



IN THE NAME OF GOD

Fungal Infection

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Fungal Infection

- ▶ Superficial
 - ❖ Minimal inflammatory
 - ❖ More inflammatory
- ▶ Subcutaneous
 - ❖ Involve dermis and subcutis
- ▶ Deep or systemic
 - ❖ Dermis and subcutis and extension
 - Hematogenous
 - Underlying structures

Two point

- ▶ Less prevalent because of hygiene
- ▶ More resistance

Superficial Mycoses

- ▶ Only invade fully keratinized tissues
- ▶ Stratum corneum
- ▶ Hair
- ▶ Nail
- ▶ Tinea nigra
- ▶ Piedra
- ▶ Tinea versicolor
- ▶ Pityrosporum folliculitis
- ▶ Dermatophytose
- ▶ Candidiasis

Tinea nigra

- ▶ Described in 1890s Cerqueira
- ▶ In tropical climates
- ▶ In young adults
- ▶ Hortaea werneckii is responsible
- ▶ 10-15 day incubation period
- ▶ Single, sharply marginated, brown to gray–green macule and patch
- ▶ Velvety or have mild scale

Tinea nigra...

- ▶ Mostly on palms, less in neck, trunk and soles
- ▶ No pruritus
- ▶ Resemble acquired acral melanocytic nevi but is larger, lighter, lack of linear striations
- ▶ Darker in advancing border as compare to center
- ▶ Chronic but no recurrence after treatment

Piedra

- ▶ Superficial infection of hair shaft
- ▶ “Piedra” means “stone”
- ▶ Fungal elements adherence to each other
- ▶ Form nodules along the hair shaft
- ▶ Black piedra: *piedraia Hortaea*
- ▶ White piedra: *Trichosporon beigeli*

► Black piedra

- ❖ Asymptomatic brown to black nodule along the hair shaft
- ❖ Common under the cuticle of hair shaft and extends toward
- ❖ Hair breakage due to shaft rupture at nodule level
- ❖ As nodule enlarge, they can envelope the hair shaft

► White piedra

- ❖ Infection begins beneath the cuticle
- ❖ Grow through the hair shaft
- ❖ Weakening and breakage of the hair
- ❖ Nodules are soft, less adherent and white
- ❖ Sometimes nodules are red and green
- ❖ Incidence increased after HIV

Pityriasis (Tinea) Versicolor

- ▶ *Malassezia furfur* and *globosa*
- ▶ Tropical climates
- ▶ Temperate climates: oily skin, more sweating, poor nutrition, pregnancy, steroid use and immunodeficiency
- ▶ Multiple oval-to-round patches or thin plaques
- ▶ Mild and fine scale with scratching and stretching
- ▶ Confluent centrally and extensive
- ▶ Seborrheic regions: upper trunk and shoulders
- ▶ Less in face (children), scalp, groin, submammary and antecubital
- ▶ “Inverse” tinea versicolor: flexural involve

- ▶ Most common colors are brown and whitish-tan
- ▶ Hyper and hypopigmentation
- ▶ Sometimes pink color due to inflammation
- ▶ Why white color?
 - ❖ Inhibitory effect of dicarboxylic acid surface lipid of yeast on melanocyte
 - ❖ Decreased tanning due to fungal ability to filter sunlight
- ▶ Asymptomatic

Pityrosporum folliculitis

- ▶ Young women
- ▶ Pruritic, monomorphic follicular papules and pustules
- ▶ Upper trunk, arms, neck and, face
- ▶ Growth of *M. furfur* and *M. globosa* in hair follicle and inflammation, yeast products and free fatty acids from fungal lipase
- ▶ Only yeast form and no hyphal form

Differential diagnosis

► *Piedra*

- ❖ Pediculosis
- ❖ Hair casts
- ❖ Trichorrhexis nodosa
- ❖ Trichomycosis axillaris
- ❖ Scales of psoriasis and eczema

► *tinea nigra*

- ❖ Acral melanocytic nevus
- ❖ Fixed drug eruption
- ❖ Postinflammatory hyperpigmentation
- ❖ Staining from chemical
- ❖ Melanoma

Differential diagnosis ...

► *Tinea versicolor*

- ❖ Pityriasis alba
- ❖ Postinflammatory hypopigmentation
- ❖ Vitiligo
- ❖ Seborrheic dermatitis
- ❖ Pityriasis rosea
- ❖ Tinea corporis
- ❖ Secondary syphilis
- ❖ Progressive macular hypomelanosis

Treatment

► *Piedra*

- ❖ Clipping hairs
- ❖ Ketoconazole 2% shampoo enough
- ❖ Oral terbinafine sometimes

► *Tinea nigra*

- ❖ Topical keratolytic: Whitfield's ointment (typically 6% benzoic acid plus 3% salicylic acid)
- ❖ Topical antifungal azole or allylamine
- ❖ Several weeks need to prevent recurrence
- ❖ Systemic not effective

Treatment ...

