

Superficial Mycosis

Superficial Mycoses: fungi present in upper surface of epithelial skin ,has ability for growing , multiplication and produce pathological changes of these area .

Most common causative agent including

1-Pityriasis Versicolor , 2-Tinea Nigra 3-Piedra

* The disease : Tinea versicolour (Pityriasis versicolour)

* Infective agent: Lipophylic yeast, *Malassezia furfur* :

Pityrosporum ovale

Pityrosporum orbicularis

Clinical picture:

New hypopigmented and old hyperpigmented circular lesions on trunk, neck, shoulders



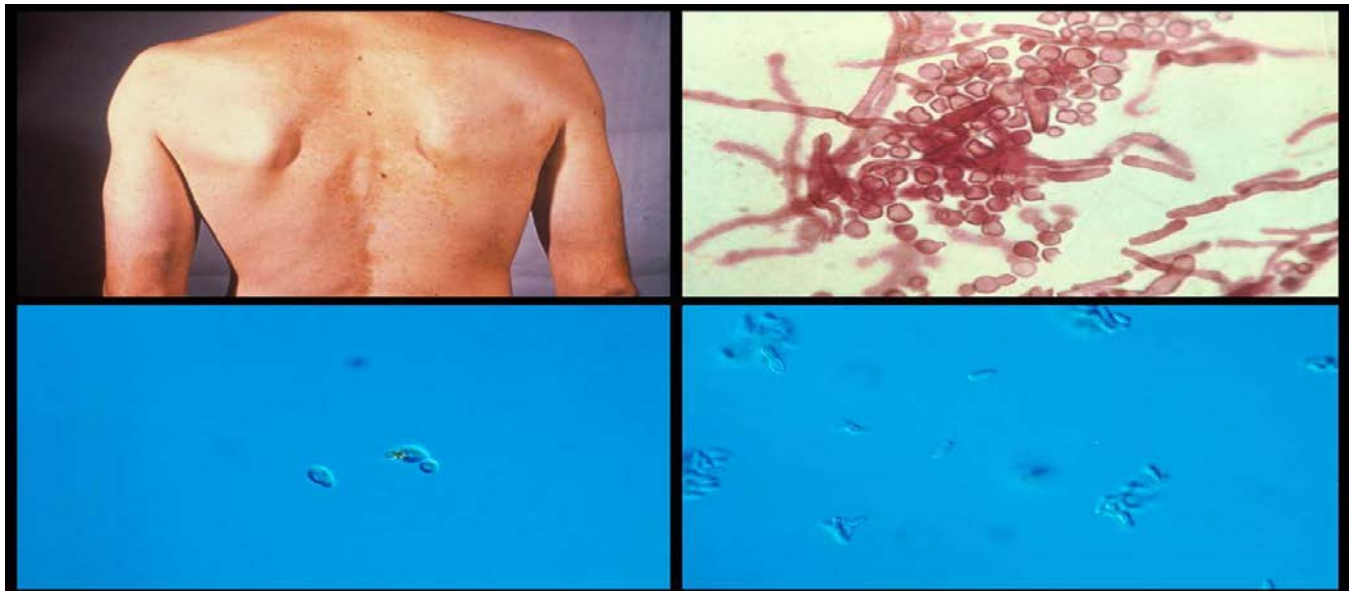
Pityriasis versicolor : is a chronic mild superficial infection of the stratum corneum caused by *Malassezia globosa*, *M restricta*, and other members of the *M furfur* complex. Invasion of the cornified skin. Associated with hyper- or hypopigmented maculae occur on the skin, usually on the chest,

upper back, arms, or abdomen. The lesions are chronic and occur as macular patches of discolored skin that may enlarge and coalesce, but scaling, inflammation, and irritation are minimal. is largely a cosmetic problem

***Malassezia infections* (PITYRIASIS VERSICOLOR)**



Lab Diagnosis



- **Basic diagnostic techniques of Tinea Versicolor**

- **Woods light:Wood's lamp exam in Dark room gives fluorescent lesion**
 - **KOH: 10% KOH preparation of scraped scales**
 - **Culture: Sabouraud's dextrose agar with oil overlay for lipophilic organism**



Tools for collection of skin scraping (Scales)

CUTANEOUS MYCOSIS (Dermatophytes ,Tinea)

- **extend deeper into the epidermis, as well as invasive in hair and nail diseases. Infection of the skin, hair or nails caused by a group of keratinophilic fungi, called dermatophytes**

- **DERMATOPHYTOSIS(=Tinea = Ringworm)**
- Fungi belong to 3 genera: **Microsporum ,Trichophyton, Epidermophyton**
- Affect keratinized tissue : **Skin, Hair ,Nail**

FACTORS AFFECTS THE DISTRIBUTION OF DERMATOPHTIC INFECTIONS :

