Development of lymphoma due to feline leukemia virus infections in cats

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- Feline leukemia virus (FeLV), a type of retrovirus, is one of the most common feline infectious diseases, affecting 2-3% of cats in the United States
- How does the disease spread between cats? Saliva, nasal secretions, urine, feces, blood, and milk of infected cats
- Which cats are at higher risk? Kittens, immunosuppressed cats, cats in multi-cat households, outdoor cats
- Primary clinical manifestations:
  - Poor coat condition
  - Light colored gums
  - Diarrhea
  - Weight loss

  Other conditions that can arise from FeLV infection
  - Leukemia
  - Lymphoma
  - Intestinal lymphoma
  - Immunosuppression

- When a cat is exposed to the virus?

  Integration of FeLV

  
  Single-stranded viral RNA
  
  Double-stranded viral DNA (Provirus)
  
  Integration into host DNA
  
  Destruction of virus-infected cell by immune response
  
  Infection with or without virus production
  
  Transformation to tumor cell

AIM OF THIS STUDY:

1. Obtain feline tissue samples with a diagnosis of multicentric or intestinal lymphoma from the MSU Veterinary Diagnostic Laboratory archive
2. Extract and PCR amplify DNA from these tissues to determine the presence or absence of FeLV viral DNA
3. Assess the frequency of FeLV viral DNA. We hypothesize a significant number of affected tissues from cats diagnosed with lymphoma will be FeLV positive

IMPORTANCE OF STUDY:

- Veterinary medicine: It has been reported that an increase in FeLV vaccination within the last decades has reduced the prevalence of FeLV and associated lymphomas. Our study will be looking at cases within the last two years, which could help evaluate the relationship between FeLV vaccination and a reduction in prevalence of FeLV and associated lymphomas
- Human medicine: Both FeLV and human immunodeficiency virus (HIV) are retroviruses that share many similarities; FeLV can be used as a model for HIV

ACKNOWLEDGMENTS: Dr. Garrick Moll, Dr. Yuzbasiyan-Gurkan, Dr. Cheryl Swenson