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Oncology: It’s Not Just for People Anymore

By Susan I. Finkelstein

Cancer. The Big “C.” The very name invariably conjures fear. According to recent statistics, one of every three Americans will face a diagnosis of cancer. But what many people don’t know is that pets get cancer, too—and in ever-greater numbers. Like people, more companion animals are living longer due to better quality of life, preventive medical care, and vaccinations—and longer life translates into an increased risk of developing cancer. Over 10 percent of dogs and slightly fewer cats develop the disease each year, roughly the same rate as humans. Half of veterinary patients over 10 years of age will get cancer, and about one-quarter will die from it.

Enter the Oncology Service at the Ryan Hospital, dedicated to providing compassionate, efficient, state-of-the-art care to dogs and cats with cancer. Board-certified veterinary and radiation oncologists, residents in training for certification, and oncology nurses all are part of the Ryan team, which handled an estimated 2,800 patient visits last year. Standard cancer treatments similar to those used in people (chemotherapy, radiation therapy, and surgery) may prolong survival and provide an excellent quality of life in many dogs and cats with cancer. Unlike with people, though, the goal of treating cancer in companion animals is not necessarily eradicating the tumors, but improving the animal’s overall comfort level.

Up Close and Personal

Pat Thatcher, associate director of Penn’s Office of Learning Resources, recently had a very personal experience with the Oncology Service: Archie the cat, her wise and devoted companion of 10 years, was diagnosed with lymphoma after two months of intermittent severe vomiting and diarrhea. After much discussion with Oncology clinicians, Pat decided to pursue an aggressive course of chemotherapy. Archie and Pat were both put in the “stubborn fighter” category, and Beth Overley, V’00, lecturer in oncology, and Jen Baez, V’92, assistant professor of oncology, felt that chemotherapy could conservatively extend Archie’s life and increase his quality of life for six to nine months, possibly a year. Nineteen months later—a period that included a remission in which he did not require intravenous chemotherapy—Archie’s previously low-grade heart murmur seemed to worsen, and ultimately heart problems caused his death. He was in a treatment hiatus when he died, and technically still in a form of cancer remission.

“The entire Oncology staff, including all the interns who helped us throughout Archie’s 19-month chemotherapy saga, were wonderful,” recalls Pat. “In addition to excellent veterinary clinical training and practice, they had profound ‘people sense’ and were compassionate and responsive. . . . I have to say that the whole department had an infectious, positive attitude. Archie and I both took on their positive approach, and neither of us second-guessed or regretted our association with Oncology and chemo, even when the going got very tough.”

In February 2003, together with four others, Pat founded the Pets with Cancer Lifeline, a support system for people whose pets are being treated at the Ryan Hospital’s Oncology Service. On its website, <www.dogdoggiedog.com/PetswithCancer.htm>, the grassroots group describes itself as a “network to provide information and support to the families of the newest Oncology patients who have practical questions about pets living with cancer, or simply want to talk with someone whose pet has received a similar diagnosis.” Along with stories and photos of pets who fought cancer—and beat or succumbed to it—are names and email addresses for those wishing to contact one of the cofounders. “We can tell you that our pets have done well in treatment, with excellent quality of life and minimal side effects. We know that Ryan’s Oncology Service provides exceptional treatment. . . . We know they truly care about each and every patient.”

As Archie’s case suggests, some animals may need more aggressive treatment than the standard chemotherapy, surgery, or traditional radiation allows. Penn’s radiation equipment, now almost 40 years old, is no longer the most effective or humane cancer-treating technology available. As a result, each year the Hospital is forced to turn away or refer hundreds of cancer patients elsewhere due to lack of appropriate equipment. To ameliorate the situation, the School has launched a fundraising campaign to convert its 8,000-square-foot parking garage into a comprehensive Radiation Therapy and Imaging Facility that will house a linear accelerator (high-energy radiation), an MRI suite, and nuclear scintigraphy (bone scan) equipment—making the School the major academic referral center in the eastern United States for diagnostic imaging and treatment of companion animals.

The Research

Healing, though, is only one part of Oncology at Penn Veterinary Medicine; information gleaned from clinical research with veterinary patients provides valuable knowledge that can improve the understanding and treatment of both human and animal cancers. Because many of these trials are funded by grants, pet owners often are not charged or pay just a part of the cost of the animal’s participation.

“Clinical trials involving companion animals are often the stepping stone to clinical trials in humans,” notes Dr. Baez. The Oncology Service currently is involved in many clinical trials, a partial list of which appears below.

Feline cancer cachexia: The goal of this study is to determine the incidence of cachexia (weight loss, wasting of muscle, and general debility) among cats presented to the Oncology Service at the Ryan Hospital and to compare
the incidence of cachexia in the cats with and
without tumors that are being treated here.

**Canine hemangiosarcoma:** Clinicians are
examining the efficacy and toxicity of the
chemotherapy drug Doxil following surgery on
dogs with hemangiosarcoma, an aggressive
malignancy of blood vessels and the lining of
blood-filled spaces, most commonly the spleen.

**Feline mammary tumor:** This study evaluates
the role that reproductive/hormonal status
plays in the incidence of breast cancer in female
cats. In human and dog breast cancers, studies
show that reproductive/hormonal status is
important in the prognosis, prevention, and
treatment of disease. In dogs, a study similar
showed an increased risk of breast cancer corre-
lated with the age at which a dog was spayed. A
more recent study also showed that dogs spayed
around the time of diagnosis of mammary cancer
enjoyed potentially improved survival rates
as well.

