Lymphoma in Ferrets

Basics

OVERVIEW

- Lymphocytes are a type of white-blood cell that are formed in lymphatic tissues throughout the body; lymphocytes normally are involved in the immune process.
- Lymphoma is cancer (malignancy) of lymphocytes that usually involves lymph nodes or other lymphatic tissue of the body.
- Lymphoma in ferrets can be found in various locations in the body, including the mediastinum (the mediastinum is the center portion of the chest that contains the heart); the lymph nodes on the outside of the body or the lymph nodes inside of the chest or abdomen; the gastrointestinal tract (stomach and intestines); or multiple organs/tissues throughout the body (known as the multicentric form of lymphoma).

SIGNALMENT

Mean Age and Range

Most common in ferrets 2–5 years of age

SIGNS

- Depend on which body system is affected
- Mediastinal form (located in the center of the chest)—open-mouth breathing; coughing; lack of appetite (anorexia); weight loss; the front part of the chest is very firm and resistant to gentle compression during physical examination
- Alimentary form (located in the gastrointestinal tract)—lack of appetite (anorexia); weight loss; sluggishness (lethargy); vomiting; diarrhea; black, tarry stools, due to the presence of digested blood (known as melena); frank blood in the stool; thickened intestines or abdominal masses
- Kidney or renal form—consistent with kidney failure (such as vomiting, lack of appetite [anorexia], increased thirst [polydipsia], increased urination [polyuria], and sluggishness [lethargy]); large, irregular kidneys
- Multicentric form (located in multiple lymph nodes throughout the body)—possibly none in early stages; lack of appetite (anorexia), weight loss, and depression with progression of disease; enlargement of lymph nodes throughout the body
- Solitary form (located in a single organ/tissue)—depends on location; spleen lymphoma—usually abdominal swelling discomfort; periorbital (around the eye) lymphoma: facial deformity, protrusion of the eye; spinal cord lymphoma: quickly progressing rear limb weakness or paralysis
- Cutaneous (skin) lymphoma—itchiness (known as pruritus), bleeding (hemorrhage), or masses on the skin accompanied by hair loss (hair loss known as alopecia), often seen on the feet
- All forms—fever, dehydration, depression, extreme weight loss with muscle wasting (known as cachexia) in some patients
CAUSES
• Unknown; no cause proven but some evidence exists that it may be related to a viral disease. Can also occur in the stomach after helicobacter infection

RISK FACTORS
Previous or current helicobacter infection with the stomach form

TREATMENT
APPROPRIATE HEALTH CARE
• Outpatient, whenever possible
• Radiation therapy may be used as an adjunct to chemotherapy
• Chemotherapy—usually administered by a veterinary oncologist or exotic animal specialist

ACTIVITY
Normal

DIET
No change in most cases

SURGICAL CONSIDERATIONS
• To relieve intestinal blockages or obstructions and to surgically remove individual tumors
• To obtain biopsy specimens for microscopic examination

MEDICATIONS
Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered all-inclusive.
• Chemotherapy—used in a combination or sequential protocol; some protocols have induction and maintenance periods
• Some chemotherapy protocols require IV (intravenous) medications. Sedation may be necessary to place the IV catheter.
• Other chemotherapy protocols exist in which all of the drugs can be given by injections under the skin or oral route
• Prednisone alone—can be used to decrease clinical signs and improve how the ferret feels; temporary response, not a cure

FOLLOW-UP
PATIENT MONITORING
• Physical examination, complete blood count (CBC), and platelet count—before each weekly cycle of chemotherapy
• X-rays—as necessary

PREVENTION/AVOIDANCE
No known prevention

POSSIBLE COMPLICATIONS
• Low white-blood cell counts (known as leukopenia)
• Generalized bacterial infection (sepsis)

EXPECTED COURSE AND PROGNOSIS
• Depends on initial response to chemotherapy, anatomic type, and tumor burden
• Ferrets with mediastinal, splenic, cutaneous lymphoma or those with peripheral node involvement alone tend to respond well to chemotherapy. Many ferrets will live up to 2--3 years
• Ferrets with high grade, aggressive lymphoma usually do not respond well to chemotherapy; survival with partial remission is 1--2.5 months
• Primary central nervous system (CNS), diffuse gastrointestinal, and multiorgan involvement—associated with poor response to treatment; survival rates vary from weeks to months
KEY POINTS

- Cure is possible but highly unlikely
- Goal is to induce remission and achieve a good quality of life for patients for as long as possible