

A PRACTICAL GUIDE TO FELINE CANCER FOR THE CARING CAT OWNER

by

Dr. Martha S. Gearhart DVM, Diplomate American Board of
Veterinary Practitioners

INTRODUCTION

One would hope to be spared the difficulty of dealing with a beloved cat ill with cancer, yet the increasing life expectancy of our pets, as well as the unfortunate prevalence of Feline Leukemia Virus, have made this situation increasingly commonplace. But two things need to be remembered; first, treatments are readily available through local veterinarians in protocols developed specifically for cats and, secondly, an animal is spared the mental anguish of knowing that it may be terminally ill. This is very important, because many cats feel no illness in the early stages of disease; a diagnosis of cancer need not require an immediate decision for humane euthanasia, even though this may be the best decision days, weeks, months, or even years later.

Hopefully, these articles will serve as a reference for cat owners by presenting the philosophy of veterinary cancer treatment by, describing some of the major cancers in the cat, and by outlining methods of therapy that would be available through local veterinarians who are interested in treating cancer patients. Not every diagnosis of cancer requires a pilgrimage to a college of veterinary medicine or a medical research institute!

Treating cancer in animals differs from treating cancer in humans in one very fundamental way: we try not to make an animal feel sick! But this also means that we rarely try to achieve a complete cure. The goal is to extend the length of a quality life, not life at any cost. Drug doses are kept lower than they are in man so that our feline patients rarely experience vomiting, diarrhea, or loss of appetite. Remember! Many of these cats don't even know that they are sick. No veterinarian would choose to give a happy cat six months of nausea; the choice more likely might be three months of contentment at home on a mild cancer-fighting drug or even one month of contentment on no drugs at all. This is not to say that drug reactions may not occur; these are certainly potent drugs and will be described in detail in Part II of this article. Finally, it should be understood that all cancer therapy can be seen as either surgery or drug therapy, or a combination of both. Most animal cancers are treated by surgery by both local veterinarians as well as by research veterinarians specializing in oncology. As the listing below will demonstrate, many cancers in the cat are not controlled by any drugs; surgery remains the only effective treatment. This makes early recognition, when the tumor is still small, even more important.

PART I: THE MAJOR CANCERS OF CATS AND THEIR TREATMENTS

FELINE-LEUKEMIA VIRUS-RELATED CANCERS:

Whole libraries are devoted to this topic! And they should be, since the virus is contagious between cats through saliva, urine, milk, blood and tears. Different studies suggest that up to 10% of the feline population may be affected, that different strains of the virus exist, and that many different non-cancer FeLV+ syndromes exist, such as infertility in queens, deaths in new-born kittens, recurrent fevers, and low functioning of the bone marrow producing anemia or bleeding tendencies. One article could never address all these effects of FeLV, but it is important to remember that the many effects of this virus often makes treating cats with FeLV-related cancers particularly difficult. This is especially true if the cat suffers from poor functioning bone marrow, since most anti-cancer drugs also weaken the bone marrow. If a patient is anemic before treatment, it may be impossible to use certain drugs.

The two most commonly treated forms of FeLV-related cancers are lymphosarcoma (cancerous enlargements of the lymph nodes) and thymic lymphoma (cancerous enlargement of the thymus, a unique, lymph node-like organ in the chest that is usually large only in kittens, disappearing by adulthood). Other forms include invasion of the skin or the intestines or the kidneys or the nervous system by cancerous lymphocytes. For all forms, drug treatment is the cornerstone of therapy as the cancerous cells are generally dispersed throughout the body, making surgery impossible.

Lymphosarcoma of the lymph nodes or spleen is often recognized by the owner before any signs of illness are apparent in the cat. The owner notices swellings developing in the belly, under the chin, in front of the shoulders, and/or behind the knees. The cat may be lethargic or not eating well, but often the patient is quite content. A veterinarian would diagnose the condition by taking an FeLV blood test as well as taking cells out of any of the suspicious lymph nodes with a sterile syringe and needle. These can then be examined under an office microscope for cancerous changes. This is called 'a needle aspirate' and is no more painful than a routine vaccination. The size of the needle is the same, and no sedation or anesthesia would be needed for the average cat.

