

Cryptococcosis in the Dog

By
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Introduction

A 10-month-old German Shorthair female dog was admitted to Stange Memorial Veterinary Clinic on August 18, 1970, with a history of periodic depression and coughing for one month. The animal had responded to previous corticosteroid treatment. A more detailed history and physical examination revealed a reoccurring conjunctivitis and photophobia. The dog was unable to exhibit normal locomotion. Rectal temperature was 103.3° F. A radiograph of the pelvic region revealed no abnormalities. A blood specimen was submitted to the laboratory for a complete blood count. (table I) No change was noted in the patient's condition the following day.

On August 20, 1970, the animal exhibited inappetence, severe depression, and prolapse of the membrana nictitans. Rectal temperature was 101° F. A bacteremia was suspected and treatment consisted of antibiotics and corticosteroids.

The patient was readmitted on August 25, 1970, with a history of petit mal seizures of three days duration. Spinal reflexes were negative and peristant pupillary dilation and blindness were apparent (figure 1). Ophthalmologic examination revealed the eyes to be otherwise normal (figure 2). Emesis occurred at the times of examination.

A solution of saline and dextrose (600 cc.) was administered I.V. along with methyl prednisolone acetate and calcium gluconate. A blood sample was taken on August 26, and cerebrospinal fluid was withdrawn from the atlanto-occipital space

and submitted to the laboratory. The patient was treated with chloromycetin and methylprednisolone acetate. *Cryptococcus neoformans* was identified on direct india ink mount of the cerebrospinal fluid. A diagnosis of cryptococcal meningitis was made and euthanasia was requested by the owner. The dog was euthanatized and a necropsy was performed.

Necropsy Findings

Multiple focal petechial hemorrhages were seen on the pleural surfaces. The meninges were slimy and appeared to be thickened.

Histopathologic Findings

Lesions of the cerebellum and cerebrum and spinal cord included a diffuse chronic leptomeningitis characterized by the infiltration of mononuclear cells, fibrocytes, and cryptococci (figure 3). A vasculitis was seen in many areas with swollen endothelial cells and collections of mononuclear cells around the vessels. There were superficial focal invasions of the cerebellum by cryptococci. Focal areas of gliosis, malacia, and an occasional cryptococcus organism were seen in the cerebrum. In the spinal cord there was axonal swelling in some nerve tracts around the peripheral areas of the cord.

The lungs were essentially normal except for occasional small foci containing several (three to five) cryptococci with a few surrounding mononuclear cells.

The optic nerves revealed chronic granulomatous tissue containing cryptococci in the surrounding meninges. Myelin balls, axonal breakage, cryptococci, and a few

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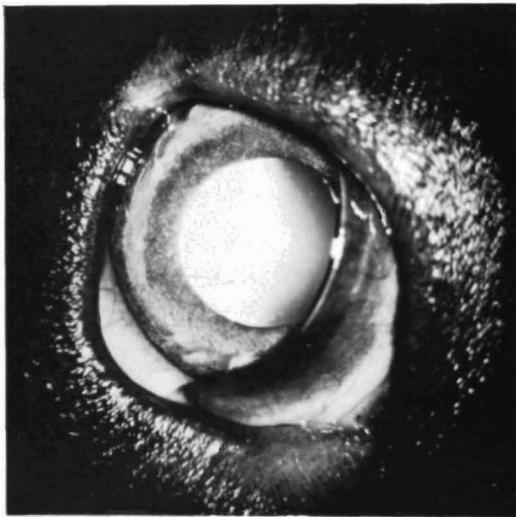


Figure 1. Close-up view of pupillary dilation.

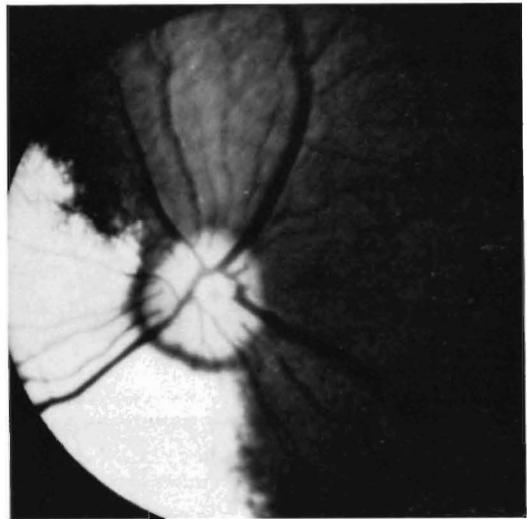


Figure 2. Normal fundus.

TABLE I.
Clinical Pathology

	8-18	8-25	8-26
Hb	—	15.5	15.1
PCV	45	45	44
RBC	6,080,000	6,120,000	6,120,000
WBC	10,300	9,200	11,100
Blood Smear			
Eosino	1		
Seg. Neutro.	74	71	82
Band Neutro.	4		10
Lympho	19	26	5
Mono	2	3	3
Platelets	adeq.	adeq.	adeq.
RBC Morphology	normal	normal	normal
BUN		6.5	less than 5
Dirofilaria	neg.		neg.
Glucose			120 mg%
VandenBergh			
direct			0.02 mg%
indirect			0.38 mg%
total			0.40 mg%
CSF			
Pandy			+
Glucose			40 mg%
Cells/mm ³			408 many RBC 17% Lymph 83% Seg.
Fecal Flotation	neg.		