- Environmental condition: warm, moist
- Age and hygienic standard : children more affected
- Contact with animals : domestic or wild (cats, dogs, cattles ,...)
- Endemicity and health care
- Dermatophytes 3 genera :
- Digest keratin by their keratinases
- Resistant to cycloheximide
- **Classified into three groups depending on their usual habitat:**
- * Anthropophilic: Man to man benign lesion
(Microsporum audouinii) associated with human only (comb,hats....)
- * Zoophilic: Animal (cat,cattle,dogs) to man
inflamed, oozing lesion *(Microsporum canis)*
- * Geophilic: From the soil*(Microsporum gypseum)*

- direct human exposure

Dermatophytes 3 genera:

Trichophyton: 19 species infect skin, hairs and nail

Microsporum: 13 species infect skin & hairs

Epidermophyton: 1 species infects skin & nail

(*Epidermophyton floccosum*)

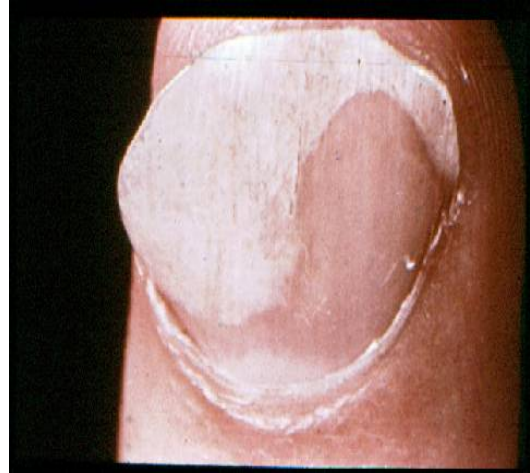
DERMATOPHYTOSIS: Clinical Classification & Manifestations:

Infection is named according to the anatomic location involved:

- **Tinea corporis - small lesions occurring anywhere on the body**



- **Tinea unguium (onychomycosis) - nails. Clipped and used for culture**



- **Tinea capitis - head. Frequently found in children**



- **Tinea barbae - ringworm of the bearded areas of the face and neck.**

Clinical diseases

*** Dermatophytes lesions**

Circular (ring-worm), active edge (extending), healing centers

*** Anatomical site of lesion:**



Tinea corporis (Trunk)

Tinea cruris (Groin)

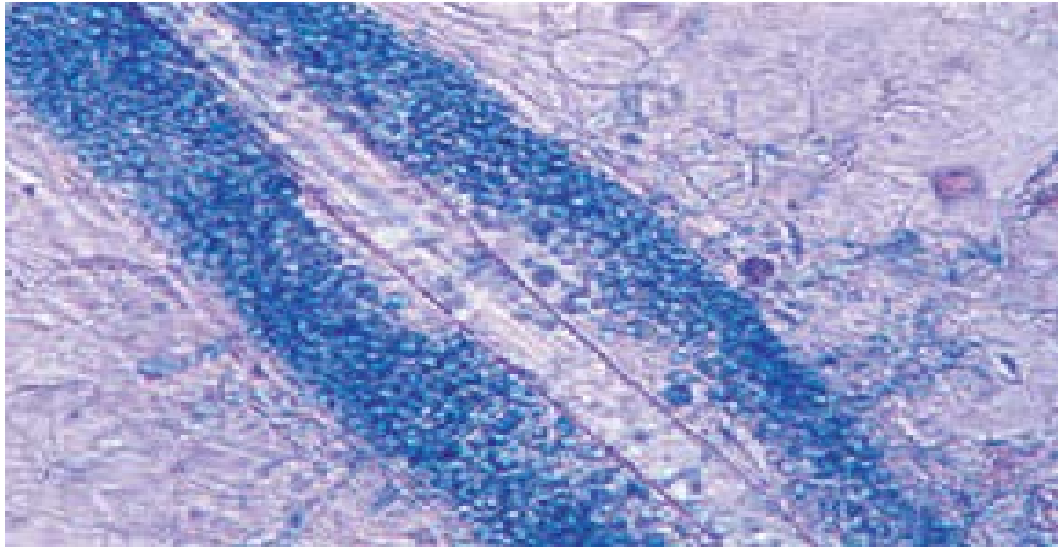


Tinea pedis (Athlet'sFoot):



Tinea Capitis (Scalp)





**Tinea faciale
and kerion reaction**



“Boggy & edematous”

**Favic skin
reaction pattern;
granuloma formation**



DERMATOPHYTOSIS Diagnosis

I. Clinical

Appearance ,Wood’s lamp (UV, 365 nm)

II. Lab

A. Direct microscopic examination(10-25% KOH)



B. Culture: Mycobiotic agar Sabouraud dextrose agar

Specimen:

