

Phaeohyphomycosis

Synonyms: Cerebral chromomycosis, chromoblastomycosis, chromomycosis, cladosporiosis, phaeomycotic cyst, phaeosporotrichosis, subcutaneous mycotic cyst.

Definition

- Phaeohyphomycosis
 - consists of a group of mycotic infections characterized by the presence of dematiaceous (dark-walled) septate hyphae and sometimes yeast or a combination of both in tissue.
(DoctorFungus)
 - Refers to dark pigment, phaios being the Greek word for black.
 - Deuteromycete

Etiological Agents

- *Cladophialophora bantiana*
- *Curvularia spp.*
- *Bipolaris spp.*
- *Exserohilum spp.*
- *Exophiala jeanselmei*
- *Scedosporium prolificans*
- *Ochroconis gallopava*
- *Coniothyrium fuckelii*
- *Phialophora parasitica*
- *Phialophora repens*
- *Wangiella dermatidis*
- *Lasiodiplodia theobromae*

Types

- Respiratory tract
 - Nasal, sinus, pneumonia
 - Dark lesion on the septum is a common presentation; sinusitis is associated with allergic rhinitis, polyps and/or some form of immunosuppression
- Subcutaneous
 - Infection is produced by traumatic inoculation of the etiologic agent
 - Abscess formation is frequent
- Cutaneous
 - Dermatomycosis
 - Infection affects keratinized tissue and produces extensive destruction
 - Onychomycosis

- Superficial
 - Skin infection
 - Minimal if any tissue response.
 - In hairy areas, the fungi grow around the hair shaft

SYMPTOMS

- Cyst-Lump produced by over-secreting gland
- Skin lesions
- Skin infections
- Skin discolouration
- Pigmented lesions

- Pruritus
 - Causes
 - Iron deficiency anemia
 - Cimex lectularius (bed bugs)
 - Allergic conjunctivitis
 - Bacterial conjunctivitis
 - Dermatitis
 - Herpes zoster
 - Chronic lymphocytic leukemia
 - Lichen simplex chronicus
 - Chronic myringitis
 - Pediculosis
 - Pityriasis rosea
 - Psoriasis
 - Scabies
 - Tinea pedis
 - Urticaria
 - Vaginitis

- Causes
 - Bipolaris
 - is a dematiaceous, filamentous fungus.
 - Wangiella
 - is a dematiaceous, cosmopolitan fungus that inhabits the soil and plant material.
 - Phialophora verrucosa
 - a dematiaceous filamentous fungus that inhabits the soil, plants, and decaying food. It is widely distributed in nature
 - Exophiala
 - dematiaceous fungus widely distributed in soil, plants, water, and decaying wood material.
 - Cladophialophora
 - a mitosporic dematiaceous (pigmented) mould, found in soil and rotten plant material

TESTS

- Culture
 - Clinical specimens are inoculated onto primary isolation media i.e. Sabouraud's dextrose agar.
- Direct Microscopy
 - Biopsy
 - Visceral organs
 - Tissue stained using H&E, PAS digest and GMS
 - Sputum
 - bronchial washings
 - With 10% KOH and Parker ink

HISTOPATHOLOGY

- Tissue reactions associated with walled abscesses to active tissue invasion by hyphae.
- hyphae will stain positive for the Fontana-Masson or other melanin stains.

Treatments

- Itraconazole
- Amphotericin B
- Oral phenytoin
- Voriconazole

Epidemiology and Ecology

- Most commonly found in tropical and subtropical areas.
- Found in soil
- Wood
- Decaying plants
- Rotten food

Case Study 1

- Surgical Neurology 60.4 (2003), 354-359.
- In 2000, An 18 year-old boy presented with onset seizures.
- 2 years prior developed cutaneous phaeohyphomycosis after splinter scratch on chest wall.
- Culture/ Laboratory Work
 - MRI
 - Revealed a hypointense lesion

- CT scan
 - Revealed an interhemispheric frontal hypodense lesion
- Blood
 - Normal results for CD4, CD8, and leukocytes
 - Unexplained eosiniphila (20%)
 - AID test was negative
- Skin lesions
 - Appeared to be ulcerative with pinkish gray color
 - Scraping
 - Showed dermaiceous branching hypae.

Case Study 1

- Histopathology
 - Showed chronic granulomatous reaction with hyphae
 - Cornmeal Agar
 - Revealed velvety black colonies
 - Cylindrical cells with a swollen apex and branched conidiophores consistent with *F. pedrosi*.
- Complication of skin lesions
 - Nasopharyngeal and ethmoidal sinus
- Treatment
 - Cutaneous lesions
 - No response to antifungal agents
 - Amphotericin B (IV)
 - Nasopharyngeal lesions and cervical nodes
 - 200 mg Oral itraconazole
 - Oral phenytoin
 - Given for one year
- Patient is doing well making monthly visits to hospital

Case Study 2

- [International Journal of Dermatology](#) 45.4 (2006), 429-432.
- 76 year old male complaints of nodules on right forearm for more than 2 years.
- History
 - Farmer
 - Has diabetes mellitus
 - coronary artery disease
 - Cushing's syndrome
- Fig 2 upper Closer view of the crusted nodules on the left forearm;
- Lower: More erythematous crusted nodules and plaques on the left upper limb and the right forearm

Case Study 2

- Tests
 - Mycobacterial cultures were negative
 - Skin biopsy
 - Showed epithelioid granuloma with multinucleated giant cells.
 - Nodules were asymptomatic, variable in size, brownish and crusted.
 - (after 17 months)
 - Masson Fontana stain(fig 3)
 - Positive stain indicated presence of melanin
 - Sabouraud dextrose agar and potato media (fig 4)
 - Grayish brown velvety colonies after 2 weeks.
 - Colonies showed erect and straight conidiophores

- H&E
 - Brownish beaded hyphae and yeast like cells 3-5 micrometers.
 - Scattered in stroma and within multinucleated giant cells.
 - GMS and PAS stains (fig 3)
 - Hyphae and yeast like cells stained black and pink
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- **Figure 3** Yeast-like cells are stained pink and black with PAS (left)
 - the Masson-Fontana (right) stains respectively
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- **Treatments**
 - Initially treated with itraconazole(200mg).
 - Gradual improvement for 5 weeks until he failed to keep up with medication.
 - Returned to clinic after 17 months for relapsed cutaneous lesions.
 - Amphotericin B
 - was given due to poor response to the initial treatment.
 - After 17 days of treatment lesions seemed dryer.
 - Renal function had deteriorated
 - Unfortunately patient suffered a heart attack and was discharged against medical advice.

References

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