



## MEDICAL NEWS

### Contagious diarrhea in ferrets returns with a vengeance

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In the past year, there has been a recrudescence of the contagious diarrhea in ferrets known as epizootic catarrhal enteritis (E.C.E.), contagious enteritis and hepatitis, green diarrhea, or green slime disease. This entity first made its epidemiologic debut in ferrets about five years ago when it appeared in shelter and show ferrets in the mid-Atlantic region. The various names for the disease accurately describe the signs: diarrhea, often but not always greenish in color, is the main sign in addition to overall wasting and remarkably elevated liver enzyme concentrations—especially alanine transaminase (greater than 800 IU/L is not unusual). In severe cases hypoproteinemia (abnormally small amounts of total protein in the circulating blood plasma) is marked due to malabsorption.

Diagnosis is made best through evaluating a combination of clinical signs and history—there is almost always exposure to ferrets from outside the household within a week or so of the outbreak. Morbidity is unfailingly high, and E.C.E. can often be ruled out in households where only one of several exposed ferrets is affected. Young kits will often be asymptomatic (without signs of disease) carriers for up to 6 months or perhaps longer. This can make identifying the source of the infection difficult.

Dr. Bruce Williams (Diplomate, American College of Veterinary Pathologists) has provided much of the research that is available on this disease and proposes a coronaviral etiology. From a histopathologic standpoint, lesions are consistent with this type of viral infection, although the etiologic agent has not been isolated to date. [Ed. Note: *Matti Kiupel, D.V.M., Ph.D. (Purdue University Animal Disease Diagnostic Laboratory), has definitively identified a coronavirus as the cause of epizootic catarrhal enteritis in the ferret, as reported by Bruce Williams, D.V.M. A.F.R. 1999;10(5):13.*]

This agent clearly is highly transmissible between ferrets and on fomites (objects, such as clothing, towels, and utensils, that possibly harbor a disease agent and are capable of transmitting it), so I strongly recommend that hospitals seeing these cases institute every possible precaution to avoid spread of the contagion and hospital contamination. Inpatients should be kept in isolation or treated at home whenever possible. Protocols similar to those instituted to prevent the spread of the parvoviral epidemic in dogs should be adhered to. I cannot overemphasize how hot this disease is!

In speaking to Dr. Karen Rosenthal (Diplomate, American Board of Veterinary Practitioners, Avian) of Antech Diagnostics, Avian and Exotics Division, I learned that pockets of E.C.E. are developing again in various parts of the United States, including Virginia. The current manifestation of the disease has a higher associated mortality than when it first emerged. Older ferrets with complicating conditions such as insulinoma or adrenal disease are likely to fail to recover. Even healthy young adult ferrets, however, are succumbing to the current strain of the disease. This is a very different picture than the syndrome initially presented a few years ago, when morbidity was very high, but mortality was low.

Treatment of E.C.E. focuses on controlling secondary infections (amoxicillin is a good choice) and aggressively rehydrating. It is extremely difficult to keep ferrets in the advanced stages of the disease eating, and feeding tubes may need to be utilized. Hypoalbuminemia (an abnormally low concentration of albumin in the blood) can be addressed with plasma transfusions or hetastarch (a carbohydrate starch derivative used as an extender of blood plasma volume). Because of severe inflammatory changes in the intestinal wall, steroids may be helpful in refractory cases to assist recovery.

It is clear that more laboratory and clinical research is needed into this important disease of ferrets. I would encourage researchers and practitioners to consider focusing on E.C.E., as many pets would benefit from an increased understanding of this disease. It is very analogous to the parvoviral epidemic that ravaged our pet dogs not so many years ago.

\*Before her death in May, Dr. Slack published this article in the newsletter of the Virginia Veterinary Medical Association, *Town and Country Call*. Reprinted with permission.

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