Outline

Dermatomycoses
Tinea corporis, Tinea capitis, Tinea pedis, Tinea cruris,

Definition: diseases or fungal infections of the skin

• Dermatophyte infections are caused by *Trichophyton*, *Microsporum*, and *Epidermophyton* species

• Tinea pedis: known as athlete's foot
• Tinea cruris: known as jock itch
• Tinea corporis/capitis: known as ring worm

Transmission of Dermatomycoses

• Transmission of Dermatophytes: Anthropophilic, Zoophilic, and Geophilic.
• Anthropophilic- spread from humans
• Zoophilic- spread from infected cats, dogs, or, more rarely, cattle
• Geophilic- derived from soil

Case Report 1


• First report on human ringworm caused by *Arthroderma benhamiae* in Japan transmission from a rabbit.

Presentation of Disease

• Tinea corporis due to *Arthroderma benhamiae* a telemorph of *Trichophyton mentagrophytes*.

• Manifestations: itchy and erythemous skin lesions with small vesicles on bodies.

Histopathology

• Examination revealed hyphae and arthroconidia and isolated *Trichophyton mentagrophytes* from skin scrapings.

• Was transmitted from cross-bred rabbit that displayed similar lesions before humans displayed symptoms.

Laboratory Aspects

• T. mentagrophytes from *A. benhamiae* was first isolated in rabbits in Japan in 1998, and lesions were identified as A. benhamiae (-) mating type by mycological and molecular analysis.

• Analysis included PCR and mating experiments on isolates (+) or (-) tester strains of A. benhamiae, A. simii, and A. vanbreuseghemii.

• Spirals and dumb-bell shaped peridial hyphae found on gymnothecia.

Epidemiology and Ecology

• *Arthroderma benhamiae* was first reported in USA and was also isolated in Europe and Africa
• Divided into Americano-European race, and African.
• Arthroderma benhamiae has been isolated in rabbits in Japan (1998), but this is first human isolation in Asian countries and will increase with rabbits and hamster being pets.

**Treatment and Prevention**
• Infection in humans was treated with Ketoconazole cream and applied twice daily. Infection was cured in two months.
• Ketoconazole may kill fungus or just stop reproduction by interfering with cell wall structure particularly cytochrome 14α-demethylase.
• The most common side effects are nausea, vomiting, and diarrhea. Also liver disease from higher doses.
• Rabbit was sent to veterinary hospital.
• Cases will increase as number of rabbits as pets increase.

**Case Study 2**
• Widespread tinea corporis due to Trichophyton rubrum

**Presentation of Disease**
• Tinea corporis caused by trichophyton rubrum.
• Manifestations: lesions with a psoriasis-like aspect, with abundant superficial scaling.

**Histopathology**
• pyriform, sessile alongside undifferentiated hyphae diagnostic of Trichophyton rubrum

• Found on 36 year old male with no previous treatments of dermatoses, large plaque, brownish red in color found on neck, face, shoulders, and trunk.

**Laboratory Aspects**
• Identification based on macroscopic features of colonies as well as examination of colonies in lactophenol cotton blue revealing pyriform, sessile alongside undifferentiated hyphae diagnostic of Trichophyton rubrum.
• Mycological examination after one month was negative

**Epidemiology and Ecology**
• caused by either zoophilic fungi or antropophilic organisms, less frequently by geophilic fungi
• Atypical mycotic infections are observed more frequently in HIV-positive patients
• dermatophyte infections have been described in atopics and in patients with Cushing’s syndrome

**Treatment and Prevention**
• Patient received terbinafine 250mg orally once a day for twenty days.
• Local imidazole cream was applied once daily for a month
• Follow up examination at one month and three month intervals showed no recurrence

**Athlete’s Foot**
• Synonyms: *Tinea pedis*

• Chronic or acute skin disorder, depending on type
• Occurs most often in those with predisposition to infection regardless of precautionary measures
• Worldwide distribution, but warm, humid environments tend to have greater occurrences

**Etiological Agents**
• Various species of *Trichophyton* depending on the type of Athlete’s foot you are dealing with
  • **Chronic Interdigital** - *T. interdigitale*
  • **Moccasin type** - *T. rubrum*
  • **Acute vesicular** - *T. mentagrophytes*

**Epidemiology**
• Athlete’s foot is common in adult males but not common in women
• Can affect children before puberty, regardless of sex
• 70% of population will experience it at one time or another

**Clinical Manifestations**
• Depend on the type
  • **Chronic interdigital** - scaling, maceration, and fissures most commonly in the web space between the 4th and 5th toes.
  • **Moccasin type** - dry, scaly skin on the sole of the foot that is very fine and silvery.
  • **Acute vesicular** - onset of painful blisters on the sole or top of the foot. Another wave of blisters may follow due to an allergic reaction that involves the arms, chest, and fingers

**Tinea Pedis**
• Topical Imidazoles used effectively
• Inhibit ergosterol synthesis
• Imidazoles such as Clotrimazole messaged into infected area
• Meconazole and Ketoazole used to treat as well
• Drugs should be messaged into the interdigital area to prevent infection

**Scalp Ringworm**
• Synonyms: *Tinea capitis*

• Benign skin disorder
• Infection of the scalp hair
• Characterized by loss of hair, inflammation, and scaling
• Worldwide distribution

Etiological Agents
• *T. rubrum*
• *M. canis*

**Epidemiology**
- Primarily a childhood disease
- Person-to-person transmission occurs where poor hygiene and overcrowded conditions exist
- Occurs in domestic animals, from whom it can be transferred to humans

**Clinical Manifestations**
• Discrete circular patches of hair loss with scaling, inflammation, and occasionally pustules
• A more severe pustule called a **kerion** may form leading to permanent scarring and hair loss

**Treatment for Tinea Capitis (Ringworm)**
• Use of a selenium sulfide shampoo encouraged
• Newer antifungal medications, such as ketoconazole, itraconazole, terbinafine, and fluconazole effective
• Systemic administration of griseofulvin provides first effective oral therapy

**Jock Itch**
• Synonyms: *Tinea cruris*

• Fungal infection of the skin in the groin
• Characterized by rash starting in the groin fold on both sides
• Worldwide distribution

**Etiological Agents**
• *T. rubrum*
• *E. floccosum*

**Epidemiology**
• Men affected more often than women
• Favored by moisture, occlusion, and skin trauma
• Wet bathing suits, athletic supporters, and obesity are factors

**Clinical Manifestations**
• Circular, red, well-demarcated, scaly lesions accompanied by itching
• If rash advances down the inner thigh, the advancing edge is redder and more raised than areas that have been infected longer
Treatment for *Tinea Cruris* (Infection of groin)

- Antifungal agents from the imidazole or allylamine family
- All areas with infection must be treated simultaneously
- Drying of the crural folds is essential
- A separate towel may be used for infected areas

References