

# Cornell Feline Health Center Veterinary News

Spring 1985

## A Case for Chemotherapy

June E. Tuttle

Chemotherapy can give a second chance to a cat fallen victim to the insidious killer -- cancer. This is a case study of Zehnder, a domestic short hair, castrated male cat who was 7 years old when stricken with lymphosarcoma of the kidneys.

Zehnder's owner, Dr. Linda Jorgensen, was grooming him when she noticed swelling in the cranial abdomen. Upon palpation she could feel large, lumpy masses in both kidneys. Zehnder also lost his appetite despite his usual insatiable craving for food, and his urine became bloody.

### Diagnostic Tests

Dr. Jorgensen's worst fears were confirmed by laboratory diagnostic tests. Cytologic examination of a needle aspirate of the kidneys was diagnostic for renal lymphosarcoma (see figure 1). (If a percutaneous fine needle aspiration fails to produce diagnostic material, then a biopsy can be obtained for histologic examination. Smears prepared from aspirated cells or tissue fixed in formalin can be sent to a diagnostic laboratory for evaluation by a pathologist.)

Results of other diagnostic tests were as follows:

### Complete Blood Count (CBC)

WBC- 8.3 thousand/ $\mu$ l  
RBC- 5 million/ $\mu$ l  
Hematocrit- 24%

### Blood Chemistry Profile

BUN- 92 mg/dl  
Creatinine- 3.2 mg/dl

All other serum biochemistries were normal.

### Urine Analysis

Specific gravity and pH were within normal ranges;

4+ hematuria;

no crystals were present;

bacterial culture was negative

### IVP

This radiographic test showed extreme enlargement of both kidneys with distortion of the renal pelvices. The right kidney was especially misshapen but both kidneys were able to concentrate and excrete the contrast medium.

Because renal lymphosarcoma in the cat usually involves extensive portions of both kidneys, as seen in this case, surgical excision of the tumors is not possible.

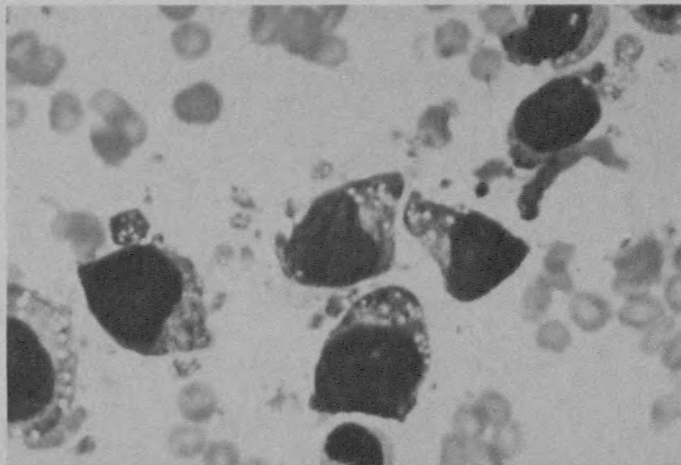


Figure 1. Lymphoblasts aspirated from a lymphosarcomatous kidney. The neoplastic cells are large with rounded nuclei and vacuoles in the cytoplasm.

Table 1 TREATMENT PROTOCOL

Drug	Dosage	When Administered
vincristine <sup>a</sup>	0.75 mg/m <sup>2</sup> (IV)	Weekly on day 1, 8, 15, 22; After day 22 give on the same day as cyclophosphamide at three week intervals until relapse or for one year in remission
cyclophosphamide <sup>b</sup>	300 mg/m <sup>2</sup> (oral)	Give on day 1 & 22; Thereafter give on same day as vincristine at three weeks intervals
prednisone	1 mg/m <sup>2</sup> (oral)	Give daily until relapse or for one year in remission

Source: <sup>a</sup> Oncovin®, Lilly & Company, Indianapolis, IN

<sup>b</sup> Cytosan®, Mead Johnson & Company, Evansville, IN

Other diagnostic procedures were performed to help determine if the cancer had metastasized. Bone marrow cytology was normal with no evidence of myeloproliferative or myelodegenerative disease. Thoracic and abdominal radiographs showed no obvious involvement of other organs.

