Blastomycosis

Other names include:
- Blastomycosis
- Blastomycetic dermatitis
- Gilchrist's disease

Etiological agent is
*Blastomyces dermatitidis*

Blastomycosis Taxonomy

Kingdom: Fungi
Phylum: Ascomycota
Class: Ascomycetes
Order: Incertae sedis
Family: Incertae sedis
Genus: Blastomyces
Species: dermatitidis (this is the only known species)

*Blastomyces dermatitidis*

Geographical Distribution

Can be found in moist soil containing organic material in North America (concentrated along the Ohio and Mississippi river), central and South America, and parts of Africa

- Farms
- Wooded areas
- Camping grounds

Life cycle of *B. dermatitidis*

- Thermally dimorphic
- At approximately 25 degrees C the fungus can be observed as mycelium
- At approximately 37 C *B. dermatitidis* is able to convert to its yeast form
- Hyphae can form spores, which are the pathogenic agent of blastomycosis.
- Yeast proliferate by budding.

Blastomycosis Epidemiology

- Uncommon disease with incidence rate quite low
- More apparent in males than females
- More likely to be in adults than children
- Evident in endemic areas of southeastern and south central states of North America
- Many cases in United States and parts of southern Canada
Blastomycosis Epidemiology

- Chronic infection is in minority cases
- Animal to person transmission is much more common than person to person transmission of the disease
- Usually acquired through occupational or recreational activities such as hunting, fishing, camping, cutting timber, or using heavy equipment that will expose to B. dermatitidis, debris, or rotting wood

Pathogenesis

- What is Blastomycosis
  - Fungal Disease caused by Blastomyces dermatitidis
  - Fungus found in organic rich, decomposing debris
  - Dimorphic in nature
  - Farmers, Camper, Forest workers, and hunters are most commonly affected

Pathogenesis

- Blastomycosis Diagnosis
  - Chest X-Ray
  - Sputum Culture
  - Skin Biopsy
  - Tissue Biopsy

Pathogenesis

- Blastomycosis Symptoms
  - Flu like illness
  - Fever
  - Chills
  - Productive cough
  - Muscle Aches
  - Joint Aches
  - Chest Pain

Pathogenesis

- Antifungal medications
  - Fluconazole
  - Itraconazole
  - Ketoconazole
  - Amphotericin B
    - Only used in severe cases

Case Studies

Lincoln county in Wisconsin reported an endemic blastomycosis outbreak from January 2006 to April 2006, with at least 1 death recorded. According to the CDC, there were 27 confirmed cases during this time compared to the typical 8 cases. Health officials in Lincoln county reported the death of a 16 year old girl. This case demonstrates that although it is uncommon, B. dermatitidis can be endemic and if left untreated may be fatal.
Case Studies

A case was reported in the American Journal of the Medical Sciences in April 2009 of an immunocompetent male who had a muscle abscess due to blastomycosis. This study shows, that although it is rare, *B. dermatitidis* can affect other areas of the body even in those with a healthy immune system.

References

- Tsigrelis, Constantine MD; Baddour, Larry M. MD. Skeletal Muscle Abscess Caused by Blastomyces dermatitidis American Journal of the Medical Sciences: April 2009 - Volume 337 - Issue 4 - pp 293-294