

Canine Histiocytic Sarcoma

WHAT IS HISTIOCYTIC SARCOMA?

Histiocytic sarcoma is an aggressive cancer in dogs. Different forms include localized histiocytic sarcoma, disseminated histiocytic sarcoma and hemophagocytic histiocytic sarcoma.

Localized histiocytic sarcoma occurs most often in bones, joints, skin and lungs. Disseminated histiocytic sarcoma affects multiple organs/tissues at the same time. Hemophagocytic histiocytic sarcoma starts within the spleen and progresses rapidly.

The most commonly affected breeds are the Bernese Mountain dog, flat-coated retriever, Rottweiler, golden retriever, Labrador retriever, miniature schnauzer and Pembroke Welsh corgi. Most dogs are middle-aged or older but histiocytic sarcoma is reported in young dogs as well.

WHAT ARE THE CLINICAL SIGNS?

Clinical signs vary depending on the affected organ/tissues. Lethargy, decreased appetite and weight loss are general signs of disease. Dogs with bone or joint tumors show lameness and/or swelling of the affected limb. Dogs with lung involvement show coughing, difficulty breathing and/or exercise intolerance. Vomiting and/or diarrhea are seen in dogs with disseminated disease. You may simply notice a lump or mass when petting your dog. Dogs with hemophagocytic histiocytic sarcoma show signs related to severe anemia and low platelets, including weakness, pale or yellow gums, bruising or bleeding.

WHAT DIAGNOSTICS ARE PERFORMED?

A complete physical exam is necessary to examine your dog for outward and inward signs of disease. A diagnosis is confirmed with a biopsy or aspirate of abnormal tissue and/or organs. However, histiocytic sarcoma cells can look similar to other types of cancer and additional testing may be required before treatment can be started. A commercially available test (Cadet HM ®: <https://www.sentinelbiomedical.com/shop/cadet-hm-assay/>) is an effective tool for confirming the diagnosis. The downside to additional testing is the time and cost required to process the samples and evaluate results.

A complete blood count, serum chemistry panel and urinalysis are done to determine if there are effects of the cancer on body functions as well as to ensure the patient is healthy enough to handle future treatments. Lymph nodes that surround tumors or that otherwise appear abnormal are sampled with an aspirate or biopsy to examine for spread of disease. Chest x-rays and abdominal ultrasound examine for spread in the lungs and internal organs. In some cases, advanced imaging, including a CT scan or MRI, are needed. The results of these tests determine the treatment options and prognosis.

WHAT ARE THE TREATMENT OPTIONS?

Surgery

Wide surgical resection is recommended for localized histiocytic sarcoma of the skin, bone or joint. This could mean amputation is the recommendation. Surgery is not recommended for dogs with disseminated histiocytic sarcoma. Some dogs with hemophagocytic histiocytic sarcoma may benefit from splenectomy (removal of their spleen).

Radiation Therapy

Radiation therapy (RT) has not been extensively investigated for the treatment of histiocytic sarcoma, however preliminary reports show improved outcomes with this treatment plan. Possible uses include pre-operative irradiation of large tumors, post-operative irradiation of incompletely resected tumors or palliative irradiation of inoperable tumors.

Chemotherapy

Most dogs with localized disease eventually develop systemic disease, so systemic therapy is recommended post-operatively. Chemotherapy is also the treatment of choice for dogs with disseminated disease. A variety of chemotherapeutic drugs have been used. The highest response rates are reported with lomustine (CCNU), doxorubicin or combinations of these drugs. Liposome-encapsulated doxorubicin (Doxil®) has shown promising preliminary results, but the high cost limits its usefulness. Other drugs that have resulted in positive responses include vinorelbine, epirubicin and dacarbazine. Corticosteroids are often prescribed along with chemotherapy.

Other Medical Therapies

Bisphosphonates: Limited information shows a potential benefit for adding bisphosphonate treatments along with chemotherapy. Zoledronate is most commonly added to a patient's chemotherapy regimen.

Prednisone: This is a common palliative option, however studies are needed to determine whether prednisone has any effect on clinical outcomes of dogs with histiocytic sarcoma.

Prognosis

The prognosis is considered guarded to grave for most dogs. Untreated, the clinical course of disseminated histiocytic sarcoma is rapid and fatal. Localized histiocytic sarcoma is sometimes more slowly progressive, but can be extremely painful and cause a poor quality of life. Overall, response rates to treatment are poor and survival times are short (3-4 months).

A subset of dogs with localized histiocytic sarcoma treated with aggressive surgery and chemotherapy can enjoy long term survival, on average between 1.5 to ~ 3 years)

The prognosis for hemophagocytic histiocytic sarcoma is considered grave (< 2months.)

WHAT ARE THE SIDE EFFECTS?

Side effects depend on the treatment selected and the extent of disease and clinical signs. Surgery carries risk of anesthesia, though this is minimal, 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. Radiation therapy includes the use of anesthesia during treatments and side effects include gastrointestinal upset (vomiting, diarrhea), local skin/tissue irritation, and potential interference with surgical healing.

Your pet will be prescribed supportive medications for nausea, manifested by decreased appetite, or increased salivation, or drooling, 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 them 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.

NAVIGATING THROUGH MY OPTIONS:

Treatment	Indication	Treatment schedule	Approximate cost*
Surgery	Localized tumors of the skin, joint, or bone	Varies according to location and extent of disease	\$3,000 - \$5,000 Additional expenses expected with certain anatomic locations
Chemotherapy: Lomustine (CCNU)	Disseminated disease, post-operatively for localized disease, hemophagocytic histiocytic sarcoma	Oral chemotherapy every 3-4 weeks for 6-8 treatments	\$400 per treatment
Chemotherapy: Doxorubicin	Disseminated disease, post-operatively for localized disease, hemophagocytic histiocytic sarcoma	IV treatment every 2-3 weeks for 6 treatments	\$350 per treatment Additional expenses expected if cardiac evaluation necessary
Chemotherapy: Zoledronate (bisphosphonate)	All cases receiving chemotherapy	IV treatment every 3-4 weeks	\$200 per treatment
Radiation Therapy: Definitive	Incompletely excised localized 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 will work with our oncology team to develop an appointment plan.

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

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