

Infectious Diseases of Ferrets

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The Ones We All Know About

- Canine Distemper (Morbillivirus)
- Aleutian Disease (Parvovirus)
- Rabies (Rhabdovirus)
- ECE (Coronavirus)
- Ringworm (Trichophyton or Microsporum)
- Conjunctivitis (various)

The Odd Ones

- Acute Hemorrhagic Syndrome
- Chronic Wasting Disease
- Toxoplasma
- Tuberculosis (Mycobacterium species)
- Ferret kit disease (Rotovirus)
- Infectious Bovine Rhinotracheitis (Herpes)

Ferret Acute Hemorrhagic Syndrome

- From a report at the AAV Conference 2008
 - First reported in 2006
 - Sig: kits 8-24 weeks recently shipped
 - Clinical signs:
 - acute hemorrhage (epistaxis)
 - oral ulceration
 - Petechiation/ecchymosis

Acute Hemorrhagic Syndrome (cont)

- Clinical pathology findings
 - Prolonged PT and PTT
 - Unknown effect on fibrinogen and platelets due to a lack of normal and abnormal data

Treatment

- Supportive care
 - Fluid replacement therapy
 - Crystalloids
 - Colloids
 - Transfusion if necessary
- Vitamin K
- Analgesics
- Antibiotics

Acute Hemorrhagic Syndrome (cont)

- Pathology Results
 - Non-suppurative cholangitis
 - Mild vacuolar hepatopathy
 - Mild interstitial pneumonia
 - Hemorrhage into the mucosa and wall of the bladder
 - Hemorrhage in the thymus

No Causative Agents Were
Found

If anyone sees this syndrome:

- Please contact Cathy A. Johnson-Delaney or Drury R. Reavill for data collection instructions
- This could be a viral outbreak or an autoimmune reaction to a vaccine, more research is needed.

Chronic Wasting Disease

- Prion disease of cervids in North America
- Experimental infection only
- Prion transmission intracranially required for active disease
- Established viability of using ferrets for prion research
- Not a concern in the pet or wild Mustelid population at this time

Toxoplasma

- Toxoplasma is a protozoal parasite that is passed in the feces of infected mammals
- it has been reported as a congenital disease in kits
- An outbreak occurred in quarantined Black Footed Ferrets exposed to infected uncooked rabbit

Toxoplasma (cont)

- Bottom line
 - Don't eat uncooked meat
 - Don't garden barehanded
 - Don't feed ferrets uncooked meat of unknown origin (roadkill)
 - Keep ferret and cat litter areas separate if cats are allowed outdoors

Mycobacteria

- Chronic disease in wild ferrets and stoats in New Zealand
 - Known exposure to contaminated beef
- Isolated case reports worldwide of various Mycobacterial species found in ferrets
 - No known source of disease
- Public health issue

Rotavirus

- Rotaviruses are a common cause of diarrhea in mammalian neonates
- Sig: 2-6 week old ferrets in farm situations
- Clinical signs:
 - yellow to green diarrhea
 - Erythema of anus, perineum

Rotavirus (cont)

- Treatment:
 - supportive care
 - antibiotic therapy against secondary bacterial infections
- No vaccine available to date

Infectious Bovine Rhinotracheitis (IBR)

One reported case of spontaneous disease in a ferret (1975)
-diet was NOT tested to determine source of the disease
-highly unlikely

Client Concerns

- Severe Acute Respiratory Syndrome (SARS) - Coronavirus
- Avian Influenza H5N1

SARS

- Ferrets are used as experimental animal for this disease
- Not a common reservoir in nature

Avian Influenza

- Ferrets currently being used to develop vaccines for humans and other mammals
- Successful vaccination of ferrets in a laboratory setting has been done
- Ferrets have not proven to be a good source of virus transmission experimentally

Feline Infectious Peritonitis (FIP)

- Coronavirus in combination with immune suppression
- Common in catteries and high density populations
- Supportive treatment only
- Usually fatal

Ferret Infectious Peritonitis (FIP)

- Presumptive mutation of Corona virus associated with epizootic catarrhal enteritis (ECE)
- Reported in 23 ferrets in Europe and the United States from 2002-2007 (Mike Garner, Northwest Zoopath)
- Reported in 9 ferrets in Europe, New Zealand 2005-2006

Signalment

- Young ferrets (< 1year of on average)
- No gender predilection
- Indoor environment

Clinical signs

- Brown or yellow-green diarrhea
 - Progressing to green or hemorrhagic
 - Non-responsive to treatment
- Lethargy
- Weight loss
- Anorexia
- Palpable abdominal masses

Clinical signs (cont)

- Other signs noted but not consistent:
 - Coughing
 - Vomiting
 - Jaundice
 - Tremors
 - Convulsions

Additional Clinical signs

- Splenomegaly
- Decreased water consumption
- Dehydration
- Bruxism
- Nasal discharge
- Sneezing
- Heart murmur
- fever

CNS signs

- Acute or progressive hindlimb paresis
- Ataxia
- Wide hind-end stance
- Opisthotonus
- Abnormal gait
- Proprioceptive deficits

Changes in Blood Values

- Neutrophilic leukocytosis
- Anemia
- Hyperproteinemia
- Hyperglobulinemia (> 6 mg/dl)
- Increased lipase
- Increased ALT
- Increased BUN

Differential Diagnoses

- Aleutian Disease
- Lymphoma
- Chronic Inflammatory Bowel Disease

Prognosis

- Guarded to grave

Treatment

- Based on treatment for cats with FIP
- 2-4mg/kg/day prednisolone
- Broad spectrum antibiotics
 - Doxycycline
- Pentoxifylline 25mg/kg BID for vasculitis
- Supportive care

Pathology Results

- Severe pyogranulomatous inflammation
 - Varied from diffuse to microgranulomas
 - Blood vessels involved
 - Predominantly neutrophils and macrophages
 - Necrosis occasionally

Definitive Diagnosis

- Immunochemistry
- Send samples to Mike Garner at Northwest Zoopath



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