NC STATE Veterinary Hospital

Medical Oncology Service
Canine and Feline Intestinal Tumors

WHAT ARE INTESTINAL TUMORS?

Intestinal tumors are uncommon cancers in dogs and cats. Tumors develop in any portion of the digestive tract, from the duodenum to the colon. Tumors can be malignant or benign. Malignant tumors can spread to other sites of the body. The most common types of malignant tumors are adenocarcinoma, leiomyosarcoma, lymphoma, mast cell tumor (MCT), and gastrointestinal stromal tumors (GIST). Benign tumors do not spread but can still be problematic depending on location. Common benign tumors include polyps and adenomas.

WHAT ARE THE CLINICAL SIGNS?

Signs vary with the location of the tumor, tumor type, and distribution of disease. Affected pets can show weight loss, decreased appetite, vomiting, and/or diarrhea. There can be evidence of fresh or digested blood in the vomit and/or feces.

Benign or malignant tumors can block the movement of food through the digestive tract, causing an obstruction, which is life-threatening.

Some animals develop fluid within their abdomen secondary to the primary tumor or its metastases, which causes a bloated or “potbellied” appearance.

Signs are similar to other disorders including food allergies or general gastrointestinal upset. Some pets are treated for these conditions for weeks or months before a diagnosis of cancer is made.

WHAT DIAGNOSTICS ARE PERFORMED?

Blood work is done as part of a general health screen and to examine for other health conditions prior to definitive treatment. Blood work can show evidence of internal bleeding from a tumor or problems absorbing nutrients.

A mass may be felt during an exam or seen on x-rays (radiographs) or ultrasound of your pet’s abdomen. The next step is to obtain a sample of the mass to determine if it is benign or malignant. If malignant, the goal of the sample is to determine the type of cancer. Options for obtaining a sample include cytology or biopsy.

The diagnosis is most accurately achieved with a surgical biopsy. A fine needle aspirate with cytology is less invasive and results are available faster than a biopsy. While the chance of obtaining a definitive diagnosis is lower with cytology than biopsy, this is a reasonable first step and results are available within a few days. In many cases an abdominal exploratory surgery is done, and the entire mass is removed. This is the most efficient way to improve clinical signs and to achieve a diagnosis.

Additional testing on a biopsy sample (immunohistochemistry) may be necessary. This is most frequently done to distinguish leiomyosarcoma tumors from gastrointestinal stromal tumors. It is also done when biopsy results are uncertain. There is an additional fee and results may take a week or more. This type of testing is important because it changes treatment recommendations and prognosis.

The chance for spread (metastasis) depends on the type of tumor. Staging tests look for spread of disease. This entails abdominal and thoracic imaging (x-rays, ultrasound, or CT scans) and sampling of abnormal organs. The most common sites of spread are lymph nodes within the abdomen, other abdominal organs, and the lungs. Carcinomatosis occurs when an intestinal carcinoma tumor spreads to the linings of the abdominal cavity. This can lead to fluid build-up within the abdomen.

A CT scan may be done to accurately plan surgery. The CT scan can be extended to include the lungs as this more accurately assesses for the presence of metastases.

TREATMENT OPTIONS AND PROGNOSIS:

Surgery

Treatment for most intestinal tumors involves surgery and it always recommended when the tumor is causing obstruction of the intestinal tract or if the tumor has ruptured. Some pets are treated with surgery alone and then monitored (e.g. leiomyosarcoma) while chemotherapy is recommended for others.

Chemotherapy

Chemotherapy (+/- radiation and/or surgery) is the mainstay of treatment for intestinal lymphoma in dogs and cats. Protocols vary in intensity and success rates. The most important predictor of response and prognosis is the grade of the tumor which is best assessed with a biopsy of the tumor. While this may seem like an aggressive measure, it is essential to formulate the most accurate treatment plan.

Chemotherapy is recommended for some other cancers, including adenocarcinomas, mast cell tumors, or those with concerning biopsy features or metastases. Chemotherapy can be done in pets where surgery is not an option. Other than lymphoma and colonic adenocarcinomas in cats, the effectiveness of chemotherapy has not been fully evaluated for most intestinal tumors in pets.