### Treatment

Dr. Jorgensen's choice of treatment was based on a protocol described by Dr. Susan Cotter in the 1983 Journal of the American Animal Hospital Association (Vol. 19, No. 2). Her decision was based on the few side effects and high percentage of remission (64%) which Angell Memorial Animal Hospital experienced with cats on this regime.

The drugs used were vincristine, prednisone and cyclophosphamide. See Table 1 for the treatment protocol.

### Side Effects of Chemotherapy

Typical side effects for cats include loss of guard hairs and whiskers. Anorexia can occur in the first 24-48 hours after treatment. Vomiting rarely occurs with cats.

Zehnder experienced alopecia, mild anemia, transient fever and infrequent inappetence during his one year of chemotherapy. In spite of these minor side effects, Zehnder's quality of life was considered excellent during his year of chemotherapy.

Cornell Feline Health Center

## Veterinary News

*A publication for veterinary professionals*

The ultimate purpose of the Cornell Feline Health Center is to improve the health of cats everywhere, by developing methods to prevent or cure feline diseases, and by providing continuing education to veterinarians and cat owners. All contributions are tax-deductible.

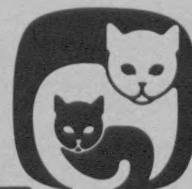
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Zehnder during chemotherapy treatment. (Note hair loss)

py. His white blood count was carefully monitored. If his neutrophil count was less than 2,000/ $\mu$ l, treatment was postponed to avoid the possibility of secondary infections. The BUN level was monitored to assess kidney function. Within 16 weeks of treatment the BUN was normal. It then remained in the normal range during his one year of therapy.

### Prognosis

According to Dr. Cotter's studies, cats that are anemic, neutropenic, septic or that have large tumors or multiple organ involvement have a poor prognosis. Cats most likely to achieve complete remission are those with mediastinal or peripheral lymph node involvement or other solitary tumors.

Today, cancer chemotherapy is an alternative which a client may wish to consider for their pet. This treatment is not intended as an ultimate cure for the disease as recurrence of the tumors is usually inevitable. However, several added months to years of comfortable life may result from the judicious use of this form of therapy in selected cases.

The client's decision on treatment will be based on your recommendations (formulated on the outcome of appropriate diagnostic tests) and the cost of treatments. According to Dr. Jorgensen, the approximate cost, including drugs and CBC for each treatment, is \$30-50. Treatment interval is usually every 1-3 weeks depending on response to therapy.

★ ★ ★

### Epilogue

Zehnder remained in complete remission during his one year of chemotherapy. Treatment was discontinued after one year as dictated by the protocol. Unfortunately, six months after cessation of treatment Zehnder succumbed to renal failure. Although there was no evidence of recurrence of the tumor at the time of his death, the lymphosarcoma had caused irreparable damage to the kidneys.

"In spite of his ultimate demise, it must be stressed that Zehnder's treatment was a success," concludes Dr. Jorgensen. "Almost 1 1/2 years of good quality life were added to an animal whose prognosis would otherwise have been hopeless." ■

**Special thanks to Drs. Linda Jorgensen and Julia Blue for their assistance on this article.**



## Memorial Program Has Many Benefits

The natural death of a pet is difficult for a client to accept; but when it involves a conscious decision to euthanize a faithful companion, it is a very traumatic experience. This is a critical time; a time when you may lose your client to another veterinarian. Therefore, you want to express your compassion and understanding to the client, but how? The Cornell Feline Health Center's memorial program can channel your feelings into a meaningful tribute.

This program benefits you, your client and the Cornell Feline Health Center. Clients appreciate a gesture that commemorates their pet and at the same time benefits other cats. The result is a strengthening of the client-veterinarian relationship.

Contributions from the memorial program are used by the Center for feline health research, in such areas as infectious diseases, endocrine disorders, cardiac and respiratory diseases, kidney and liver dysfunction, and nutrition.

