

DISEASE CAUSED BY *HISTOPLASMA*, A TYPE OF FUNGUS (HISTOPLASMOSIS)

BASICS

OVERVIEW

- “Histoplasmosis” is a generalized (systemic) fungal infection caused by *Histoplasma capsulatum*

SIGNALMENT/DESCRIPTION of ANIMAL

Species

- Cats and dogs

Mean Age and Range

- Cats—predominantly young; many less than 1 year of age; all ages can be infected
- Dogs—most often young to middle-aged; all ages can be infected

SIGNS/OBSERVED CHANGES in the ANIMAL

Cats

- Subtle onset, over days to weeks
- Lack of appetite (known as “anorexia”), weight loss, and difficulty breathing (known as “dyspnea”)—most common
- Coughing occasionally
- Increased breathing effort and harsh lung sounds
- Lameness
- Eye discharges
- Diarrhea
- Fever to 40° C (104.0° F)
- Pale gums and moist tissues of the body (known as “mucous membranes”)
- Enlarged lymph nodes

Dogs

- Weight loss, depression, and diarrhea with straining—most common
- Coughing
- Difficulty breathing (dyspnea), associated with harsh lung sounds
- Exercise intolerance
- Enlarged lymph nodes (known as “lymphadenopathy”)
- Lameness and eye and skin changes—less common
- Thin to emaciated
- Fever to 40° C (104.0° F)
- Enlargement of the liver and spleen (known as “hepatosplenomegaly”)
- Pale gums and moist tissues of the body (mucous membranes)
- Yellowish discoloration to the gums and other tissues of the body (known as “jaundice” or “icterus”)

CAUSES

- *Histoplasma capsulatum*, a type of soil-borne fungus

RISK FACTORS

- Bird roosts where the soil is enriched with bird or bat droppings are high-risk environments; old chicken coops and caves have been implicated
- Exposure to airborne dust contaminated with fungal spores coming from sites of fungal growth (especially a source of exposure for indoor cats)
- Tissue samples from nearly half of stray dogs and cats from areas where *Histoplasma* is common (known as “endemic areas”) were positive for *Histoplasma*, supporting the theory that many people and animals are exposed to the fungus and infected, but few develop clinically significant disease

TREATMENT

HEALTH CARE

- Usually outpatient with oral itraconazole (an antifungal drug)
- Inpatient with intravenous amphotericin B (an antifungal drug)—dogs with severe intestinal disease and abnormal absorption of food (known as “malabsorption”)
- Dogs on amphotericin B therapy—keep well hydrated with a balanced electrolyte solution to decrease potential for kidney toxicity (a side effect of amphotericin B)

- Emaciated animals with abnormal absorption of food (malabsorption)—provide nutrition through intravenous feedings to reverse wasting, until the intestinal disease is resolved enough for adequate food absorption
- Animals with severe difficulty breathing (dyspnea)—provide oxygen supplementation

ACTIVITY

- Dogs with difficulty breathing (dyspnea)—reduce activity

DIET

- Good-quality, easily absorbed, palatable food required

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

Itraconazole

- Antifungal drug
- Drug of choice, if adequate intestinal function for drug absorption exists
- Dogs and cats—give with a high-fat meal
- Be cautious about compounded itraconazole because absorption of the drug may not be good
- Duration of treatment depends on clinical response; minimum treatment is 90 days

Amphotericin B

- Antifungal drug, must be administered intravenously

Dogs

- With severe inflammatory bowel disease and abnormal absorption of food (malabsorption)—use until patient begins to gain weight; then start on itraconazole
- Patient must be well hydrated before starting treatment
- Check blood work (blood urea nitrogen [BUN]) before each dose; discontinue treatment if BUN approaches 50 mg/dl and maintain hydration; resume when BUN is less than 30 mg/dl

Cats

- Use cautiously
- More sensitive to the drug than are dogs

Fluconazole

- Antifungal drug
- Eye and brain involvement may best be treated with fluconazole that penetrates the blood-brain barrier
- Use for dogs that cannot be given amphotericin B
- Intravenous form—administered until intestinal absorption allows oral itraconazole treatment

FOLLOW-UP CARE

PATIENT MONITORING

- Blood work (serum alanine aminotransferase [ALT])—with itraconazole treatment; check monthly or if the patient has a lack of appetite (anorexia)
- Chest X-rays—with lung involvement; check after 60 days of treatment to assess improvement; repeat at 30-day intervals and stop treatment when lungs are clear or remaining lung lesions fail to improve, indicating residual scarring; may be difficult to differentiate between residual scarring and active disease; continue treatment for at least 1 month after all signs of active disease have resolved
- Monitoring urinary *Histoplasma* antigen levels may be helpful; “antigens” are substances that induce an immune response by the body

PREVENTIONS AND AVOIDANCE

- Avoid suspected areas of exposure (such as bird roosts)
- Recovered dogs are probably immune

POSSIBLE COMPLICATIONS

- Recurrence possible; requires a second course of treatment

EXPECTED COURSE AND PROGNOSIS

- Treatment—duration is usually about 4 months; drugs are expensive, especially for large dogs
- Prognosis—good for stable patients without severe difficulty breathing (dyspnea); influenced by severity of lung involvement and physical weakness of the patient

KEY POINTS

- Discuss possible areas of exposure in the home environment with your pet's veterinarian
- Both pets and family members may have been exposed to the same source of *Histoplasma*
- The animal is not a potential source of *Histoplasma* infection to the family; however, the environment is a source of possible infection for the animal and family members