Skin scales of the active border and epilated hair

Microscopical examination:

- Hyphae are septated, Spores are oval, round, or elliptical
- Spores arrange in mosaic outside the hair (ectothrix) or inside the hair (endothrix) - very few with shaft cavities full of KOH

Culture:

- Grown on SDA + chloramphenicol + cyclohexamide
- Eight weeks at 27 °C



SUBCUTANEOUS MYCOSIS

- These are caused by fungi that grow in soil and on vegetation and are introduced into subcutaneous tissue through trauma. These mycoses are usually confined to the subcutaneous tissues

1- Sporotrichosis

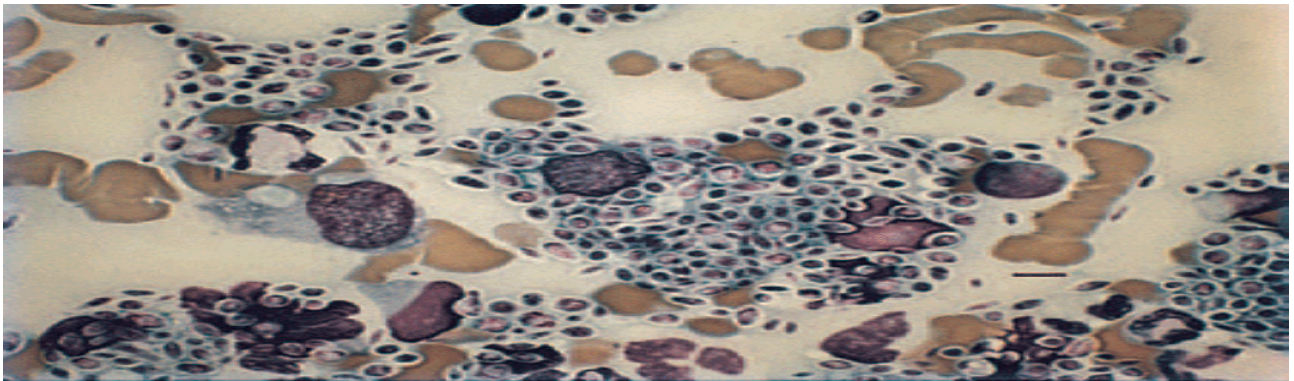
- **Causative agent:** *Sporothrix schenckii* is a dimorphic fungus that live on vegetation.
- **Pathogenesis and clinical finding**
- When introduced into the skin, typically by a thorn, it cause a local pustule or ulcer with nodules along the lymphatic ducts that may progress to form a necrotic or ulcerative lesion.



Diagnosis

- Specimens include biopsy material or exudates from granulous or ulcerative lesions.
- **Microscopic examination**

- In the clinical laboratory, round or cigar-shaped budding yeasts are seen in tissue specimen.
- In culture, hyphae occur bearing oval conidia in clusters at the tip of slender conidiophores.
- In H & E stained tissue often see the asteroid body consist of a central basophilic yeast cell surrounded by radiating extension of eosinophilic material which are depositions of Ag-Ab complex and complement



Sporothrix in clinical specimen (asteroid body)

2- Chromoycosis

Causative agent: several soil fungi (*Fonsecaea*, *Phialophora*, *Cladophialophora*, *Rhinocladiella*) These fungi a slowly progressive are collectively called dematiaceous fungi, so named because their conidia or hyphae are dark-colored, either gray or black

- The fungi when introduced into the skin through the trauma develop to granulomatous infection .
- Wart like (cauliflower-like) lesion with crusting abscesses extend along the lymphatics.

- Small ulcerations or black dots of hemopurulent material are present on the warty surface
- Elephantiasis may result from obstruction and fibrosis of lymph channels.
- The disease occur mainly in the tropics and is found on bare feet and legs.



Diagnosis

- Specimens are biopsy from lesions
- In tissue fungus producing spherical brown cells (sclerotic bodies). Detection these bodies is diagnostic
- Surgical excision , Flucytosine or itraconazole and Relapse is common

3- Mycetoma

- Mycetoma is a chronic subcutaneous infection
- Caused by several saprophytic species of fungi or actinomycetous bacteria that are normally found in soil
- Actinomycetoma is a mycetoma caused by an actinomycete
- Eumycetoma (Maduromycosis, Madura foot) is a mycetoma caused by a fungus

- Causative agents enter through wounds in the feet, hands, or back and cause abscesses, with pus discharge through sinuses.
- The pus contain compact colored granules.



Diagnosis

- The granule color, texture, and size and the presence of hyphae or bacteria are helpful in determining the causative agent.
- Sulfonamide may help in the actinomycotic form. Nystatin, itraconazole, amphotericin B
- Surgical excision is recommended.