

## Topic 7: The Superficial Mycoses

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### Superficial Mycoses - Why this special group?

1. the fungi associated with these mycoses generally **do not** elicit a host cellular response\*
2. their "infections"\*\*\* usually do not exhibit a pathology (no granulomas, cysts or other lesions)\*
3. the patient usually only becomes particularly concerned for cosmetic reasons and not because of discomfort\*
4. generally affect stratum corneum of skin and/or hair\*

\*some agents currently are being associated with some frequency with more serious emerging mycoses (malasseziosis & trichosporonosis) in known or suspected compromised patients.

\*\* conditions probably more appropriate here

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### The Fungi of the "Superficial" Mycoses

1. *Malassezia furfur*\* - a Blastomycetes form-species with suspected Basidiomycota affinity. *Pityrosporum orbiculare* - most common synonym. Possible variety, var *ovale* (or species *M.* or *P. ovale*); normal flora? Possibly up to 7 lipodependent species\*\*. *M. pachydermatis* - non-lipodependent.

\* Causative agent of skin condition: pityriasis versicolor, synonyms, malasseziosis, tinea versicolor  
Possibly also seborrheic dermatitis; a functional disease of skin and scalp - sebaceous glands (dandruff,itching) - skin; severe & difficult to cure in AIDS patients  
\*\*in four serovars

2. *Hortaea werneckii*\* a Hyphomycetes form-species with suspected Ascomycota affinity (Euascomycotina), *Exophiala werneckii* - *Phaeannellomyces werneckii* and *Cladosporium werneckii* - older texts

\*causative agent of the skin condition known as tinea nigra or tinea nigra palmaris and a form-species

3. *Piedraia hortae*\* - a Loculoascomycetes I (Dothidiomycetes?) species  
*Trichosporon hortae* - the anamorphic form-species name of *P. hortae*

4. *Trichosporon beigelii*\*\* - a Blastomycetes form-species with suspected Basidiomycota affinity  
*T. cutaneum* most common synonym

\* causative agent of a hair condition known as black piedra

\*\*causative agent of hair condition known as white piedra [also trichosporonosis in our text: a "misc" infection by a yeast-like fungus (see Dismukes et al., Chapters 13 & 24)]; newest *T. asahii* - one of 5 clinically relevant species.

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### Pityriasis Versicolor\*

- a) Superficial mycosis defined as a chronic, mild, usually asymptomatic infection of the stratum corneum caused by *Malassezia furfur*; a suspected (rDNA analysis) basidiomycete anamorph. Usually involves chest, back and shoulders; when systemic sometimes called malasseziosis.

#### First described

Eicksteadt	1846 described/named
Sluyter	1847 disease+
Robin**	1853 <i>Microsporum furfur</i>
Baillon	1889 <i>Malassezia furfur</i>

+ pityriasis versicolor

\*\* tinea versicolor

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### Diagnosis of Pityriasis Versicolor

1. nature and location of "lesions"
  - a. fawn to brown on caucasians
  - b. vary according to skin coloration of patient
  - c. degree of exposure of colonized areas to sunlight
  - d. severity and extent of colonization
2. microscopic observation of yeasts and hyphae in KOH skin scale preps (enteroblastic phialidic yeasts)
3. sometimes golden yellow fluorescence of lesions under Woods lamp (emission ~364 nM)
4. culture of fungus - determination of lipophilicity

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### Treatments for Pityriasis Versicolor

Treatment of choice - ketoconazole (Nizerol<sup>®</sup>) cream or ketoconazole (Nizerol) pills more commonly since ~1986

\*also other new azoles; e.g. oral itraconazole, see text.

Older Treatments - Denorex, Selsen Blue, 2% S in ointments, salicylic acid, etc.

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### Tinea nigra or Tinea nigra palmaris

A superficial mycosis of the stratum corneum characterized by brown to black nonscaly lesions (colonizations) often on the palms caused by *Hortaea werneckii*\*

Cerquiesa, 1891 first described and named disease:

Horta, 1921 first described fungus:

*H. werneckii* is a melanized (black) dimorphic Hyphomycetes\*\* form-species which usually exists as a mixture of annellate yeasts and hyphae in stratum corneum.

\**Phaeannellomyces werneckii*, *Exophiala werneckii*, *Cladosporium werneckii*

\*\*with Ascomycota affinities (probably Dothidiomycetes)

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### Diagnosis of Tinea Nigra

1. nature and location of "lesions"
  - a. brown to black on hand; most often palm (painless)
  - b. coloration varies according to skin color of host.
2. microscopic observation of yeasts and hyphae in KOH skin scale preps (enteroblastic annellidic yeasts).
3. culture of brown to greenish-black yeasts that produce soft colonies which eventually may become fuzzy due to yeast-to-hyphal dimorphism; hyphae produce annelloconidia.

Treatment: miconazole or ketoconazole cream, etc.

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### The Piedras

Hair colonizations by *Piedraia hortae* characterized as black piedra - usually scalp hair  
or by

*Trichosporon beigelii* characterized as white piedra - usually beard, axilla, pubic hair  
→ trichosporonosis an emerging disease of compromised hosts

Two types distinguished by

- a) nodule coloration and hardness
- b) fungus involved

1st description of "disease"\* Piedra (white)

Beigel 1865 (described wrong fungus)

Horta 1911 recognized 2 clinical types (black & white) - gave name *Trichosporon* to fungus he isolated (a black fungus).

\*condition ? Treatments = clipping & cutting hair; shaving;azole creams for chronic cutaneous, oral azoles for systemic Trichosporonosis.

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<i>Trichosporon hortae</i> - anamorph	1913
<i>Piedraia hortae</i> - teleomorph	1920

Ascomycota - Phylum  
Loculoascomycetes (Dothidiomycetes?) - Class  
Hyphomycetes - Form-class  
Form-family - Dematiaceae

*Trichosporon beigelii*; *T. asahii* - newest name for this most clinically relevant of the five species.

Blastomycetes - Form-class; with suspected Basidiomycota affinity*	1980s+
because of observation of dolipore-type septa and rDNA analysis	1990s
(Phragmobasidiomycetes??) dimorphic	

Emerging forms

systemic trichosporonosis\*  
genital white piedra\*

Treatment

oral and topical azoles

\*among pathogenic fungi - seems close to *Cryptococcus*, even has common capsular polysaccharide antigen.