



## **Hemangiosarcoma in Dogs**

### **WHAT IS HEMANGIOSARCOMA?**

Hemangiosarcoma is a highly malignant cancer arising from cells that normally create blood vessels. It most commonly affects the spleen, liver, right atrium of the heart, and skin. Tumors can occur in any part of the body, however.

In most cases, the cause of hemangiosarcoma is unknown. Exposure to sunlight can cause skin tumors in some dogs, especially in thinly haired regions including the belly, inner thighs, and eyelids.

Breeds with a predilection for non-cutaneous hemangiosarcoma include golden retrievers, Labrador retrievers and German shepherds, but any breed can be affected.

### **WHAT ARE THE CLINICAL SIGNS?**

Clinical signs depend on the location of disease. For internal tumors, signs usually relate to the severity of internal bleeding that occurs secondary to tumor rupture. Signs can be as subtle as intermittent lethargy or weakness with decreased interest in exercise/activities and appetite, or as severe as collapse, with or without a distended abdomen, severe respiratory signs, and/or pale gums.

Superficial skin tumors typically appear as a red to purple colored region of skin or bump that may bruise or bleed spontaneously. When tumors occur under the skin, a soft or firm swelling may be palpable. However, it is impossible to tell from appearance or feel whether a skin mass is benign or malignant.

### **WHAT DIAGNOSTICS ARE PERFORMED?**

Regardless of location, hemangiosarcoma is most often diagnosed via biopsy. It is usually difficult to diagnose using fine needle aspirate cytology because tumors are fragile and prone to bleeding, resulting in non-diagnostic samples.

Abdominal ultrasound, x-rays, CT scan, and surgery are all important tools that are useful in providing a definitive diagnosis and also assessing extent of disease within the body. An echocardiogram (ultrasound of the heart) is recommended to assess the heart for the presence of a mass.

If surgery is performed, histopathology is necessary to confirm the diagnosis. Additional biopsies of other tissue can be done to examine for the presence of metastasis (e.g. within the liver or regional lymph nodes).

## **TREATMENT OPTIONS AVAILABLE AND PROGNOSIS:**

Complete surgical excision is the ideal treatment for hemangiosarcoma. For certain tumors, this may be the only necessary treatment option. Chemotherapy to delay the progression of metastatic disease is recommended for surgically excised tumors with high rates of spread, seen most frequently in the following sites: spleen, liver, heart, bone, and tumors located beneath the skin/within muscle.

For patients with evidence of metastasis at the time of diagnosis, or for patients where surgical removal of the primary tumor is not possible (e.g. some cardiac tumors) chemotherapy may be an option to slow the progression of metastatic disease and maintain a good quality of life though prognosis is guarded. Additionally, when surgical removal is not an option, palliative radiation therapy may be considered. Incompletely excised skin tumors can be treated with definitive radiation to prevent or delay recurrence. Side effects are associated with the treatment modality pursued. Surgical cases require hospitalization and recovery from surgery. Patients undergoing removal of the spleen will be monitored for further bleeding in addition to cardiac arrhythmias that can occur following removal of this organ.

## **WHAT ARE THE SIDE EFFECTS?**

Side effects of chemotherapy are infrequent and most commonly include temporary mild gastrointestinal upset such as vomiting or diarrhea. Decreased appetite and lethargy may also occur. Your pet will be prescribed supportive medications for nausea (should 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.

Radiation therapy includes the use of anesthesia during treatments and side effects include acute or long-term changes to tissues depending on the location that is treated. For example, when radiation is used to treat tumors located within muscle, there can be ulceration and irritation of the surrounding skin. These side effects will resolve with time on their own.

## **CONCERNS OF CHEMOTHERAPY FOR MY PET?**

Chemotherapy often carries a negative impression, especially with our understanding of chemotherapy in human medicine. Our approach to chemotherapy in veterinary medicine is focused on limiting severe side effects and providing increased quality of life. Chemotherapy in human medicine is provided with intent to cure by using very high doses and increased side effects. As quality of life is imperative for our pets, doses are adjusted and your pet is monitored to limit severe side effects. Hair loss is rare except in certain breeds such as poodles. Though there is a slight risk of hospitalization in our pet population and mild gastrointestinal upset, the majority of pets tolerate therapy well. Should you have concerns during therapy, speak with your oncologist in order 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. Should any concerns arise, your oncology team will provide answers and help to guide you.

## NAVIGATING THROUGH MY OPTIONS:

Treatment	Indication	Treatment Schedule	Cost
Surgery	Most tumors	Varies according to location and extent of disease	\$3,000 - \$5,000 Additional expenses expected with certain anatomic locations
Chemotherapy: Doxorubicin  Metronomic	Post-surgery for tumors with high rates of metastases or for tumors that cannot be resected	Daily treatments for 3 - 4 weeks  Oral chemotherapy given at home for 6 - 12 months	\$400 per treatment  Dependent on body weight
Radiation Therapy Definitive	Incompletely excised cutaneous tumors	Daily treatments for 3-4 weeks	\$4,500 - \$6,000 May require CT scan prior to starting treatment
Radiation Therapy Palliative	Pending location and extent of disease	Varies	\$1,000 - \$3,000 May require CT scan prior to starting treatment

Cost estimates are based on individual appointments and overall cost is dependent on patient response and does not include additional supportive care or hospitalization, if required.

## GETTING STARTED

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

Scheduling: Appointments for patients undergoing treatments and rechecks should be scheduled in advanced. You are responsible for making this appointment with the front desk:

- Schedule your appointments at reception upon check out
- Drop offs are requested between 7:30-8:30am
- Pick ups are requested by 4:30pm
- No discharges are done between 3:30pm-4:30pm as our oncology team is in rounds