FELINE LEUKEMIA VIRUS (FeLV) INFECTION

BASICS

OVERVIEW
• A retrovirus that causes inability to develop a normal immune response (known as “immunodeficiency”) and development of tumors in domestic cats

GENETICS
• No genetic susceptibility to infection by feline leukemia virus (FeLV)

SIGNALMENT/DESCRIPTION of ANIMAL
Species
• Cats

Breed Predilections
• None

Mean Age and Range
• Number of cases highest between 1 and 6 years of age
• Mean—3 years of age

Predominant Sex
• Male-to-female ratio—1.7:1 (that is, males are 1.7 times more likely to have feline leukemia virus [FeLV] infection than are females)

SIGNS/OBSERVED CHANGES in the ANIMAL
• Onset of feline leukemia virus (FeLV)-associated disease—usually occurs over a period of months to years after infection
• Associated diseases—may be related to inability to develop a normal immune response (immunodeficiency) or to development of tumors or cancer
• Clinical signs of feline leukemia virus (FeLV)-induced inability to develop a normal immune response (immunodeficiency) cannot be distinguished from those of feline immunodeficiency virus (FIV)-induced immunodeficiency
• Signs depend on the type of disease (inability to develop a normal immune response [immunodeficiency] or tumor/cancer) and occurrence of secondary infections
• Enlarged lymph nodes (known as “lymphadenomegaly”)—mild to severe
• Upper respiratory tract disease—inflammation of the nose (known as “rhinitis”), inflammation of the moist tissues of the eye (known as “conjunctivitis”), and inflammation of the cornea (known as “keratitis;” the “cornea” is the clear outer layer of the front of the eye), seen in 18% of cases
• Persistent diarrhea
• Inflammation of the gums (known as “gingivitis”), of the mouth (known as “stomatitis”), and/or of the tissues surrounding and supporting the teeth (known as “periodontitis”)
• Long-term (chronic), nonresponsive or recurrent infections of the external ear and skin; abscesses
• Fever and wasting (seen in 42% to 53% of cases)
• Lymphoma (a type of cancer that develops from lymphoid tissue, including lymphocytes, a type of white-blood cell formed in lymphatic tissues throughout the body)—most common feline leukemia virus (FeLV)-associated cancer
• Leukemia
• Fibrosarcomas (cancer that develops from fibrous tissue)—in patients co-infected with mutated sarcoma virus; most frequently in young cats
• Disorders usually affecting the nerves to the legs and paws (known as “peripheral neuropathies”); progressive wobbly, incoordinated or “drunken” appearing gait or movement (known as “ataxia”)

CAUSES
• Cat-to-cat transmission—bites; close casual contact (such as grooming); shared dishes or litter pans
• Transmission of the virus from the mother cat (known as a “queen”) around the time of birth—fetal and newborn kitten death from 80% of affected queens; transmission across the placenta or through the milk in at least 20% of surviving kittens from infected queens

RISK FACTORS
• Age—kittens are much more susceptible to infection than are adults
• Male—result of behavior
• Cat allowed outside; free roaming cats
• Multicat household
TREATMENT

HEALTH CARE
- Outpatient for most cats
- Inpatient—may be required with severe secondary infections, low red-blood cell count (known as “anemia”), or extreme weight loss with muscle wasting (known as “cachexia”) until condition is stable
- Blood transfusions—emergency support; multiple transfusions may be necessary
- Management of secondary and opportunistic infections—primary consideration; “opportunistic infections” are infections caused by organisms that usually do not cause disease, but are able to cause disease because the animal’s body and/or immune system has been weakened, in this case by the feline leukemia virus (FeLV) infection
- Supportive therapy (such as fluids and nutritional supplements) may be useful

ACTIVITY
- Normal

DIET
- Normal
- Diarrhea, kidney disease, or long-term (chronic) wasting—may require special diet

SURGERY
- Biopsy or surgical removal of tumors
- Dental cleaning, tooth extraction, biopsy of the gums

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 as all inclusive.

- Zidovudine (Retrovir®)—antiviral agent; may lead to clinical improvement, but does not clear virus
- Medications to alter the immune response (known as “immunomodulatory drugs”)—may alleviate some clinical signs; interferon (Roferon®) may increase survival rates and improve clinical status; Propionibacterium acnes (ImmunORegulin®); acemannan (Carrisyn™)
- Mycoplasma felis infection—suspect in all cats with low red-blood cell counts due to the destruction of red-blood cells, in which the body is producing new red-blood cells (known as “regenerative hemolytic anemias”); oxytetracycline or doxycycline; short-term use of steroids, administered by mouth, if needed
- Lymphoma (a type of cancer that develops from lymphoid tissue, including lymphocytes, a type of white-blood cell formed in lymphatic tissues throughout the body)—management with standard combination chemotherapy protocols; periods of remission average 3 to 4 months; some cats may remain in remission for much longer
- Blood disorders or disease and leukemias—less responsive to medical treatment; for low red-blood cell count (anemia), try erythropoietin (Epogen®); for low neutrophil count (known as "neutropenia"), try Neupogen®
- Yearly vaccination for respiratory and intestinal viruses with inactivated vaccines recommended

FOLLOW-UP CARE

PATIENT MONITORING
- Varies according to the secondary infections and other manifestations of disease

PREVENTIONS AND AVOIDANCE
- Prevent contact with feline leukemia virus (FeLV)-positive cats
- Quarantine and test incoming cats before introduction into households currently with one or more cats

Vaccines
- Several commercial feline leukemia virus (FeLV) vaccines are available
- Test cats for FeLV before initial vaccination; if pre-vaccination testing is not done, advise clients that the cat may already be infected

POSSIBLE COMPLICATIONS
- Exposure of non-feline leukemia virus (FeLV)-infected cats to infection
- Development of disease related to inability to develop a normal immune response (immunodeficiency)
- Development of tumors or cancer
- Death
EXPECTED COURSE AND PROGNOSIS
• Cats that persistently have feline leukemia virus (FeLV) in their blood (known as “FeLV viremic cats”)—more than 50% succumb to related diseases within 2 to 3 years after infection

KEY POINTS
• Keep feline leukemia virus (FeLV)-infected cats indoors and separated from FeLV-negative cats, to protect them from exposure to secondary disease-causing agents and to prevent spread of FeLV to other cats
• Good nutrition is important
• Control secondary bacterial, viral, and parasitic infections