### Response to Memorial Program

Presently, over 350 veterinarians are using the memorial program in their practice. The program has been well-received by clients. The following comments indicate that a potentially negative situation can be transformed into a positive one:

*"Please accept the enclosed contribution in the name of Dr. Michael Rosen who was so kind to us and to our Bullitt... Dr. Rosen is the most sensitive and concerned veterinarian we have met, and would not accept a fee for his necessary services."*

*"Thank you so much for the letter telling of the monetary donation made in our*

*cat's memory. It is comforting to know that in some small way his death can help to improve feline health."*

*"The enclosed check is a thank you to both you for your letter of April 8, and to the Stafford Veterinary Hospital for their donation in memory of my cat, Snookie. For many years I have had many contacts with veterinarians but until now I did not know that anyone gave a donation as a memorial."*

*(continued on page 7)*



Cornell Feline Health Center

January 24, 1985

Joe Doe  
000 Somewhere St.  
Anywhere, USA

Dear Mr. Doe:

We learned of the death of your cat, Fluffy, through a very thoughtful monetary donation made by Dr. Care in your pet's memory. We are sorry to hear about Fluffy's passing, for all of us who are involved with pets know how dearly they are loved and how quickly they become true members of the family.

Though Fluffy is gone, you can take comfort in knowing that future generations of cats will benefit from Dr. Care's memorial gift. We will use that gift to continue seeking to improve the health of cats of all breeds. There certainly could not be a better way to preserve the memory of your beloved pet than this meaningful tribute.

Sincerely,

Sheryl Bronger  
Office of the Director

P.S. If you would like to receive our newsletter of feline health information, just send us a note and we will gladly put your name on our mailing list.

/sb

# Readership Survey

Dear Practitioner,

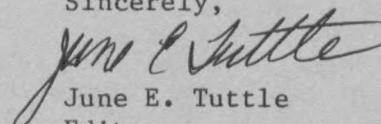
We want to know what you think of Veterinary News. This survey has been designed to let you express your opinions. Please help us by taking a few minutes to complete and return this survey by **May 25, 1985**.

To return this survey simply remove this page and return it in an envelope addressed to:

Veterinary News Survey  
Cornell Feline Health Center  
Cornell University  
Ithaca, New York 14853

Thank you for your cooperation.

Sincerely,

  
June E. Tuttle  
Editor

1. How did you receive your first issue of Veterinary News?
- |   |  |
|---|--|
| <input type="checkbox"/> from a colleague | <input type="checkbox"/> complimentary copy    |
| <input type="checkbox"/> advertisement    | <input type="checkbox"/> college               |
| <input type="checkbox"/> employer         | <input type="checkbox"/> veterinary conference |
| <input type="checkbox"/> other _____      |  |
2. How long have you been receiving Veterinary News?
- ☐ less than 6 mos.    ☐ 6 mos.-1 year    ☐ 1-2 years    ☐ more than 2 yrs.
3. How thoroughly do you read Veterinary News?
- ☐ Read less than 50%    ☐ Read 50%    ☐ Read more than 50%
4. Do you save copies of Veterinary News for future reading or reference?
- ☐ ALWAYS    ☐ SOMETIMES    ☐ NEVER
5. How many people (besides yourself) read your copy of Veterinary News?
6. What other professional publications do you receive?

(continued on next page)

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7. Our publications budget has been affected by the increased costs of printing and mailing. Presently, Veterinary News is sent free of charge as an information service. Some veterinarians have willingly donated monies toward printing and mailing costs, but this doesn't cover our present costs.

Therefore, would you pay a subscription fee to receive Veterinary News?

☐ YES ☐ NO

a) If yes, how much would you be willing to pay? \$ \_\_\_\_\_

b) If no, why not?

8. Do you use the information in Veterinary News in your practice?

☐ ALWAYS ☐ SOMETIMES ☐ NEVER

a) Which articles have been the most helpful?

9. In general, what is your level of satisfaction with Veterinary News?  
(Please circle the number which most closely describes your feelings.)