Regarding the FeLV bloodtest, it is important to know that many cats with lymphosarcoma may be negative on this blood test. However, researchers all agree that the cancer in these cats is still due to exposure to the virus, often years earlier. The virus is thought to have become dormant in the bone marrow and hidden from the test but still responsible for the cancerous changes in the cat's lymphocytes. These FeLV- cats are not contagious, unless they begin shedding the virus later whereupon the test would be positive. It is difficult to predict if or when this might happen to a cat undergoing treatment. For this reason, many veterinarians might recommend isolation of the animal from other cats or repeated FeLV bloodtests.

Thymic lymphoma is recognized by the owner when the cat begins to have trouble breathing. This may include a decrease in the cat's normal energy and exercise level, rapid shallow breathing, open-mouthed breathing, or even frothy saliva and nasal discharge with blue discoloration of the gums. The cancerous thymus becomes so large that it prevents normal expansion of the lungs. It also may produce fluid in the chest which occupies even

more space. Since asthma, heart disease, and Feline Infectious Peritonitis also interfere with breathing, a diagnosis must be made by radiographs of the chest, FeLV bloodtests, and an aspirate of the fluid from the chest cavity. Again, these tests are relatively easy to complete, sometimes requiring sedation and only rarely anesthesia. Like lymphosarcoma, chemotherapy would be recommended for therapy. The cancerous thymus cannot be removed surgically

Invasion of the spleen, skin, kidneys, or liver would also require chemotherapy as these vital organs cannot be removed. However, in some instances, lymphocytic tumors will localize in only one place, permitting surgery. The most common locations permitting surgical removal are solid masses in the intestines or on the spinal cord. Nevertheless, surgery in most cases would still be followed with chemotherapeutic drugs. It is assumed that cancerous lymphocytes still exist in lymph nodes away from the tumor.

Life expectancy for most forms of lymphosarcoma is considered to be six months and this depends on the form of the lymphosarcoma, the age of the cat, the drug protocol elected by the owner and the veterinarian, and whether or not the cat is FeLV positive or not. Of those cats (roughly 20%) who reach the six-month survival point, many will live up to two years. Without treatment of any kind, the life expectancy is generally considered to be one to three months. The many different drugs and drug combinations that have been used successfully to treat lymphosarcoma in the cat will be presented in Part II of this article.

TUMORS OF THE MOUTH

While different types of cancers can develop in the mouth, they share two important traits: first, they are generally malignant, and second, they require early recognition and radical surgical techniques for there to be hope for a long remission. They may develop from the bones of the face and jaw (osteosarcomas and fibrosarcomas) or they may develop from the surrounding gums, skin or tongue (squamous cell carcinomas). Often the first signs of a growth are generally those of difficulty eating, chewing or swallowing, such as food falling from the mouth, gagging, drooling, or a foul breath.

Squamous cell carcinoma is seen in older cats and, unfortunately, frequently occurs on or underneath the tongue, particularly at the its base. Often when it is recognized, it is too large to be surgically removed without damaging it. A cat needs at least one-third (and ideally two-thirds) of its tongue to eat and to drink properly. Special surgical techniques may be effective in shrinking the tumor or, in some cases, actually killing it without damaging normal tissue. These techniques would include cruosurgery (killing cancer cells by freezing with liquid nitrogen) which would be available at some local veterinary hospitals or radiation therapy which would only be available at colleges of veterinary medicine or research institutions such as The Animal Medical Center in New York City or the Angell Memorial Hospital in Boston, Massachusetts. Even with these advanced techniques, squamous cell carcinoma of the tongue is at best difficult to treat.

