

Cryptococcosis

DEFINITION

Cryptococcosis is a deep mycotic disease resulting from infection with *Cryptococcus neoformans*.

ETIOLOGY AND PATHOGENESIS

Cryptococcus neoformans is a saprophytic, small (1–7 μm), budding yeast with a world-wide distribution. It is characterized by a mucoid, polysaccharide capsule that can vary in size from 1–30 μm . The capsule helps to prevent desiccation of the organism and also enables the yeast to escape detection from the immune system of the mammalian host. Although the organism has been isolated from several sources (including soil), it is most frequently associated with pigeon droppings and Eucalyptus leaves. Based on circumstantial evidence, the most likely route of infection is through inhalation of airborne organisms. They may be deposited in the upper respiratory tract resulting in nasal granulomas, or proceed to the alveoli and induce pulmonary granulomas. Extension of infection from the respiratory tract occurs by local invasion through the cribriform plates to the CNS, or by hematogenous and lymphatic spread. Cutaneous infection via traumatic inoculation has also been proposed. Concurrent diseases which are immunosuppressive, such as FeLV or FIV infection in cats and ehrlichiosis in dogs, have been associated with cryptococcal infections. However, underlying diseases are often not detected in companion animals with cryptococcosis. *Cryptococcus* will infect humans, but not normally via an animal host, and is therefore not considered a transmissible disease.

CLINICAL FEATURES

Cats

Cryptococcosis is the most frequently diagnosed deep mycotic infection in cats. There is no sex predisposition and affected animals range in age from 1–13 years (median 5 years). Signs of upper respiratory disease occur in 55% of the cases and include a mucopurulent, serous, or bloody, unilateral or bilateral chronic nasal discharge. Flesh-colored, polyp-like masses in the nostrils or a firm, hard subcutaneous swelling over the bridge of the nose will be found in 70% of the cases with a nasal discharge. Skin lesions are present in 40% of the cases and usually consist of papules or nodules that may be either fluctuant or firm and range from 1–10 mm (0.04–0.4 in) in diameter. Larger lesions often ulcerate, leaving a raw surface with a serous exudate. Neurologic signs occur in 25% of the cases and may include depression, amaurotic blindness, ataxia, circling, paresis, paralysis, and seizures. Ocular



involvement may also be present. Regional lymphadenopathy, low-grade fever, malaise, anorexia, or weight loss may occasionally occur.

Dogs

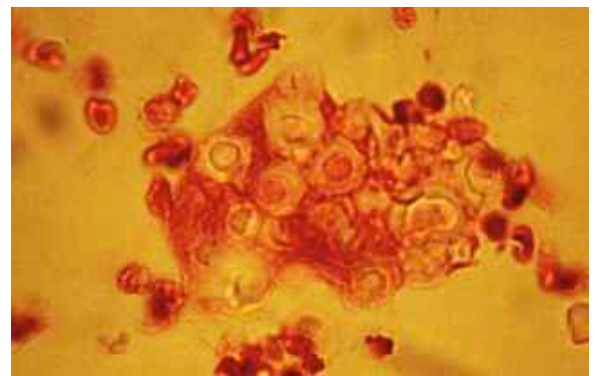
Cryptococcosis is less frequently diagnosed in the dog than in the cat. Clinical signs related to ocular and brain lesions are the most common abnormalities. Skin lesions consisting of papules, nodules, ulcers, abscesses, and draining tracts occur in 25% of the cases and often involve the nose, tongue, gums, lips, hard palate, or nailbeds.

DIFFERENTIAL DIAGNOSES

- Deep pyoderma and bacterial abscessation
- Other deep mycotic infections
- Cutaneous neoplasia

DIAGNOSTIC TESTS

Cytologic examination of nasal exudate, skin exudate, or CSF and tissue aspirates generally reveals pleomorphic (round to elliptical, 2–20 μm in diameter) organisms which are characterized by a capsule of variable thickness which forms a clear or refractile halo. The LCAT is a serological method for detecting capsular polysaccharide antigen in serum, urine, and CSF. Titers parallel the severity of infection, and may be used to monitor response to therapy. Histopathologic examination of excision or biopsy samples is diagnostic.



MANAGEMENT

Fluconazole for 2–4 months) is the recommended therapy. Therapy should be continued for 1–2 months beyond clinical resolution of lesions or until the LCAT titers are negative. Itraconazole or ketoconazole have also been reported to be effective.

KEY POINT

- *Always* obtain a histopathologic report on nodules biopsied, or excised, from cats. Many cutaneous nodules in the cat are malignant but some will be cryptococcosis and will be treatable