Infections Due to *Malassezia*

**Definition**
- Various species of *Malassezia* cause both opportunistic, superficial infections and occasionally systemic infections
- Common superficial infections include:
  - Pityriasis versicolor
  - Seborrheic dermatitis
  - Atopic dermatitis
  - Folliculitis
  - Dandruff

**Case Report 1**
- In January 2004, a 49 year-old female developed an asymptomatic facial papule
- Self-treated with herbs, but became larger, erosive, and produced an exudate

**Case Report 1 (cont.)**
- In March 2004, a similar nasal lesion appeared
- Patient presented to clinic in April 2004
  - No history of trauma
  - Owned a pet dog for 9 months
  - No lymphadenopathy

**Case Report 1 (cont.)**
- Biopsy of lesion
  - Gram stain revealed numerous budding yeast cells
  - Pronounced inflammatory reaction including microabscesses of follicules and numerous lymphocytes and histocytes
  - PAS staining documented round-to-ovoid cells/ spores in necrotic areas as well as in dermis
Case Report 1 (cont.)

- Culture/Laboratory Work
  - Skin scrapings from both patient and dog grew yeast-like cells on Sabouraud Dextrose agar with or without olive oil supplement
  - Scanning electron micrographs revealed morphology consistent with Malassezia pachydermatis
  - Patient had no other underlying disease or immunosuppression

- Treatment
  - Initially treated with antituberculosis agents because of slow culture results
  - After positive fungus culture results, patient was treated with itraconazole and potassium iodide
  - Lesion stopped growing but was still positive for fungus
  - Therapy changed to fluconazole with cryotherapy to remove lesion
  - Some hypopigmented scarring remained, but patient was free of infection after 15 months

Case Report 2

- Infant born after 23 weeks of gestation
  - Chronic lung disease
  - Necrotizing enterocolitis
  - Intraventricular hemorrhage
  - At 24 days post birth, developed hypotension
    - Treated empirically with amphotericin B
    - Hepatic lesion noted

- Blood cultures were positive for Malassezia furfur on day 11 of treatment (day 35 of life)
- Central line catheter was also shown to be positive for M. furfur
- Removal of catheter resulted in negative fungus cultures for 2 weeks of amphotericin B therapy
Case Report 2 (cont.)

– Day 50 of life
  • Patient's condition worsened due to intestinal perforation
  • Surgery improved condition and was being given intravenous hyperalimentation infusions of lipids via a scalp catheter

– Day 83 of life
  • Patient's condition worsened again and seizure occurred
  • Spinal fluid examination revealed fungal forms consistent with *M. furfur*
  • Catheter and blood cultures were positive for *M. furfur*
  • Death occurred on day 86

Autopsy findings
  – Inflammatory reactions of meninges consistent with meningitis
  – Histopathological examination (silver stained sections) revealed meninges contained yeast cells with morphologies consistent with *M. furfur*
  – No such observations were noted for any other organs in the body

Pityriasis Versicolor

• Synonym: tinea versicolor, among others

• Presentation:
  – Chronic, benign skin disorder
  – Asymptomatic
  – Characterized by scaly patches of variable color (pink, white, or brown) of the upper trunk
  – Worldwide in distribution

*Source: Rosalles et al., Ped.Dev.Pathol. 7 (2004) 86-90*
Pityriasis Versicolor (cont.)

• Etiological Agents:
  – Various species of Malassezia:
    • M. furfur
    • M. globosa
    • M. sympodialis
    • M. sloofiae
    • M. restricta

Pityriasis Versicolor (cont.)

– There are other species of Malassezia which may or may not be involved in pityriasis versicolor
  • M. obtusa
  • M. pachydermatis - common pathogen of dogs
– Malassezia is a basidiomycetous yeast, but the telomorph has yet to be described
– Different species differentiated based upon:
  • Physiological parameters, including use of complex lipid sources
  • Genetic-based differences

Pityriasis Versicolor (cont.)

• Epidemiology:
  – Typically an infection of children and young adults
  – Associated with hormonal changes and increased sebum production
  – Favored by high temperature and humidity, particularly tropic areas

Pityriasis Versicolor (cont.)

• Clinical manifestations
  – Multiple macules and/or patches varying in appearance
    • Hypopigmented
    • Hyperpigmented
    • Erythematous
  – Commonly affected areas include back, chest, abdomen, neck, and upper limbs
  – Children often acquire facial macular lesions

Lessons of pityriasis versicolor. Source: www.doctorfungus.com

Lessons of pityriasis versicolor. Source: www.doctorfungus.com
Pityriasis Versicolor (cont.)

• Diagnosis
  – Typically, KOH preps of lesions that show yeast and pseudohyphal elements (“spaghetti and meat balls”)
  – Can confirm the diagnosis by using a Wood's lamp to show yellow to yellow-green fluorescence of active lesions.

References


References (cont.)

• www.doctorfungus.com (accessed on June 3, 2007)