

**SUPERFICIAL MYCOSES**

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Dermatologist

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**SUPERFICIAL MYCOSES**

- Dermatophytoses
- Superficial Candidiasis
- Malassezia Infections

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Diagnosis:**

- **Clinic** Type of lesion  
Anatomic localization  
Wood's Light
- **Mycologic** Direct microscopy  
Culture

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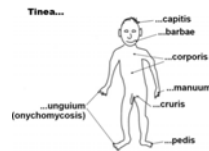
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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

- Tinea capitis
- Tinea barbae
- Tinea corporis
- Tinea cruris
- Tinea pedis
- Tinea manuum
- Tinea unguium

Anatomic location (latin) + Tinea



Ringworm

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Clinical Diagnosis**

- Skin lesions with a variable inflammatory component and different morphology.

SEVERAL DIFFERENTIAL DIAGNOSIS

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Differential Diagnosis:**

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Mycologic Diagnosis**

- Rational treatment depends on fungal identification.
- Important epidemiologic strategies.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Dermatophytes -Classification**

- Habitat - Antropophilic, Zoophilic and Geophilic.
- Genera- *Microsporum*, *Tricophyton* e *Epidermophyton*. (Emmons 1934)

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Diagnosis:**

- **Mycologic:** Direct microscopy



Often sufficient for diagnosis  
All species are identical

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Diagnosis:**

- **Mycologic:** Culture The species of dermatophyte is identified

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

**Diagnosis:**

- **Mycologic:** Culture Lactophenol cotton blue

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea capitis

- Most common dermatophytose of childhood.
- Scaling and patchy alopecia.
- Inflammatory and non Inflammatory.

*Gray patch ringworm*

*“Black dot” ringworm*

Favus

Kerion

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea capitis

Challenging clinical diagnosis

Pruritus  
Scaling  
Hair loss  
Inflammation

Antropophilic infections  
are epidemic.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea capitis



Wood's Light

*Microsporum* Genera

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea corporis

- Superficial infections of the non hairy skin.
- Asymmetric distribution in exposed areas.
- Classic ringworm.
- Variable inflammatory signs.

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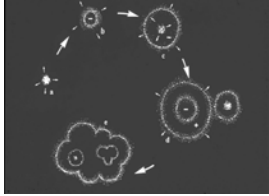
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**SUPERFICIAL MYCOSES**  
Dermatophytoses

Tinea corporis



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**SUPERFICIAL MYCOSES**  
Dermatophytoses

Tinea corporis

- Tinea incognito

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**SUPERFICIAL MYCOSES**  
Dermatophytoses

Tinea corporis

Majocchi's granuloma

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea Barbae

- Follicular inflammation
- Cutaneous granulomatous lesion

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea cruris

- Skin lesion with a border and a reddish and scaly central area.
- Local extension, may involve thighs, perineum and perianal areas.
- Association with t. pedis / unguium

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Tinea manum / pedis

- Frequently associated.
- Different clinical patterns.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Dermatophytid Reaction

- Inflammatory reactions to a dermatophytose.
- Focus of pathogenic fungus.
- Absence of fungus in the area of reaction.
- Spontaneous cure after treatment of the infection.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Dermatophytid Reaction

- Multiple forms / lesions.

Tinea Pedis

Dyshidrotic Eczema

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Onychomycosis / Tinea Unguium

**Dermatophytes**, Candida spp, Molds.

- Distal lateral subungual (DLSO)
- White superficial (WSO)
- Proximal subungual (PSO)
- Endonyx (EO)

Total Dystrophic

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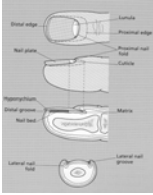
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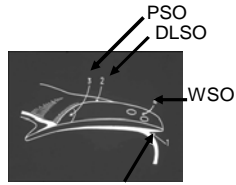
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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Onychomycosis