► *Tinea versicolor*

□ Topical antimycotic:

❖ Shampoo:

- Ketoconazole 1-2% , Selenium sulfide 2.5%
- Twice weekly, 2-4 week
- Left on skin for 10–15 minutes all the skin form neck to knee

❖ Creams:

- Azole. Allylamin, nystatin 50% PC in water, SA

❖ Residual pigmentary change require weeks to months

❑ Systemic treatment

- ❖ Ketoconazole: 200 mg/ daily in 5 day
- ❖ Fluconazole: 300 mg weekly for 2 weeks
- ❖ Itraconazole: 200 mg daily for 5 day

❑ Rate of recurrence is very high in hot climates

- ❖ Use Ketoconazole weekly as a body cleanser
- ❖ Once monthly :
 - 400mg Ketoconazole
 - 300 mg Fluconazole
 - 400 Itraconazole

Treatment

- ▶ *Pityrosporum folliculitis*
- ▶ Topical antifungal
- ▶ Selenium sulfide shampoo
 - ❖ *50% PG in water*
- ▶ *Systemic:*
 - ❖ Fluconazole 100-200 mg/day for 3 week
 - ❖ Itraconazole 200 mg/day for 1-3 week

Trichomycosis axillaris

- ▶ Superficial corynebacterial infection
- ▶ Concretions on the shafts of axillary and pubic (less) hairs
- ▶ Adherent yellow, red, or black nodules or cylindrical sheath
- ▶ Characteristic odor
- ▶ Sweat cause red color staining clothing
- ▶ Usually on noticed
- ▶ Wood's lamp → yellow fluorescence
- ▶ Differential diagnosis is white piedra, and hair casts

Treatment

- ▶ Shaving
- ▶ Antimicrobial cleansers
- ▶ Topical erythromycin or clindamycin

Erythrasma

- ▶ Superficial and chronic
- ▶ excessive proliferation of *Corynebacterium minutissimum* in stratum corneum
- ▶ Growth favored by moist, occluded intertriginous areas, intergluteal, axillae, groin, web of toes, umbilicus, and inframammary
- ▶ Other trigger factors: warm humid climate, poor hygiene, obesity, hyperhidrosis, diabetes mellitus, advanced age and immunosuppression
- ▶ Pink to red, well-defined patch with fine scale
- ▶ Red color fades to brown, surface wrinkling and fissuring
- ▶ “Disciform” variant is more widespread outside the intertriginous locations, occasionally presenting sign of type 2 diabetes mellitus

- ▶ Asymptomatic
- ▶ Interdigital erythrasma is most common bacterial infection of foot and most common form of erythrasma
- ▶ Wood's lamp, bright coral-red fluorescence due to porphyrin
- ▶ Progression to cellulitis and bacteremia sometimes in immunocompromised
- ▶ Differential diagnosis is tinea, seborrheic dermatitis and complex toe web infections
- ▶ Treatment:
 - ❖ 20% AlCl_3 , azole antifungals, clindamycin, erythromycin
 - ❖ In recalcitrant: systemic erythromycin, systemic tetracyclines, antibacterial soaps

Candidiasis

A. Mucocutaneous forms

- ▶ Early descriptions of thrush (oral candidiasis) by Hippocrates
- ▶ Oral:
 - ❖ *Pseudomembranous form*: white exudate resembling cottage cheese
 - ❖ *Chronic atrophic form*: patch of erythema
 - ❖ *Chronic hyperplastic form*: adherent white plaque
 - ❖ *Glossitis*: painful atrophy of dorsal tongue
 - ❖ *Other forms*: denture stomatitis, angular cheilitis, vulvovaginitis, and balanitis

Candidiasis...

A. Mucocutaneous forms ...

- ▶ Predisposing factors
 - ❖ Diabetes mellitus, xerostomia, occlusion, hyperhidrosis, corticosteroids and antibiotics use, and immunosuppression, like HIV
- ▶ For angular cheilitis: overlap of skin in elderly, use of orthodonticat, drooling, atopic dermatitis, iron or vitamin B2 deficiencies

Candidiasis...

B. Cutaneous

- ▶ Erythematous and erosive, patches with satellite papules and pustules
- ▶ most common sites:
 - ❖ Intertriginous zones (submammary, inguinal and intergluteal)
 - ❖ Scrotum and diaper
 - ❖ Web between third and fourth finger (frequently water exposed)
- ▶ Sometimes superimposed on seborrheic dermatitis and psoriasis
- ▶ Infect nails and periungual areas in chronic paronychia
- ▶ Common Organisms
 - ❖ *C. albicans* as then *tropicalis*

Treatment:

- ✓ Identifying and remove predisposing factors
- ✓ Topical Nystatin or azole
- ✓ Oral: fluconazole and itraconazole

C. Granuloma gluteale infantum

- ▶ reactive condition in setting of chronic, severe irritant dermatitis
- ▶ In anogenital region of infant with chronic diarrhea or children and adults with urinary incontinence and encopresis
- ▶ Pseudoverrucous ovoid, papules/nodules, or plaques
- ▶ Erythematous to violaceous
- ▶ Sometimes punched-out erosions
- ▶ Like the candida we see satellite
- ▶ Chronic irritation, occlusion, topical steroid use, and candidal infection are reasons
- ▶ **Treatment:**
 - ✓ Antifungal and removing of irritant



The End