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 follicutis
- 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 beigelii

- 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, stroid 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

- 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

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 stroied use, and candidal infection are reasons
- ***Treatment:***
  - ✓ Antifungal and removing of irritant

The End