

Topic 11: Phaeohyphomycosis, Mycetoma, Other Diseases Caused by Black Fungi

Phaeohyphomycosis

An amalgam of clinical diseases caused by a variety of fungi,* which often lead to chronic subcutaneous cyst formation at the site of traumatic implantation of the fungus in immunocompetent patients.**

* broad definition - fungi that produce brown or black structures at least at some period in life cycle; particularly spores at least; here both Chaetotheriomycetes and Doththidiomycetes.

* restricted definition - fungi that are vegetatively melanized throughout their life cycle; dematiaceous (phaeoid) fungi; here only Chaetotheriomycetes
- Dematiaceous Phaeohyphomycosis

** Often subcutaneous forms may progress to systemic infections due to spread in both compromised and apparently noncompromised patients.

Term coined in 1974.

Chronic and localized in normal hosts, often spreading rapidly in compromised hosts.

Tissue forms various, but sclerotic bodies very rare, if ever.

Subcutaneous Phaeohyphomycosis

Fungus in tissue samples appears as yeast-like cells, chains of yeast cells, moniliform hyphae, true hyphae, distorted hyphae, or combinations of these, but rarely as "sclerotic bodies"

exception may be *W. (E.) dermatitidis** which also has been observed to produce very infrequent "sclerotic-like bodies" (isotropically enlarged cell with 1 septum) also called muriform bodies and multicellular or planate forms

*a paradigm of phaeohyphomycosis (see handout).

Phaeohyphomycosis - Phaeohyphomycotic Cystic Disease
(subcutaneous Phaeohyphomycosis)

- 1) patient presents with solitary, discrete, well encapsulated nodule or cyst* in dermis or muscle
- 2) lesions may occur on all body sites
- 3) patient often remembers trauma (because cyst develops closer to time of trauma than does chromoblastomycotic granuloma)
- 4) nodule usually becomes elevated
- 5) central area becomes necrotic → encapsulated abscess (cyst)*
- 6) abscess may become 2 cm in diameter or larger
- 7) necrotic area fills with yellowish, viscous, purulent fluid that when aspirated usually exhibits fungal elements
- 8) identification requires culture; fine-needle aspirants useful

*closed sac with distinct membrane, which becomes infiltrated with pus-like fluids & fungus

Mycetoma*

A localized, progressive, tumorous, draining lesion of the skin, subcutaneous tissue, muscle, fascia and bone caused by aerobic actinomycetes and fungi* which form compact mycelial aggregates called "grains" within infected tissue after traumatic implantation.

- Eumycotic Mycetoma vs Actinomycotic Mycetoma(vs Actinomycotic mycetoma)

Black grain - pigmented fungi**[these formed by dematiaceous fungi (tissue forms)]

White grain - hyaline fungi***

* Gill 1842 as Madura foot

Carter 1860 as Mycetoma (fungal tumor)

** *Madurella mycetomatis*

E. jeanselmei

****Pseudallescheria boydii* - teleomorph

Scedosporium apiospermum - anamorph

- also agent of emerging mycosis Pseudallescheriasis

Mycetoma Pathology*

- 1. subcutaneous inoculated area slowly enlarges as a result of inflammation and fibrosis**
- 2. abscesses develop and multiple sinus tracts eventually erupt to skin surface**
- 3. the tracts discharge fluid and on occasion even a grain**
- 4. the organism invades deeper tissue including bone**
- 5. draining tracts remain open or infrequently periodically close and reopen**
- 6. often swelling yields greatly enlarged appendage**

*** general pattern in "normal hosts"; in immunocompromised CNS or lungs → rapid course to death without antifungal success and/or surgery.**
