

Lecture 4:

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Superficial mycosis: Tinea types and Dematiaceuos (black fungi).**DEFINITION AND GENERAL CHARACTERISTICS OF CUTANEOUS MYCOSES**

Fungal diseases that affects the skin, hair and nails. They are generally restricted the keratinized tissue. They cause inflammatory response.

DERMATOPHYTOSES

Etiological fungi are called “dermatophytes” (They are keratinophilic fungi)

- There are 3 genera:-

Microsporum

Trichophyton

Epidermophyton

- Dermatophyte infections are called Tinea (= Ringworm)

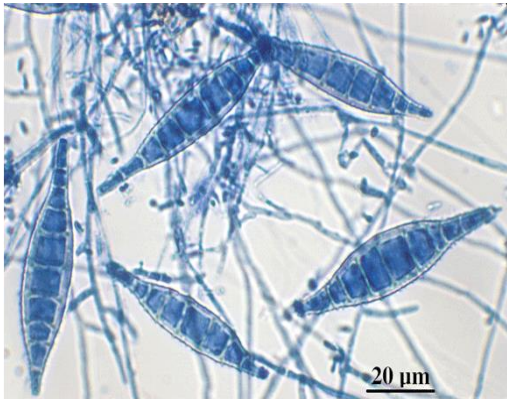
**DERMATOPHYTES ARE CATEGORIZED INTO 3 TYPES ACCORDING TO SOURCES OF INFECTION**

1. Geophilic dermatophytes
2. Zoophilic dermatophytes
3. Anthropophilic dermatophytes

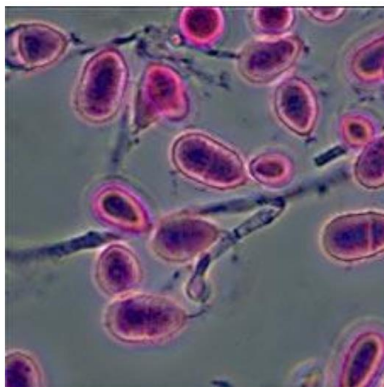
GEOPHILIC DERMATOPHYTES

Inhabit soil where they decompose keratinaceous debris of dead animals

- 1-Microsporum gypseum :-



Microsporum nanum:-



ZOOPHILIC DERMATOPHYTES:- Parasitic on animals:-



Moniello, K.A. Using a Wood's Lamp. NAVC clinician's brief. 2009.

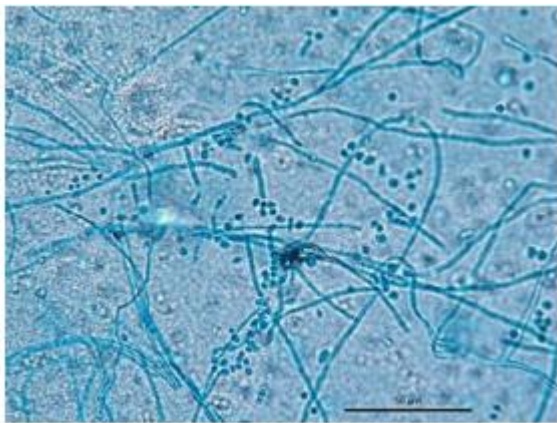
1-Trichophyton equinum



2-Microsporum canis



3-M. mentagrophytes var Mentagrophytes



ANTHROPOPHILIC DERMATOPHYTES:-

Primarily parasitic to man. Man as exclusive host for maintenance and dissemination of species

1-Trichophyton rubrum



2-Trichophyton schoenleinii



3-Trichophyton tonsurans

4-Trichophyton mentagrophytes var interdigitale

5-Microsporum audouinii

6-Epidermophyton floccosum:-



Clinical manifestations of dermatophytoses:

A. Skin invasion = ringworm

B. Hair invasion



Favic type (inside, with oil deposits and air)

Ectothrix type (outside; the hyphae are accumulated around the hair shaft)

Endothrix type (inside)

Tinea capitis Scalp, eyebrow, eyelashes

Tinea favosa Cup shaped crusts

Tinea corporis Rings with scaly centers

Tinea imbricata Concentric rings caused by T. concentricum

Tinea barbae Bearded area of face and neck

Tinea cruris Jock itch, moist groin area

Tinea pedis Athlete's foot Toe webs, soles and nails

Tinea manuum Interdigitate areas and palmar surfaces

Tinea unguium (Onychomycosis) Invasion of nail plate Thickened, discolored and brittle nails

Laboratory diagnosis of dermatophytoses

A-Skin scraping, + infected hair

KOH preparation

B- Potassium hydroxide (KOH): dissolves keratin and free hyphae from the cell

C- Calcofluor white (CFW) stains chitin at the cell wall

Need fluorescent microscopy. Improve the sensitivity and specificity of diagnosis

Culture: SDA or SDA with chloramphenicol and cycloheximide (mycosel agar) at room temperature at least 2 weeks Identification:

Microscopic characteristics:- Gross colors and textures

Trichophyton rubrum:-

White, cottony colony. Wine red pigment on reverse side.

- Pencil-shaped macroconidia



- Microconidia (club-shaped, tear drops)

Trichophyton mentagrophytes:-

Flat, white to cream color, powdery to granular surface



- Cigar-shaped macroconidia
- Microconidia present
- Coiled or spiral hyphae

Microsporum gypseum:-



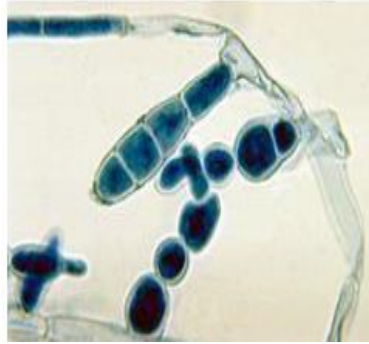
Light brown, powdery colony:

Spindled-shaped macroconidia, Microconidia present

Epidermophyton floccosum:-



Fluffy colony



- Club-shaped macroconidia
- Microconidia ABSENT

Dermatophytes:-

1-Microsporum:- Infect skin, hair and nails

Microscopic appearance : Macroconidia: Rough walled

Microconidia: Present : Macroconidia more than microconidia

2-Trichophyton:- Infect skin and hair

Microscopic appearance : Microconidia: Present:- Microconidia more than macroconidia

Macroconidia: Smooth walled

3- Epidermophyton:- Infect skin and nails

Microscopic appearance

Macroconidia: Smooth walled:- Microconidia: ABSENT: Chlamydoconidia

Black fungi:

Black Fungus or mucormycosis is a rare but dangerous invasive fungal infection caused by a group of molds called mucormycetes. Black fungus commonly affects the sinuses and lungs but can affect skin and brain. People can get infected when they inhale the mold spores or touch the mold spore. A skin infection can occur after the fungus enters the skin through a scrape, burn, or other type of skin injury.

Mucormycosis is not contagious from person to person. You cannot get it from an infected person. Most cases of mucormycosis are sporadic (meaning they occur infrequently) but outbreaks do occasionally occur. Most outbreaks are associated with water leaks, poor air filtration, building construction, and natural disasters. Healthcare providers who are concerned about an unusual number of cases should contact their state or local public health department. Symptoms depend on where in the body the fungus is growing and can include facial swelling, fever, skin ulcers, and black lesions in the mouth.

