Cryptococcosis Gattii Meningitis in an Alpaca Gelding

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Case Presentation  An 18-year old Huacaya gelding was examined for acute onset paresis and incoordination. Other than a depressed mentation and a wide-based stance, no other abnormalities were present on the physical exam. Incoordination resulting in collapse occurred when ambulation was attempted. Initial treatment consisted of administration of vitamin B1 (thiamine), flunixin meglumine, and procaine penicillin. With no improvement in condition and owing to the time of year (end of August), normal llama plasma with a high West Nile virus antibody titer was administered the following day along with continuing medications administered at the initial treatment. By the third day, the alpaca began head pressing and humming with teeth grinding. He had also become sterna recumbent but was still able to eat and drink normally. All of the medications from the previous day were continued. By the fourth day, eating and drinking were no longer observed and the gelding would rarely lift his head and neck off the ground. Although the alpaca had been immunized against rabies two years prior to presentation, a vector animal positive for rabies had been diagnosed recently within the vicinity.

Outcome  Because of his deteriorating condition and the potential zoonotic risk to the owners, the alpaca was euthanized. At necropsy, no gross lesions were evident. Rabies virus fluorescent antibody test of the brain stem was negative. On histopathology, although the cerebral cortex was normal, the leptomeninges of the thalamus and hippocampus contained small numbers of lymphocytes, plasma cells, and macrophages containing brown granular pigment ( hemosiderin ). The cerebellar meninges also contained small numbers of lymphocytes and infrequent plasma cells. However, within the spinal cord, the leptomeninges were severely expanded by a marked infiltrate of lymphocytes, macrophages, and few neutrophils. Fungal yeast measuring approximately 12µm in width with a broad clear capsule (consistent with Cryptococcus gattii ) were present. The white matter also displayed severe axon sheath swelling and axonophagia. All other organs, including the lungs, were within normal limits.

Discussion  C. gattii cryptococcosis is a rare infection caused by a fungus that lives in soil and in association with certain trees. 1,2 Worldwide, many of the reported cases of C. gattii infections have occurred in Papua New Guinea, Australia, and South America. C. gattii infections have also been occurring in British Columbia, Canada since 1999 (218 cases reported during 1999–2007) 3 and in the U.S. Pacific Northwest since 2004 (96 cases reported to CDC during December 2004 – July 2011). 4 Nearly all of the reported C. gattii cases in the U.S. are from Oregon, Washington, and California. However, a small number of cases have been reported in other states. 5 Unlike other cryptococcal infections, C. gattii infections develop in individuals with fully functioning immune systems. Exposure is by inhalation of spores or fungal cells wafting around in the air. Any activity that disturbs soil or vegetation can put humans and animals at risk for inhalation including hiking, digging, logging and construction. Anyone spending time in the woods is potentially vulnerable. The timeframe between exposure and onset of symptoms is about 2-11 months. In many cases, it is difficult to determine the precise location where the exposure originated. Symptoms of cryptococcosis occur in the pulmonary and nervous systems of large and marine animals as well as humans. In humans, treatment is often possible with antifungal drugs but there has not yet been a case of treatment success reported for large animals (including camels). 6,8

References