Newly Adopted Cat

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Ben, a 5-year-old, neutered domestic shorthair, was recently adopted by the new owner, who has another cat.

History. Ben, known for his not-so-gentle nature, had belonged to the previous owner since he was found as a semiferal young adult.

At 2 years of age, the previous owner had Ben examined at another veterinary hospital for alopecia and severe miliary dermatitis. Flea-allergic dermatitis resulting from heavy flea infestation was diagnosed. Flea control using fipronil and corticosteroid therapy, alternating between oral prednisolone and methylprednisolone acetate, was started.

In February 2003, Ben was presented at the same hospital with a new complaint that the cat was "not well." The miliary dermatitis had returned, and chronic diarrhea was noted. Due to the owner's inability to treat the cat, it was hospitalized to obtain a sample for fecal flotation and to reinstitute flea control. *Toxocara canis* eggs were found on fecal flotation, but a direct wet mount of feces was negative. Anthelmintic treatment was given, and oral enrofloxacin therapy started. No follow-up to this course of treatment was reported.

The cat was presented again to update FVRCP and feline leukemia immunizations later the same year. Alopecia on the ventral abdomen persisted, and dental prophylaxis was recommended due to severe buildup of calculus. No additional diagnostics were done at this time or during the prior visits.

Physical Examination. In September 2004, the new owner had Ben examined at a different veterinary hospital as a preliminary measure for the dental prophylaxis; Ben's halitosis had become a problem. The patient had bilateral otic debris indicative of otitis externa as well as severe dental disease. The attending veterinarian also noted symmetrical alopecia over the flanks and abdomen. No evidence of fleas was found during this examination. A topical otic preparation and oral clindamycin drops were dispensed. A blood sample was drawn and sent to an outside veterinary reference laboratory.

Laboratory Evaluation. Abnormal diagnostic results are presented in the **Table**. A CBC, chemistry panel, total thyroxine, FeLV antigen (ELISA), FeCoV antibody titer, and FIV antibody (ELISA) tests were requested as part of the reference laboratory's feline panel.

Variable	Results	Reference Range
White blood cells (µl)	2600	4200–15,600
Absolute neutrophils (µl)	1534	2500–12,500
Absolute lymphocytes (µl)	650	1500–7000
Auto platelet (µl)	121,000 scan of slide, normal platelets	170,000–600,000
FIV antibody	Positive	

ASK YOURSELF ...

- **What special testing is appropriate given this cat's history and presentations?**
- **What if any follow-up to the above testing is appropriate?**

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ELISA = enzyme-linked immunosorbent assay; FeCoV = feline coronavirus; FeLV = feline leukemia virus; FIV = feline immunodeficiency virus

Diagnosis: FIV

FIV was discovered in 1987, with five major subtypes (A, B, C, D, and E) subsequently discovered in North America, Europe, and Japan in naturally infected cats; a sixth subtype has been discovered recently.[1] In the United States, the prevalence of FIV in healthy-appearing cats has been reported to range from 1.5% to 3% and for cats with clinical illness or at high risk for exposure at 7% to 15%.[2] Large surveys of stray and feral cat populations place overall prevalence in this group at 2% to 4%. Male cats are three times more likely to be infected than females due to the tendency for territorial aggression and resultant bite wounds.[3,4] The virus is primarily spread through inoculation by means of saliva and blood.[1–4] Vertical, albeit less-efficient, transmission can occur between queens and kittens. FIV has four clinical phases: acute, asymptomatic carrier, syndromes associated with FIV infection and immunosuppression, and terminal illness.[3]

Historical Clues

Throughout the medical history, the patient had four of several clinical syndromes associated with naturally acquired FIV infection: chronic exacerbating episodes of dermatitis, otitis, diarrhea, and stomatitis/gingivitis. An initial ELISA yielded positive results for FIV; ELISAs test for antibody response to FIV viral core protein p24.[5] An additional hematologic finding of leukopenia (white blood cells, 1534 /µl), with primary neutropenia and lymphopenia, was noted. Intermittent leukopenia as well as lymphopenia are frequent findings in cats naturally infected with FIV, although these findings are not exclusive to FIV infections alone.[6]

Cautionary Notes

Because false-positive results are reported to range from 2% to 30% of FIV antibody ELISAs, guidelines established for retroviral testing recommend following with western blot testing or

IFA to confirm an initial positive result.[1,7,8] This particular patient's initial positive result was confirmed soon thereafter by western blot testing.

A commercially available FIV vaccine has been noted to cause diagnostic problems. To date, there is no inexpensive, commercially available test that differentiates between vaccinated cats and naturally infected cats, and the best method to achieve this differentiation in an easy, sensitive, and affordable manner is a topic of ongoing discussion.[5] The most reliable way to differentiate between these two groups is through virus isolation, which is time-consuming and expensive; a second, less-sensitive method is through use of PCR technology, in which diagnostic accuracy and results vary widely and interpretation of results must be made with caution. A recent study of several FIV PCR tests commercially available to veterinarians misidentified both uninfected and infected cats. Comparing with confirmed virus isolation results, false-positive results were significantly higher in FIV-vaccinated cats, suggesting that vaccination interferes with PCR interpretation.[1,4]

The American Association of Feline Practitioners recommends that prior to adoption all cats be retrovirus-tested, listing the reasons for such testing.[8] It was appropriate to include retroviral testing in the preanesthetic laboratory workup on this patient because dental disease involving stomatitis and gingivitis has been recognized as a common clinical syndrome of FIV infection and the owner had another resident cat. A recent dental prophylaxis has been performed, and Ben, the owner, and other resident cat are doing well together.

DID YOU ANSWER …

- **The cat should be tested for retrovirus exposure. Cat owners need to be aware that retrovirus exposure of one cat in the household puts all cats in the household at risk. Because cats can remain asymptomatic for years, a test to screen for a retrovirus, such as FIV, provides awareness that minimizes risk for exposure of other cats and allows for appropriate long-term care and treatment for the patient. FIV testing was appropriate in this case due to the severe dental disease and history of chronic, exacerbating problems such as dermatitis, otitis, and diarrhea.**
- **Any positive retroviral test needs to be followed by another test to confirm the result. No test is always 100% accurate.[8] A positive result could also be the response to an FIV vaccination as opposed to natural infection. No cat should be euthanized solely on the basis of positive results on an ELISA. Although infection does not always equal disease, it is likely that this cat's signs were caused by FIV disease and that the positive result on the ELISA did not result from vaccination.**

See Aids & Resources, back page, for references, contacts, and appendices.

ELISA = enzyme-linked immunosorbent assay; FIV = feline immunodeficiency virus; IFA = indirect immunofluorescent assay; PCR = polymerase chain reaction