

CRYPTOCOCCOSIS

Clinical Features: Initial pulmonary infection is usually asymptomatic. Most patients present with disseminated infection, especially meningoencephalitis. In the United States, 85% of cases occur in HIV-infected persons.

Etiologic Agent: *Cryptococcus neoformans*.

Reservoir: *C. neoformans* var. *neoformans* has been isolated from the soil worldwide, usually in association with bird droppings. Less common etiologic agent, *C. neoformans* var. *gattii* has been isolated from eucalyptus trees in tropical and sub-tropical regions.

Incidence: 0.2-0.9 cases per 100,000 in the general population. Among persons with AIDS, the annual incidence is 2-4 cases per 1,000.

Sequelae: Meningitis may lead to permanent neurologic damage. Mortality rate is about 12%.

Transmission: Inhalation of airborne yeast cells and/or basidiospores.

Risk Groups: Immunocompromised persons, especially those with HIV infection.

Surveillance: Active, population-based surveillance in selected U.S. sites. No national surveillance exists.

Challenges: Developing a cost-effective prevention strategy (although fluconazole is effective chemoprophylaxis for persons with AIDS, it does not affect survival and is not considered cost-effective).

From: The Microbial World Yeasts and yeast-like fungi: *Saccharomyces*, *Cryptococcus* and *Candida albicans*

The University of Edinburgh, Scotland.

“The most important species from the human standpoint is *C. neoformans*, a significant pathogen of immunocompromised people, causing the disease termed **cryptococcosis**. This disease occurs in about 7-8% of AIDS patients in the USA, and a slightly smaller percentage (3-6%) in western Europe. The capsule is a significant virulence determinant of *C. neoformans* because it helps to prevent the cells from being recognised and engulfed by white blood cells. Additionally, *C. neoformans* is unique among *Cryptococcus* species in producing a phenoloxidase. This enzyme acts on phenolic compounds to produce melanin, which might help to protect the cells against the antimicrobial effects of oxidants in host tissues.

C. neoformans grows commonly on old "weathered" bird droppings in cities, but does not compete well with bacteria in wet droppings. It infects through the lungs, where it causes a mild or chronic, persistent pneumonia, depending on the person's degree of immunity. Random testing of people for skin reactions to *C. neoformans* antigens in Britain, Australia and the USA

indicates that many people have unknowingly been exposed to the fungus with no serious effect. However, in a small proportion of the population the fungus can disseminate "silently" in the central nervous system, causing fatality.

<http://helios.bto.ed.ac.uk/bto/microbes/yeast.htm#crest>

<http://www.hsc.wvu.edu/som/micro/MB26VIEW/lecture25/sld007.htm>

<http://www.vet.ohio-state.edu/docs/osucvm/students/course/fungal/sld068.htm>