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
- 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
- Biopsy of lesion
  - Gram stain revealed numerous budding yeast cells
  - Pronounced inflammatory reaction including microabscesses of follicules and numerous lymphocytes and histiocytes
  - PAS staining documented round-to-ovoid cells/spores in necrotic areas as well as in dermis
- Culture/Laboratory Work
  - Skin scrappings 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 amphoterin B therapy
  – 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

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

• 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
• 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

• 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.

• Treatment is via use of topical agents including:
  – Selenium sulfide shampoo
  – Zinc pyrithione shampoo
  – Ciclopirox
  – Terbinafine
  – Benzoyl peroxide

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