

O – Oncology

APPROACH TO THE CANCER PATIENT

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As medical and surgical advances have become available, recognition of the human-animal bond, both by clients and veterinarians, has led to advanced care for pets. This is especially true of cancer treatment. Within the last 15 years, tremendous advances have resulted in improved response rates, disease-free intervals, and survival times. Despite these strides in veterinary cancer care, many caregivers and veterinarians are not aware that a large percentage of pets with cancer can be cured or at least rendered free of their diseases for significant periods. In most situations, pets undergoing cancer treatment experience limited or no decrease in the quality of their life. Advances in supportive care and palliative therapy have resulted in good quality of life for cancer patients while they receive treatment.

First obtain a tissue diagnosis: Each tumour is different and must be identified with a biopsy and, where appropriate, given a grade by an experienced, highly trained histopathologist.

Then determine the stage of the tumour: Once the tumour type is named, it must be staged. Stage is essentially the extent of the malignancy locally and at distant sites through the metastatic process.

Staging often carries prognostic significance

and enables the veterinarian and client to make informed and rational decisions regarding the type of therapy best suited to the patient. Most staging systems are based on assessment of three major components of the malignant process:

- The size of the primary tumour (T)
- Lymph node metastasis (N)
- Distant metastasis (M)

These components are further modified by the use of subscript numbers to indicate increase in tumour size, progressive involvement of regional lymph nodes, and presence or absence of distant metastasis.

To obtain this information, ancillary diagnostics are very important and sophisticated imaging techniques are often used. Although staging will vary among tumour types, in general the process begins with a thorough physical examination to identify any enlarged lymph nodes or other obvious areas of cancer spread, a complete blood count, chemistry profile, urinalysis, thoracic radiographs (right and left laterals and a ventral-dorsal view), and abdominal radiographs. In addition, ancillary diagnostics such as ultrasonography, computerized tomography, magnetic resonance imaging, or other more specialized tests may be required.

Next assess the condition of the patient: Any neoplastic process may result in a number of paraneoplastic conditions that affect the well being of the cancer patient. In addition, these pets are generally geriatric patients, which have the potential for a number of underlying conditions that may adversely affect their health and the potential success of therapy. For example, serum chemistry profiles are essential to establish the health of an animal with cancer. When complicated surgical procedures or multiple radiation therapies that require repeated or prolonged anesthesia are planned, acceptable renal and hepatic functions are vital. In addition, some chemotherapeutic agents that are metabolized or excreted by the liver or kidneys may require reduction in dosage if these organs are functionally compromised. In many instances, correcting underlying problems such as renal failure, urinary tract infections, heart disease, and metabolic disturbances may significantly improve the overall health of the patient and thus improve the potential for successful cancer care.

Finally, treat the patient: Therapies that deal with the primary tumour are still the mainstay of veterinary oncology, and surgery is the primary modality used in veterinary practice.

The results of radiotherapy have been largely based on early studies using low cumulative doses and coarse fractionation. The low total doses used in these early studies meant that long-term tumour control was rare and survival was short. The treatment schedule was determined by the difficulties of repeated anesthesia, rather than by radiobiological necessity. More recently, safe short-acting anesthetics have allowed more frequent treatments with smaller doses per fraction, and the ability to deliver higher total doses has increased as fraction size has decreased. With these advances, many of the tumours that were previously reported as non-responsive actually may prove to be well controlled by radiation therapy.

Chemotherapy for pets is a changing field, and we can expect combination chemotherapy protocols to become more available for a number of different cancers. The reader is encouraged to keep up to date with the literature, as this is a rapidly advancing field.

Results of treatment with other modalities such as biological response modifiers (immunotherapy, anti-angiogenesis) and holistic medicine approaches are becoming available.

Definitions of Objective Tumour Remissions and Responses Following Anticancer Therapy

Tumour Response	Tumour Size
Complete (CR)*	Disappearance of all evidence of cancer in all sites for a defined period of time (e.g., one inter-treatment interval of 3 weeks).
Partial (PR)*	Decrease in size of all tumours by 50% or greater as measured by the sum of the products of two diameters for each tumour. These diameters should be the largest tumour diameter and the diameter perpendicular to it. There should be sustained decrease in tumour size, as defined for CR, and no new tumours should arise.
Stable disease (SD)	Decrease of <50% or an increase of <25% in the sum of the products of the diameters as measured for PR.
Progressive disease (PD)	Increase of 25% or more in the sum of the products of tumour diameters or the appearance of a new tumour.

*CR + PR = Objective response rate.

The best therapeutic approach for the veterinary cancer patient is yet to be devised. It is clear that

a combination of surgery, radiation therapy, chemotherapy and biologic response modifiers, in addition to supportive care for the relief of pain and nutritional status, will give the best outcomes.

The lecture presented here will outline strategic approaches to a pet with cancer.