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CASE REPORT

Bilateral adrenal histoplasmosis in a man with chronic alcoholism



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We report a case of bilateral adrenal histoplasmosis in a 62-year-old man with a history of alcoholism, primary central nervous system lymphoma, familial cerebellar ataxia, a seizure disorder, and smoking who was found dead suddenly and unexpectedly. At autopsy, macroscopic examination revealed well-circumscribed bilateral adrenal masses (right, 8 cm × 5 cm, 71 g; left, 6.5 cm × 4.5 cm, 43 g) with coagulative necrosis and hemorrhage. Microscopy showed necrotizing granulomatous inflammation with multinucleated giant cells. Periodic acid–Schiff and Grocott stains demonstrated numerous 2–4-µm, ovoid, uninuclear intracellular and extracellular yeast forms with thin walls and narrow-based budding, consistent with *Histoplasma* species (Fig. 1). Mucicarmine stain was negative, ruling out capsulated forms of *Cryptococcus*. Acid-fast stain for

mycobacteria was negative. Additional diagnostic tests of histoplasmosis, such as serology, antigen assays, culture, or polymerase chain reaction, were not performed. Evidently, postmortem histologic examination was essential for diagnosing adrenal histoplasmosis, which was interpreted to be incidental. Other significant abnormalities, none of which was thought to have contributed to death, included a secondary dilated cardiomyopathy due to atherosclerotic coronary artery disease and possibly chronic alcoholism, marked cerebellar vermal atrophy (potentially attributable to alcoholism), and reactive cerebral gliosis. Given the history of heavy alcohol consumption and ketoacidosis (β-hydroxybutyrate, 360 mg/L) with no elevated vitreous glucose or a history of diabetes mellitus, the immediate cause of death was attributed to alcoholic ketoacidosis.

Histoplasmosis is a fungal infection caused by the thermally dimorphic fungus *Histoplasma capsulatum* from the class ascomycetes. *H. capsulatum* exists as a mycelium in moist, acidic soil and materials contaminated by bird or bat droppings in nature, and when grown in the laboratory at room temperature.¹ After inhalation, a mycelium morphs

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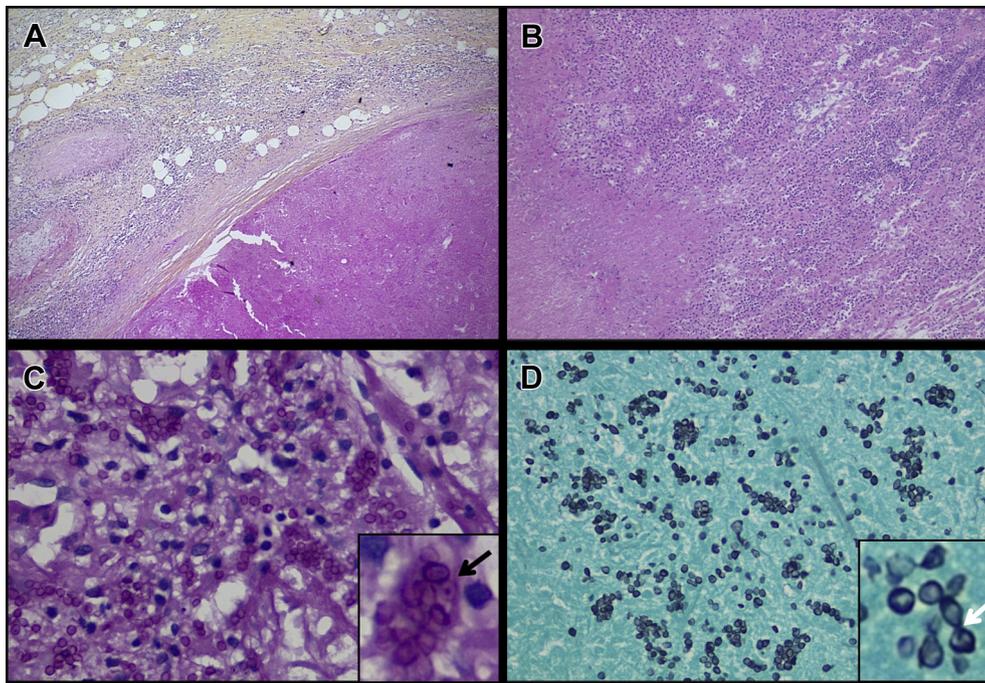


Figure 1. (A and B) Hematoxylin phloxine saffron (HPS) stain shows broad zones of coagulative necrosis associated with necrotizing granulomatous inflammation and giant cells admixed with residual foci of native adrenal cortex. (C) Periodic acid–Schiff stain demonstrates extracellular and intracellular (clustered within histiocytes; black arrow) organisms with bright magenta cell bodies and cell walls. (D) Grocott stain shows numerous single or clustered organisms with narrow-based budding (white arrow) and peripheral clear zones. Original magnification 100× (A and B), 200× (C and D), and 400× (C and D inserts).

into a yeast, the form seen in mammalian host tissue at body temperature and in cultures at 37°C. Histoplasmosis is endemic in the central and eastern states of the United States, South America, Africa, Southeast Asia, and Australia.^{1,2} Its occurrence in Canada is thought to be limited to central Canada in the Saint Lawrence River valley. In our case, there was no history of infection or abnormal blood counts suggesting that the patient was likely immunocompetent. Furthermore, he was from the Saint Lawrence River valley area, which is the most likely risk factor for environmental exposure to *Histoplasma*.

H. capsulatum can cause a wide spectrum of diseases, ranging from a transient pulmonary infection that subsides without treatment to chronic pulmonary disease or disseminated infection, commonly affecting the reticuloendothelial system, lungs, gastrointestinal tract, urinary tract, central nervous system, bone marrow, and adrenal glands.^{1,2} Disseminated and extrapulmonary infections are uncommon and predominantly occur in endemic areas, particularly among immunocompromised individuals, pediatric, or geriatric populations.¹ Adrenal involvement is not uncommon in disseminated histoplasmosis and cases of symptomatic bilateral disease in immunocompetent patients have been reported.^{3–5} However, asymptomatic bilateral adrenal involvement is unusual and rare.

In summary, histoplasmosis is a rare cause of bilateral adrenal mass lesions in asymptomatic immunocompetent individuals. Postmortem histopathology is an important and reliable diagnostic tool to diagnose clinically unsuspected fungal infections.

Conflicts of interest

All contributing authors declare no conflicts of interest.

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