually aged 30 years or older. The agricultural worker and outdoor activities are at risk.

Surgical excision and antifungal drugs are the mainstay of treatment for subcutaneous phaeohyphomycosis. The most appropriate antifungal agents against dematiaceous fungi have not been clearly defined. Different results have been reported with administration of various agents, such as amphotericin B, flucytosine, ketoconazole, fluconazole, miconazole, and itraconazole. Of these, itraconazole appears to be the preferable agent<sup>5</sup>.

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### \*Corresponding author:

**Sushanta Chakma**, Postal Address: Room no 416, 4th floor, college building, VMMC & Safdarjung Hospital, Delhi 110029 India

**Email:** Sushanta.dr@yahoo.com

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