Squamous cell carcinoma can also occur on the gums. Here, radical surgery is called for. Even if the tumor appears small, a veterinarian will radiograph the chest to look for spread of the cancer. These tumors are malignant! Unfortunately, a tumor in the lungs must be at least 1/2 inch in diameter to be visible. Thus, even a "clean" radiograph is not a guarantee that the cancer has not spread. However, if it has, no veterinarian would advise further surgery. The only hope would be complicated drug therapies, most probably at a

research institution. Few drugs have shown marked success in the treatment of oral cancers, particularly if they have already spread to the lungs

If metastasis is not seen, a radiograph may then be taken of the growth itself to look for evidence that the tumor has invaded bone. If it has, you will be told about an extremely radical surgery, indeed. It would involve removal of the bone in a section surrounding the tumor. This is also the recommendation for osteosarcomas and fibrosarcomas which originate within the bone itself.

This surgery can really be considered an amputation of the upper or lower jaw. Although it may surprise you to read this, cats do very well with only one-half of their jaw! Obviously, this is a very radical procedure and would only be for selected cases. For instance, a rugged, out-going eight year old castrated male would probably do very well with this surgery and live six to eighteen months, even if tiny metastases had already spread to the lungs. However, a veterinarian would be unlikely to recommend this procedure for a timid, high-strung, 15 year old cat. Remember! The veterinarian's credo is 'doce nocere' ("Do no harm").

Unfortunately, there are no drugs that help shrink or even slow the growth of these tumors. Without surgery, most of these cats must be euthanized within one to three months because they become unable to eat. Since these malignant tumors are very slow to metastasize, surgery should be given serious consideration. Again, some help may be found at research institutions, but the prognosis is still grave, even with that specialized technology. The foundation of treatment for these tumors of the mouth remains surgical removal of the tumor as early as possible and including parts of the upper or lower parts of the jaw if necessary.

MAMMARY CANCER

Surgical excision is also the mainstay of therapy in this cancer, considered the third most common cancer in cats after lymphosarcoma and all combined types of skin cancers. Unlike dogs, ovariohysterectomy before one year of age does not decrease the risk of developing breast cancer. This cancer is seen in older cats, both male and female, neutered and unneutered. The Siamese may be at a slightly higher risk, and administration of prescription progestins (Ovaban and Depo-Provera) may also increase the risk of developing these tumors. There is no association with FeLV or any other virus and the development of these tumors.

New evidence supports the use of radical mastectomy, i.e. ALL breasts and lymph nodes removed from the affected side. This would most likely be done after a biopsy has confirmed that the 'lump' is a malignant tumor, although 85% of all mammary tumors are malignant. As in the treatments of oral cancers, a chest radiograph is vital; if the tumor has already spread, a radical mastectomy would put the cat through useless surgery.

However, if done early in the course of the disease, radical mastectomy has been shown by The Animal Medical Center to nearly double the disease-free time in the affected cat; that is, 575 days versus only 325 days for a 'lumpectomy' or single breast removal alone. Size of the tumor at the time of the surgery is also important for expected survival time; the smaller the tumor at the time of removal, the longer the survival time. Still, note that researchers are not speaking of cure. This is a terminal disease, but one where life can be extended a significant period of time, compared to other forms of cancer in the cat.

It may seem strange, or even extreme, to remove all the breasts on one or both sides of a cat who only 'had a little lump'. The incision is certainly long, and even frightening to see. But no studies have shown any drugs to help treat this disease. Radical mastectomy, performed early, is the treatment of choice in this cancer.

MASTOCYTOMA

This is not a common cancer, but its unique features and treatability make it worth mentioning. It generally appears as a swelling of or underneath the skin, clearly visible to the owner, or as an internal cancer of the spleen, liver, intestinal tract, or lymph nodes. Often, a cat who has had a skin mastocytoma removed one or more years previously will develop signs of illness from the invasion of vital organs by malignant mast cells. These may include vomiting, anemia, and weakness from stomach and intestinal ulcers. These ulcers occur because the mast cell contains chemicals (specifically histamine, heparin, and others) that stimulate secretion of stomach acid and interfere with normal blood clotting. Often, surgical removal of the spleen is necessary, but drug therapy, as in lymphosarcoma, is the primary treatment. Cimetidine (Tagamet: SmithKline Beckman Corporation) is prescribed to decrease stomach acid production, and anti-histamines may be prescribed to neutralize all the excess histamine originating from the tumor. But only one drug family has been shown to be effective in actually shrinking the tumor, often to the point of remission for one to two years. These are the glucocorticoids which are also the most important drugs used in treating lymphosarcoma. The characteristics, pharmaceutical preparations, and mechanisms of action on cancer cells and on the body will be discussed in Part II of this article.