**Canine melanoma:** This study aims to
determine if the addition of chemotherapy to
the treatment of dogs with early-stage oral
melanoma (skin cancer) will improve survival
rates. Previous studies have evaluated treat-
ments of the primary tumor but have not
addressed treatment and prevention of micro-
scopic secondary tumors. Even with excellent
local treatment and no evidence of the spread
of cancer at diagnosis, most diagnosed dogs
(70–85%) still die from melanoma. (Prelimi-
nary results of this study indicated a positive
difference in overall survival.)

**Magnetic resonance imaging of canine
splenic and liver lesions:** The effectiveness of
MRI of the human spleen has been little stud-
ied due to the relative rarity of human splenic
lesions. In dogs, however, splenic lesions are rel-
atively common. Unfortunately, ultrasound, the
cross-sectional imaging modality most readily
available to veterinarians, cannot reliably differ-
entiate benign from malignant splenic and liver
lesions. In this prospective study, Oncology staff
will perform MRI examinations on dogs with
splenic and liver lesions that have been sched-
uled for surgery or biopsies. They seek to deter-
mine the MRI characteristics of these lesions
and to correlate MRI findings with pathologic
examination of the spleen, to better define the
effectiveness of MRI in determining the nature of
splenic and/or liver lesions in both dogs and
people. This study is funded via grants from the
Hospital of the University of Pennsylvania
(Radiology) and Ryan Clinical Research.

**Canine lymphoma study:** In human medi-
cine, it is well known that lymphoma is not a
solitary disease but a variety of disease, each
involving cancer of lymph cells. Treatment and
outcome are different according to sub-type. It
is also known that treatment of lymphoma
with chemotherapy can effectively wipe out
parts of the immune system for prolonged peri-
ods, which can affect a patient’s ability to fight
off infections and other cancers. This study will
better characterize the sub-types of malignant
lymph cells by flow cytometry and correlate the
results with standard classification schemes and
treatment outcome to establish new prognostic
markers in this disease. Flow cytometry is also
being used to characterize the circulating nor-
mal lymph cells to elucidate the role of the
patients’ immune system in maintaining remis-
ion. Thus, results will help us further under-
stand and eventually better treat this important
and relatively common canine cancer.

**Evaluation of the cancer-prevention effects
of non-steroidal drug use in dogs:** Results from
human studies show that chronic non-steroidal
anti-inflammatory drugs (NSAID) may prevent
or slow development of various types of cancer.
This preliminary study examines the chem-
otherapeutic effect of NSAID use in dogs, and
early results indicate that NSAID use may be
associated with decreased cancer risk in dogs.

**Feline large granular lymphoma study:**
Large granular lymphoma (LGL) is a rare vari-
ant of feline lymphoma. This study aims to
characterize clinical findings for cats diagnosed
with LGL. Results to date show that feline LGL
does not respond well to traditional surgical or
medical treatment, with survival times of only
45 days. Future studies include evaluation of
additional cases, determination of more effec-
tive treatments, and molecular characterization
of feline LGL cell types.

**Treatment for canine malignant histiocytosis:**
Canine malignant histiocytosis/disseminate
histiocytic sarcoma is a rare canine cancer with a
grave prognosis. No effect treatment is known.
A preliminary study determined that approxi-
mately 50 percent of diagnosed dogs respond to
the chemotherapeutic agent lomustine. Current
studies are under way to evaluate molecular
mechanisms of drug resistance in tumors that
do not respond to treatment.

These projects vary in scope and size and
affect both animals and humans. The ultimate
goal that underlies each study is finding out
more about cancer—and ultimately about
seeking its cure. In the meantime, while provid-
ing care to thousands of pets with cancer, the
Ryan Oncology team continues to add to the
body of knowledge that enhances our ability to
control this disease, evidence once again that
physicians and veterinarians are truly practicing
“One Medicine” at Penn.

*Editor’s note: For more information, visit
Oncolink, the Internet’s first cancer resource,
sponsored by Penn’s Abramson Cancer Center,
at <http://www.oncolink.upenn.edu>.*

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**Annual SCAVMA Auction**

The Student Chapter of the American Veterinary Medical Association (SCA VMA)
will be holding its annual auction on Friday,
December 3, 2004, in the E. R. Marookian,
V.M.D. Auditorium at the Matthew J. Ryan
Veterinary Hospital of the University of
Pennsylvania.

Come, bid, and go home with new and
impressive items, ranging from home deco-
rations to exciting vacations. The event
begins with a silent auction at 3:00 p.m.,
followed by a live auction at 5:00 p.m.
SCA VMA will also be selling Penn Veteri-
mary Medicine merchandise while other stu-
dent clubs will provide food and drinks.

Everyone is invited to support the auc-
tion! The SCA VMA auction is a popular
event for the entire School community and
benefits current students. Proceeds from the
silent auction defray the cost of student
travel to the annual National Student AVMA
Symposium. In addition, the live auction
proceeds help fund SCA VMA events and the
SCA VMA Scholarship Program, which
awards scholarships totaling $5,000 to stu-
dents based on their service to the School,
academic standing, and financial need.

The mission of SCA VMA is to increase
the quality of veterinary student life through
educational, social, and cultural extracurricu-
lar activities. Please help support this impor-
tant mission. For more information on the
auction or to donate auction items, contact
Shannon Omlor, V’07, Auction Co-Chairper-
son, via email at somlor@vet.upenn.edu.