Radiation therapy

The role of radiation therapy for most intestinal tumors in dogs and cats is not proven. Some pets with intestinal lymphoma can be treated with radiation therapy. This is more common in cats where research indicates positive outcomes in many cases. Protocols vary and can be discussed during your consultation.

PROGNOSIS

The prognosis of intestinal tumors depends on many factors including:

- Tumor type
- Tumor grade (degree of aggressiveness determined from biopsy report)
- Presence of metastases (spread in the body)

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General prognosis information with surgery alone (unless otherwise specified):

Note: This information does not consider specific prognostic factors, which could lead to dramatically reduced or increased survival times for any given patient

Canine	Feline
SI Adenocarcinoma: 4-10 months	SI Adenocarcinoma: 2.5-15 months LI Adenocarcinoma: 2.4-5 months (+ chemotherapy: 9 months)
Leiomyosarcoma: 1-2 years	Uncertain
GIST: ~3 years	Uncertain
MCT no metastases: Uncertain MCT with metastases: < 6 months	MCT: 6.5 months
High grade lymphoma (chemo alone): 2-5 months Low grade lymphoma (chemo alone): 1 year	High grade lymphoma (chemo alone): 6-7 months (if responds to treatment) Low grade lymphoma (chemo alone): 1-2 years

*SI – small intestine, LI – large intestine

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General treatment information for specific tumor types:

Tumor type	Treatment	Treatment Schedule	Estimated Cost of Chemotherapy Over Course of Protocol
Leiomyosarcoma	Surgery	Typically monitoring only (Chemotherapy may be recommended)	
Adenocarcinoma	Surgery + Chemotherapy	Dogs: Injectable carboplatin (+/- 5-fluorouracil) every 1-3 weeks for 4-6 treatments Cats: Injectable carboplatin (+/- doxorubicin) every 3 weeks for 6 treatments	$3000-$5000 (includes repeat imaging)
Gastrointestinal stromal tumor (GIST)	Surgery + Palladia ® (toceranib phosphate)	Oral chemotherapy given every other day at home	Varies according to pet's weight
Lymphoma	Chemotherapy +/- Surgery +/- Radiation therapy	High grade disease: Alternating three chemotherapy drugs on a weekly basis with blood work performed on the fourth week. This is repeated four times for dogs and six times for cats. Low grade disease Combination oral steroids and oral chlorambucil given at home	$3600-$4600 (dogs) $5000-$6000 (cats) ~$200 per month Surgery/Radiation = additional cost
Mast cell tumor	Surgery + Chemotherapy	<u>No measurable tumor:</u> Combination injectable vinblastine and oral CCNU Or Palladia ® <u>Measurable tumor:</u>	~$350-$400 per treatment with periodic imaging (Palladia® varies

	Chemotherapy alone	Single agent injectable vinblastine or oral CCNU or Palladia ® (toceranib phosphate)	according to pet's weight)

WHAT ARE THE SIDE EFFECTS?

Side effects depend on treatment selected and the extent of disease and clinical signs. Surgery carries risk of anesthesia, though this is minimal. Other risks include bleeding and complications from healing or infection. Side effects of chemotherapy are infrequent and most commonly include temporary gastrointestinal upset such as vomiting or diarrhea or temporary lowered white blood cell counts. Decreased appetite and lethargy may also occur. Hair loss is rare with chemotherapy, but cats tend to lose their whiskers

Your pet will be prescribed supportive medications for nausea (manifested by decreased appetite, or increased salivation, or drooling occur) and diarrhea for you to have on hand at home to use if necessary. It is best to be proactive with these medications and provide these as soon as signs are noted. Should you have any questions, your oncology team is available to assist and to develop a tailored plan for your pet.

HOW DO I PREPARE?

We understand this is a difficult time and we are here to support you and your pet by providing the options and care necessary. Selecting a therapy is not binding and can be adjusted to you and your pet's needs. During treatment sessions, you will be provided with updates and any recommendations depending on your pet's response.

GETTING STARTED

Once you have determined the best therapeutic option for your pet, you will work with our oncology team to develop an appointment plan.

Scheduling: Patients undergoing chemotherapy treatments must have a scheduled appointment prior to arrival:

- Schedule your appointments at reception upon check out
- Drop offs are requested between 7:30-8:30am
- No discharges are done between 2:30pm- 3:30pm as our oncology team is in rounds