

HISTOPLASMOSIS

Background

Histoplasmosis (histo) is a fungal infection caused by the germ *Histoplasma capsulatum*. This fungus is common in certain parts of the United States, Latin America, Africa, and Asia. In the US, histo is most common in the [Ohio and Mississippi River valleys](#). Histo grows in soil, particularly soil enriched with bird or bat droppings, and often is found in chicken houses, barns, belfries of churches, attics, lofts, caves, and in woods where birds or bats have roosted. Exposure occurs by breathing air that contains small spore forms of the organism, after which the spores transform into yeasts in the lungs, and the yeasts spreads through the blood to other parts of the body.

Source	Activity
Caves	Spelunking
Barns, chicken coop, old buildings or houses	Recreation, work
Old trees, woods, wood piles	Recreation, work
Unknown	Unrecognized

Symptoms

Histo may not cause symptoms in healthy individuals who have inhaled a small number of spores. When symptoms do develop, they are typically mild and resolve without treatment (self-limited), usually within one month. More severe illness follows heavy exposure, or infection in persons with weakened immunity or lung disease caused by smoking (emphysema).

Pneumonia. Symptoms include chest pain, nonproductive cough, fever, chills, muscle aches, headaches,

Type	Predisposition	Course
Acute pneumonia	Heavy exposure	Slow recovery
Subacute pneumonia	Light exposure	No symptoms, moderate, or rapid recovery
Chronic pneumonia	Emphysema	Slow worsening
Lung lymph nodes	None recognized	Highly variable
Disseminated	Weakened immunity	Slow or rapid worsening

and tiredness. In contrast to the usual flu-type illness caused by a virus which typically improves within one week, symptoms of histo persist several weeks before they disappear. Chest X-ray or CT scan may show pneumonia, “spots” in the lungs, and enlargement in lymph glands in the chest, which may resemble cancer. The “spots” usually persist following recovery from histo. In patients with underlying lung damage caused by smoking, the symptoms

persist and chest X-rays findings resemble those in tuberculosis, referred to as chronic pulmonary histo. The symptoms include cough producing thick sputum, chest pain, weight loss, night sweats, and fatigue, which are progressive if not treated.

Disseminated. In patients with weakened immunity, histo causes severe and progressive disease that spreads to other parts of the body, most often the bone marrow, liver, spleen, lymph nodes, mouth, intestines, adrenal glands, and occasionally the brain. The symptoms include fever, sweats, weight loss, and fatigue. Disseminated histo is usually fatal if not treated.

Ocular. Histo is thought by some to cause spots on the back of the eye, which may cause visual loss. Whether histo causes these spots is controversial, and the treatment used for other forms of histo is ineffective.

Diagnosis

Several tests are useful for [diagnosing histoplasmosis](#). Histo may be diagnosis by testing for substances produced by the yeast, called antigens. These may be found in the blood, urine, lung fluid, or other body fluids, and usually indicate active infection. Histo also may be diagnosed by testing blood for antibodies, which are substances produced by the patient that attach to the yeast. Antibodies may indicate active or past infection. Histo may be seen in specimens from the lungs or other tissues using a microscope or grown in a culture. These methods usually require a minor surgical procedure, and culture takes 1 to 4 weeks to grow the organism.

Treatment

No treatment is required in most healthy individuals. However, in individuals who have inhaled a large dose of spores treatment is needed. Treatment also is needed in patients with emphysema who have chronic pneumonia, or with weakened immunity who have progressive pulmonary or disseminated infection. A lipid form of amphotericin B is used in more severe cases that require hospitalization and itraconazole for those with mild symptoms, or after improvement with amphotericin B. Treatment may be given for a few months in healthy subjects with acute pneumonia, but for a year or more in those with chronic pneumonia or disseminated disease. Alternatives to itraconazole include fluconazole, voriconazole and posaconazole.

Prevention

Regular cleaning of farm buildings, chicken houses, etc. reduces the likelihood they will contain histo spores, as droppings must accumulate for several years for the fungus to grow. If a risk of exposure to a site that is likely to harbor histo spores, precautions to reduce exposure may be found at NIOSH: “Histoplasmosis, Protecting Workers at Risk,” NIOSH, 800-356-4674, or www.cdc.gov/niosh/docs/2005-109

More information is available at www.miravistalabs.com.