



# Disease Caused by *Cryptococcus*, a Type of Fungus (Cryptococcosis)

## Basics

### OVERVIEW

- A localized or generalized (systemic) fungal infection caused by the environmental yeast, *Cryptococcus*

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Dogs
- Cats

#### Breed Predilections

- Dogs—American cocker spaniels, Great Danes, Doberman pinschers, and boxers are more likely to have cryptococcosis than other dog breeds
- Cats—Siamese are more likely to have cryptococcosis than other cat breeds

#### Mean Age and Range

- Most common at 2–7 years of age (dogs and cats)
- May occur at any age; has been seen often in dogs under 6 months of age

#### Predominant Sex

- Dogs—none
- Cats—males may be more likely to have cryptococcosis than females

### SIGNS/OBSERVED CHANGES IN THE PET

- Vary depending on organ systems involved
- May have a history of problems for weeks to months
- Sluggishness (lethargy)
- Mild fever—seen in less than 50% of affected pets

#### Dogs

- Nervous system signs—seizures, wobbly, incoordinated or “drunken” appearing gait or movement (known as “ataxia”), weakness (known as “paresis”), blindness
- Skin ulceration
- Enlarged lymph nodes (known as “lymphadenopathy”)
- Vomiting and diarrhea

- Lack of appetite (known as “anorexia”)
- Nasal discharge

### Cats

- Nasal discharge
- Nervous system signs—seizures, disorientation, and altered sense of balance (known as a “vestibular disorder”)
- Nodular tissue (known as “granulomas”) seen at the nostrils
- Firm swellings over the bridge of the nose
- Increased breathing noise
- Ulcerated, crusty skin lesions on the head
- Enlarged lymph nodes (lymphadenopathy)
- Eye disease

## CAUSES

- *Cryptococcus*, an environmental yeast
- Exposure to cryptococcal organisms and inability of the immune system to prevent colonization and invasion of the organisms into body tissues

## RISK FACTORS

- Exposure to disrupted soil containing *Cryptococcus*, an environmental yeast

## Treatment

### HEALTH CARE

- Outpatient, if stable
- Nervous system signs—may require inpatient supportive care until stable

### ACTIVITY

- No restrictions in most cases

### DIET

- No special foods
- Cats—nasal blockage influences appetite; encourage them to eat by offering very tasty food
- Pets treated with itraconazole—give medication in fatty food (such as canned food) to improve absorption of the drug

### SURGERY

- Remove nodular masses (known as “granulomatous masses”) in the nose and throat to reduce breathing difficulties

## 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

- Fluconazole—preferred for involvement of the eyes or central nervous system, because it is water-soluble and able to enter the nervous system better than some other antifungal drugs; most economical drug choice
- Itraconazole capsules—give with a fatty meal to maximize absorption; pellets in the capsule can be mixed with food, as directed by your pet’s veterinarian; mixing the pellets in food has no apparent bad taste to the pet; itraconazole liquid—better absorption on empty stomach
- Amphotericin B (administered intravenously)—may be used in dogs and cats that do not respond to fluconazole or itraconazole; monitor bloodwork (specifically blood urea nitrogen [BUN] and creatinine) closely to avoid permanent kidney damage (kidney damage is a potential side effect of the drug); long-term Amphotericin B administered under the skin(subcutaneous injection) on an outpatient basis has been effective
- Terbinafine has been effective in treatment of cats with resistant infections
- Cryptococcal organisms are prone to become resistant to antifungal treatment

# Follow-Up Care

## PATIENT MONITORING

- Monitor bloodwork (liver enzymes) monthly in pets receiving fluconazole or itraconazole (antifungal drugs); monitor bloodwork (blood urea nitrogen and creatinine) in pets receiving amphotericin B
- Improvement in clinical signs, resolution of lesions, improvement in well being, and return of appetite measure response to treatment
- Serologic tests (blood tests that detect the presence of antigens of a certain disease-causing agent, in this case *Cryptococcus*), known as “capsular antigen titers”— after 2 months of treatment, the titers should decrease substantially, if treatment is effective; if ineffective, try another antifungal medication, because *Cryptococcus* can become resistant to drugs; “antigens” are any substances that induce an immune response; antigens include fungus (as in this case), proteins, viruses, bacteria, and pollen
- Continue monitoring capsular antigen titers every 1–2 months during treatment and after discontinuing treatment to identify return (recurrence) of the disease; attempt to get titers to zero; low antigen titers may persist for a long time in some pets

## PREVENTIONS AND AVOIDANCE

- *Cryptococcus* is found throughout the environment and cannot be avoided

## POSSIBLE COMPLICATIONS

- Pets with nervous system disease may have seizures and permanent nervous system changes

## EXPECTED COURSE AND PROGNOSIS

- Treatment—anticipated duration of treatment is 4 months–1 year plus; pets with central nervous system disease may require lifelong maintenance treatment
- Median time of successful treatment with fluconazole was 4 months; median time for itraconazole treatment was 8 months

## Key Points

- Cryptococcosis is a long-term (chronic) disease that requires months of treatment
- The disease is not considered zoonotic (“zoonotic diseases” are diseases that can be passed from animals to people), but it is possible that the yeast may be transmitted to people through bite wounds
- The pet was exposed to the *Cryptococcus* from the environment; family members in the same environment could be at increased risk of infection, especially if they are unable to develop a normal immune response (known as being “immunosuppressed”)

# Notes

---

Enter notes here



*Blackwell's Five-Minute Veterinary Consult: Canine and Feline, Fifth Edition*, Larry P. Tilley and Francis W.K. Smith, Jr. © 2011 John Wiley & Sons, Inc.