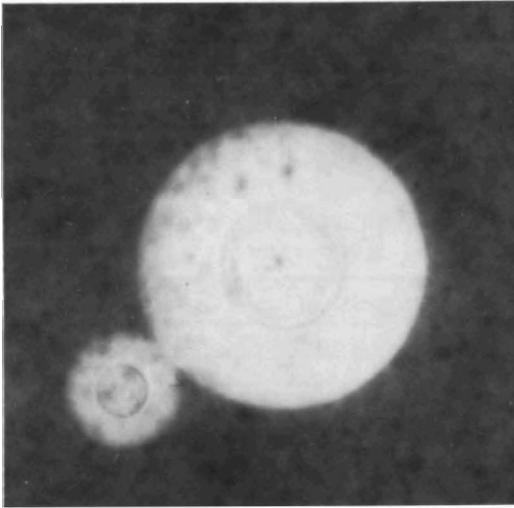
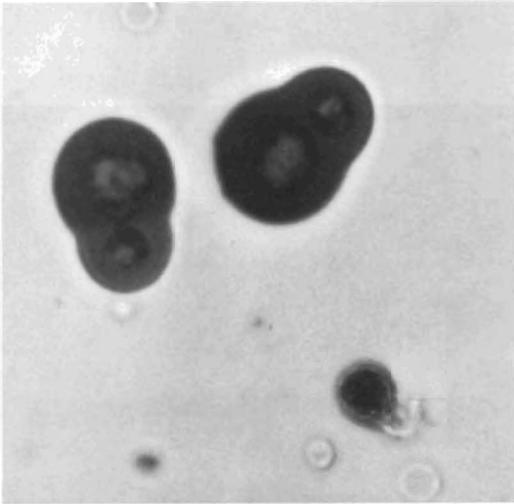


Figure 3. (Top) Cryptococci initially seen in hemacytometer during cell count of cerebrospinal fluid (x1600). (Bottom) Indian ink mount demonstrating gelatinous capsule of *Cryptococcus neoformans* in cerebrospinal fluid (x3750).

gitter cells were noted. Degeneration was noted in the remainder of the nerve.

Ocular lesions consisted of dilation of the vessels of the optic disc. Numerous cryptococci were present in the meninges around the optic nerve proximal to the optic disc. The ganglion cell layer was vacuolated and lacked neurons in some areas.

Discussion

Although cryptococcosis in dogs has been reported frequently, (1, 3, 4, 5, 6) it

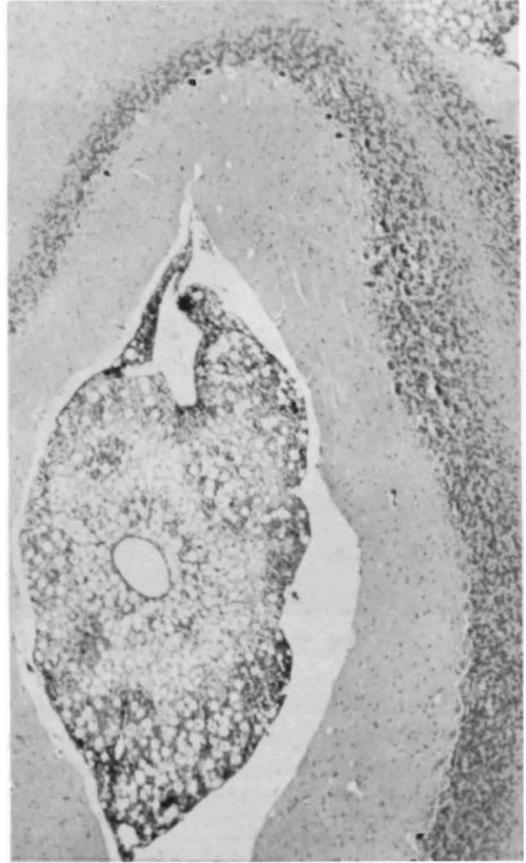


Figure 4. Chronic leptomeningitis in the cerebellum.

is the purpose of this discussion to emphasize the importance of a thorough neurologic examination if symptoms are referable to pathology of the brain or spinal cord. Biopsy of the cerebrospinal fluid was necessary to obtain a definitive ante-mortem diagnosis.

This case was typical of many cases of cryptococcosis since the primary clinical manifestations are often neurological although the primary lesion may be in the skin or lung. Respiratory difficulty and cough may be seen with a variable course of 2 weeks to 2 months. Symptoms are referable to the organ or portion of organ involved and include variable temperature, lameness, incoordination, pupillary dilation, blindness, depression, paralysis, and death.

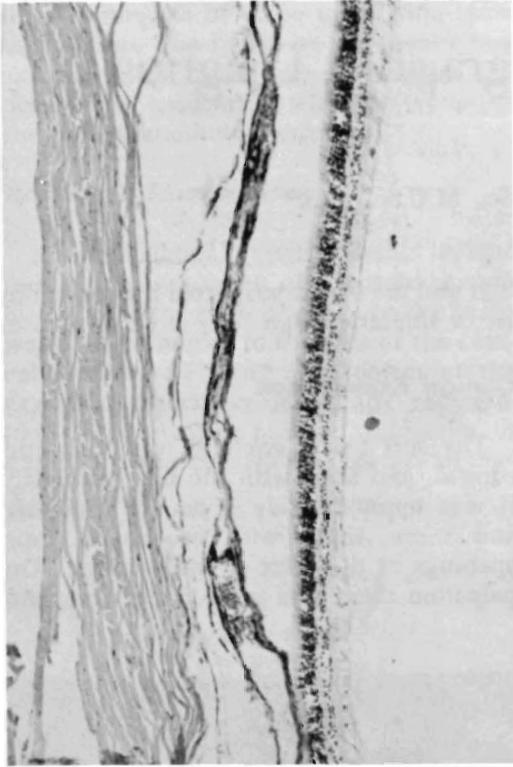


Figure 5. Degeneration of the optic nerve.



Figure 6. Vacuolation of the ganglion layer.

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