Nail's anatomy



Patterns of infection

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Treatment

- Topical
- Systemic
- Combination therapy

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Topical Treatment

- Dermatophytes confined to superficial keratinized tissue.
- Limited extension of lesions.
- Combination therapy.
- Prophylactic therapy.
- Decrease drug interactions.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Topical Treatment

Imidazoles  
Allylamines  
Amorolfine  
Ciclopirox

FORMULATION



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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Systemic Treatment

- Dermatophytes involving hair and nails.
- Difficult to treat microorganisms.
- Large infected areas.
- Secondary infections and maceration.
- Immunocompromised.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Systemic Treatment

- Pharmacokinetic data.
- Indication.
- Dosage.
- Adverse effects.
- Drug interactions.

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**SUPERFICIAL MYCOSES**  
Dermatophytoses

**Systemic Treatment**

- Griseofulvine
- Itraconazole
- Fluconazole
- Terbinafine



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**SUPERFICIAL MYCOSES**  
Dermatophytoses

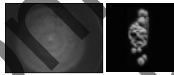
Treatment - Tinea capitis

- Griseofulvin- "gold standard"



Safety and efficacy well established

Treatment failures.  
Change in pathogens.  
Increase dose (20 to 25 mg/Kg/day) 6 to 8 weeks  
Treatment adherence (up to 12 weeks).



*M. audouinii* *T. tonsurans*

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**SUPERFICIAL MYCOSES**  
Dermatophytoses

Treatment – Tinea capitis

**Itraconazole** 5 mg/Kg/day - continuous 4 weeks  
pulse - one week / month 2 to 4 pulses

**Fluconazole** 6 mg/Kg/day 2 to 3 weeks

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**SUPERFICIAL MYCOSES  
Dermatophytoses**

Treatment – Tinea capitis

<b>Terbinafine</b> – 2 to 4 weeks	< 20 Kg	62,5 mg/day
	20 – 40 Kg	125 mg/day
	> 40 Kg	250 mg/day

<b>Griseofulvin</b> – 6 to 8 weeks	20-25 mg/kg/day
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**SUPERFICIAL MYCOSES  
Dermatophytoses**

Treatment – Tinea capitis

<b>Terbinafine</b> - Hydrochloride oral granules (5-8 mg/kg)
<b>Griseofulvin</b> – Oral suspension (10-20 mg/kg)

- Clinical and mycologic cure: T > G ( $p < 0,05$ )
- T tonsurans*: T > G ( $p < 0,001$ )
- M canis*: G > T ( $p < 0,05$ )

Elewski, BE, et al. J Am Acad Dermatol 2008; 59:41-54

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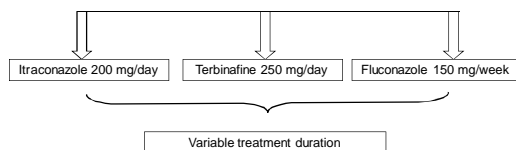
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**SUPERFICIAL MYCOSES  
Dermatophytoses**

Treatment Tinea: corporis, cruris, manum/pedis

Systemic therapy



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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Treatment – Onychomycosis

- Relevance of the clinical presentation.
- Difficult to eradicate.
- **Dermatophytes**, Yeasts, Molds.
- Cause of recidive.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Treatment – Onychomycosis

- Certainty of Diagnosis.
- Complications.
- Identify risk of recurrence.
- Efficacy, costs, side effects.

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**SUPERFICIAL MYCOSES**  
**Dermatophytoses**

Topical Treatment – Onychomycosis

- Low efficacy.
- WSO / Nail matrix not involved.
- **Systemic treatment is contraindicated or declined.**
- Combination therapy.

Tioconazole nail solution 28%

Amorolfine nail lacquer 5%  
Ciclopirox nail lacquer 8%

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**SUPERFICIAL MYCOSES  
Dermatophytoses**

Topical Treatment – Onychomycosis

Tioconazole nail solution 28%  
Amorolfine nail lacquer 5%  
Ciclopirox nail lacquer 8%

Surgical nail avulsion  
Matrixectomy  
Debridment  
Chemical removal (urea 40%)

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**SUPERFICIAL MYCOSES  
Dermatophytoses**

Treatment – Onychomycosis

- Using new drug regimens and combination therapy.
- Identifying high-risk patients.
- Preventing relapses.