MISCELLANEOUS TUMORS IN THE CAT AND THEIR TREATMENTS

Nearly every major form of cancer that has been described in man has been identified in cats. Obscure cancers will not be described here, but, rather, specific locations of cancer already discussed. The first is squamous cell carcinoma of the tips of the ears and the lids of the eyes. This is seen in white cats, or cats with facial patches of white, and more often if they are outdoor cats. It is believed that sunlight initiates the process, just as sunburn is thought to initiate the same cancer in man. No one has a good explanation of why this same cancer is so common inside the mouth!

Since there is no protective pigment in white areas, and since the eyelids and ear tips have the fewest hairs, these areas where pink skin is directly exposed to sunlight are the most commonly affected. The earliest signs are reddening and swelling of the area, leading to loss of hair and further spread of the condition. At this point, it is really a severe, chronic sunburn. Later, especially at the eartips, swelling becomes chronic thickening; eartips curl, fold back on themselves, and fuse. The cat is uncomfortable and may dig and scratch at the ears, causing them to bleed. At the early stages of this process, veterinarians may advise amputation of the top one-third or more of the eartips, down to a heavily haired area. This is a short, simple procedure, very similar to the ear cropping procedure done in some breeds of dogs. It is not a radical or stressful surgery, like jaw amputation. Your cat may look funny, but the surgery causes little discomfort to the cat, especially when compared to the freedom

from painful sunburn that it will give. Biopsies may or may not be taken, but reexaminations at three to six month intervals are advised.

Also, the owner is instructed to keep the cat indoors during daylight hours or apply sunscreen (PABA) to the ears if the cat cannot be confined indoors. If the inflammation is developing on the eyelids, daytime confinement and frequent re-examinations are prescribed, and it is sometimes possible to tattoo the eyelids for additional protection from sunlight. Signs that the burn has progressed into cancer would include bleeding or an open, raw appearance. Treatment here, as in the mouth, is surgery, including biopsies and chest radiographs. Squamous cell carcinoma of the ears is considered treatable by eartip amputation if caught in its very early stages. The eyelids are more difficult to treat, since plastic surgery is required to reconstruct the lid and protect the eye. Often eyelid cases are not seen in their earliest, most treatable stages.

The last cancer that deserves mentioning is osteosarcoma of any leg. Here, as in the upper or lower jaw, amputation is the mainstay of treatment and a chest radiograph would be done first. Often the cat is limping, but nothing is felt by the veterinarian on an examination. There may not even be changes visible on an initial radiograph of the leg. But these tumors grow rapidly. Generally, within one month, swelling can be felt and changes on the radiograph can be seen. Biopsies may or may not be needed; often the radiographs alone are diagnostic. Like mammary cancer, this is a malignant disease that has often spread by the time surgery has been performed, even if the chest radiograph was 'clean'. Like jaw amputation, leg amputation is not for every cat. A frail, aged cat would not do well from this or any other surgery.

But most cats tolerate amputation extremely well. They are so relieved to be free of pain, that their activity is back to normal long before the sutures are removed. Unlike man, cats and dogs do not appear to experience "ghost limb" phenomena or depression after amputation. With osteosarcoma, a cat may live three to six months or longer, before evidence of cancer in the lungs becomes evident. But without surgery, the pain can become so excruciating within one to two months that activity and appetite may drop until euthanasia is necessary.

If you are facing a difficult decision like amputation or referral to an institution for special drug therapies, your veterinarian may be able to recommend another client that has faced the same situation, or introduce you to a happy three legged cat that is boarding over the week-end. Sometimes it helps to hear about these things from someone who's been there.