6	5	4	3	2	1
Very Satisfied		Satisfied		Dissatisfied	

10. What changes do you think would improve Veterinary News?

11. What types of articles do you like to read? (Please rank in order of preference with your first choice as number 1.)

☐ Research updates ☐ General news about the Feline Health Center  
☐ Practical how-to articles ☐ Case studies  
☐ Other \_\_\_\_\_

12. Please list the topics you would like to see featured in upcoming issues:

13. Would you subscribe if a fee was charged to cover printing and mailing costs for Veterinary News?

☐ YES ☐ NO

14. Any additional comments you would like to make?

Please return this survey by May 25, 1985. Thank You!

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## Memorial Program

(continued from page 4)

*"I was pleased to receive your letter advising me of the thoughtful donation made by Dr. Kathleen Keefe-Ternes in memory of my cat, Candy."*

*"The recent donation to your organization by Drs. Mary Beth and Steven Leininger in memory of our cat, G-2 touched us deeply."*

*"Thank you for your kind letter of January 6, notifying me of Dr. Cohen's donation in memory of my cat, Tid. He is a very kind man."*

### How It Works


. You collect your euthanasia fee; complete the memorial card (see insert); then forward both to the Cornell Feline Health Center. (Make checks payable to the Cornell Feline Health Center.) On the card you can also indicate the research that you want the monies contributed towards.

. Upon receipt we will send out an acknowledgement letter to your client informing him/her of your thoughtful contribution in their pet's name.

. Monthly, you will receive a letter listing your clients who received acknowledgement letters.

You can take an active part in advancing feline medicine and also build up your practice by contributing to the Cornell Feline Health in this important way. Use the coupon on this page to order your supply of memorial cards, and see the response it generates with your clients. ■

Cornell Feline Health Center  
Cornell University  
College of Veterinary Medicine  
Ithaca, New York 14853



## IN MEMORIAM

The enclosed check for \$ \_\_\_\_\_ is given in memory of

pet's name _____	sex _____	age _____	breed _____
Owner _____			
Street Address _____		Apt. # _____	
City _____	State _____	Zip _____	

Please acknowledge this gift in the following name:

Veterinarian or Hospital Name \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Additional comments: \_\_\_\_\_

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### RETURN THIS COUPON FOR A SUPPLY OF MEMORIAL CARDS

Send me a packet of    ☐ 25        ☐ 50        memorial cards.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

## Using the New FeLV Vaccine

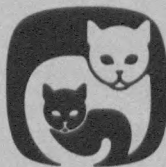
After several years of research, Norden Laboratories has developed a vaccine, Leukocell®, to aid in the prevention of feline leukemia and diseases associated with the virus.

Experimental studies by Norden have been promising. Eighty percent of the vaccinated cats remained healthy after exposure to the feline leukemia virus compared to 30% of the nonvaccinated controls. The safety of the vaccine has also been evaluated in a field trial of 667 cats. While the vaccine was safe in most cats, it did produce a reaction in 13% of the cats. These reactions included local pain or discomfort at the site of vaccination. About 3-4% of vaccinated cats developed transient fever and malaise.

It appears that Leukocell® is reasonably safe and effective, providing a useful aid in reducing the incidence of feline leukemia virus infection in cats. The vaccine is only effective in healthy, FeLV negative cats. Practitioners should develop a policy for use of the vaccine in conjunction with the manufacturer's recommendations. The Veterinary Medical Teach-

ing Hospital at Cornell University has established the following policy for use in the Small Animal Clinic:

1. Before vaccination or at the time of vaccination the cat should be tested for the feline leukemia virus.
2. Cats which have the greatest potential for infection should be vaccinated (eg. show cats, shelter cats, negative cats going into multiple households, outdoor cats).
3. A series of three intramuscular injections should be given in the following intervals: 9 weeks or older; 3 weeks later; and 3 months later. Thereafter, an annual booster to maintain immunity.
4. If the initial blood test is positive do not vaccinate or discontinue the vaccination program and retest in one month. Also do not vaccinate cats that are pregnant, blood donors or isolated cats in single cat households.
5. If the second test is negative the cat has experienced a transient viremia and may now be naturally immune; however, vaccination should be initiated or resumed to further booster immunity.
6. If the second FeLV test is positive, the cat is persistently viremic and should be handled accordingly. Vaccination of positive cats has no detrimental or beneficial effects. ■



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