

# Canine Hemangiosarcoma

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## Introduction

Hemangiosarcoma is an aggressive malignancy of dogs and cats. HSA originates from the blood vessel endothelial cells. Thus, the cancer can arise from any site in the body, but most common sites in the dog include the spleen, liver or heart. Dogs generally affected are older than 8 years; cats generally are affected after 9 years of age. More than half of all dogs with hemangiosarcoma are presented to the veterinarian because of sudden collapse from rupture and hemorrhage of the tumor.

## Clinical Features

The initial clinical signs of HSA are related to the anatomic location of the primary tumor site. For instance, dogs with splenic HSA occasionally present for abdominal distension due to swelling of the spleen or rupture and hemorrhage into the abdominal cavity. Other symptoms can include progressive episodes of weakness, poor appetite, lethargy and weight loss.

Upon evaluation, clinical signs such as pale mucous membranes, rapid heart and respiratory rate, weakness and depression can be found. Anemia (low red blood cell count), arrhythmias (irregular heart beats) and coagulopathies (blood clotting disorders) are frequently noted. Other more rare clinical signs include lameness, pain, soft tissue or skin swellings and seizures.

## Diagnosis

History and physical exam findings can direct the search for the primary site of the HSA to specific regions. Radiographs of the thorax and abdominal cavities are recommended. Most helpful are abdominal ultrasound and echocardiography (ultrasound of the heart) to pinpoint suspicious lesions. Bloodwork and urinalysis are indicated to assess general health status and a "coagulation profile", a blood test that is utilized to evaluate the clotting system is very helpful. The actual diagnosis of hemangiosarcoma requires a biopsy, followed by histopathology analysis. Fine needle aspiration cytology of the tumor is not generally very helpful due to the presence of hemorrhage.

In splenic HSA, surgery to remove the spleen is performed to address ongoing hemorrhage. Splenectomy is the most advantageous method to collect tumor tissue for a biopsy. Other primary sites of bleeding HSA tumors can also be treated with surgery, such as sites involving the liver and lungs. If multiple nodules are noted, generally surgery is not successful to address all lesions. A bone biopsy or amputation can be performed to address primary HSA of the bone and achieve a diagnosis. Unfortunately, due to the significant risk of life threatening hemorrhage, HSA of the heart (right atrium) is not operable.

## **What is staging of HSA and why is it important?**

The clinical stage of hemangiosarcoma refers to the observed/documentated presence of tumor cells in locations other than the original site. Determination of the clinical stage of the HSA is achieved by the same diagnostic tests mentioned above, such as thoracic radiographs. The prognosis and anticipated success of therapy is dependent upon the stage, therefore the results of these diagnostic tests are very important. Stages I, II and III are described:

Stage I : Localized, nonruptured tumor

Stage II: Ruptured tumor confined to the primary site, with or without metastases lesions documented on the same side of the diaphragm

Stage III: Ruptured tumor or tumor invading another structure with distant metastases

## **Treatment**

The most important aspect of treatment for this aggressive cancer is that combination therapy of surgery and chemotherapy must be utilized for the best outcome. Due to the high rate of metastases (spread) of HSA, surgery alone cannot adequately control this disease for a significant period of time. For example, in canine patients with splenic HSA, surgery alone extends survival for approximately 2 months. Chemotherapy can prolong survival in such patients. The stage, or documented extent of other metastases lesions, will determine the success rate of combination therapy.

Chemotherapy with adriamycin (doxorubicin) has demonstrated the most success in patients with hemangiosarcoma. Combination of this chemotherapy drug with other agents, such as cyclophosphamide, have shown promise in extending long term survival. When choosing a protocol for chemotherapy treatment, it is important to consider the potential benefits and toxicity associated with a particular treatment plan.

Another novel approach to treatment is the addition of metronomic oral therapy to the chemotherapy regimen in HSA patients. Anti-angiogenesis medications, such as oral low dose cyclophosphamide and piroxicam are also promising in delaying the growth of metastases and prolonging survival. The attractive aspect to these medications is ease of administration (oral) and typically the side effects are minimal.

## **What about HSA in my pet?**

Hemangiosarcoma is a devastating diagnosis in a companion animal. The prognosis and treatment are dependent upon the primary tumor location, your animal's clinical condition and the stage of the tumor. The specific appropriate diagnostic testing as well as the possible therapy options will be discussed in detail with you. Although the guidelines for treatment of this cancer are well described in the literature, not every patient is the same. Our goal is to help with your understanding of what options are the best fit for your companion to ensure a good quality of life.