Systemic diseases

Morphology of the nail

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**SUPERFICIAL MYCOSES  
Dermatophytoses**

Treatment – Onychomycosis

Persist in the nail several months after plasma elimination

Terbinafine 250 mg /day p.o. 6 wk fingernails  
12 wk toenails

Itraconazole 200 mg /day p.o. 12 wk  
400 mg/ day p.o. 1 wk month  
2 pulses fingernails, 3 pulses toenails

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**SUPERFICIAL MYCOSES**  
**Candidiasis**

- Infections due to yeasts genus *Candida*.
- *C albicans* is the most pathogenic.
- Commonly present harmlessly in humans.
- Risk factors of disease : Impaired local and systemic defenses.  
Virulence factors of species.

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**SUPERFICIAL MYCOSES**  
**Candidiasis**

**Risk Factors - Host**

- Disrupture of mucocutaneous barriers.
- Inflammatory diseases that occur in skinfolds.
- Altered flora from antibiotic therapy.
- Immunosuppression.

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**SUPERFICIAL MYCOSES**  
**Candidiasis**

**Risk Factors species**

- Surface molecules.
- Acid proteases and phospholipases.
- Phenotypic switching.

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**SUPERFICIAL MYCOSES**  
**Candidiasis**

Clinical manifestations

- Oropharyngeal
- Cutaneous
- Onychomycosis
- ...other

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**SUPERFICIAL MYCOSES**  
**Candidiasis**

Laboratorial diagnosis:



Culture

Biochemical Identification

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**SUPERFICIAL MYCOSES**  
**Candidiasis**

Treatment

- Topical antifungal drugs : Nystatin, Imidazole, Amphotericin.
- Fluconazole 100-200 mg p.o. 7 to 14 days.
- Itraconazole 200-400 mg p.o. 14 days.
  
- Correction of underlying conditions.

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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

Infection yeast genus *Malassezia*

- Lipophilic yeast found on skin and body surfaces.
- Member of the normal skin flora in as much as 90% of adults.

Direct microscopy

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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

- Mostly endogenous and originate from the colonized skin.
- Saprophytic yeast / parasitic mycelial form.
- The most common clinical picture is **Pityriasis versicolor**. The etiologic role of the fungus is accepted.
- Folliculitis, seborrheic dermatitis, psoriasis, atopic eczema and neonatal pustulosis.

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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

- 1984 The old name *Pityrosporum* was rejected.
- 1996 New taxonomic classification.
- The Genus *Malassezia* in 2007 (13 species)  
***M. furfur***, *M. pachydermatis*, *M. sympodialis*,  
***M. globosa***, *M. slooffiae*, *M. restricta*, and  
*M. obtusa*.  
*M. dermatis* and *M. japonica*.  
*M. yamatoensis*.  
*M. equina*, *M. caprae* and *M. nana*.

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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

Pityriasis Versicolor

- *Malassezia globosa* in temperate climates.
- *Malassezia furfur* in the tropics.
- Common, widespread and benign, often reoccurs.
- Asymptomatic / Moderate-to-severe pruritus.

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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

Pityriasis Versicolor



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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

Pityriasis Versicolor – Treatment

- Topical therapy - limited skin disease.
  - Nonspecific agents (selenium sulfide)
  - Topical antifungal agents (azoles and allylamines).

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**SUPERFICIAL MYCOSES**  
**Malassezia Infections**

Pityriasis Versicolor – Treatment

Systemic therapy:

- Ketoconazole.
- Itraconazole 200 mg/day 5 - 7 days.
- Fluconazole -150 -300 mg once weekly for 2 - 4 weeks.

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**SUPERFICIAL MYCOSES**



Thank you for your attention !



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