



## **Canine Hemangiosarcoma**

Hemangiosarcoma (HSA) is a cancer of the endothelial cells which form blood vessels. Dogs are most commonly diagnosed with this disease than any other species.

One form of HSA is considered to be usually benign – cutaneous melanoma. This form is attributable to sun exposure and treatable with surgery. All other forms are highly aggressive. They are locally invasive and have a tendency to metastasize or spread to other organs.

Dogs are usually middle aged to older when diagnosed, and some breeds, such as Golden Retrievers and German Shepherds, are known to be predisposed. That being said, any breed or sex may be affected.

HSA can affect any organ; however, the most common sites are (1) the spleen, (2) the right atrium/auricle of the heart, (3) the skin or subcutaneous tissues (those beneath the skin), and (4) the liver. The kidneys and the space behind the kidneys (retroperitoneal space) can also be involved. These tumors commonly spread to other abdominal organs, the lungs, muscle tissue, the spine, and, in some cases, the brain.

These tumors are often like land mines – you don't know they are even there until they cause a big problem. Often an owner will notice pale gums, rapid expansion of the volume of the belly (acute "weight gain"), rapid breathing, extreme fatigue or lethargy, and collapse. These tumors can grow and then rupture. Because they are formed from the cells which form blood vessels, they often contain blood, and when they rupture, the acute bleeding causes these clinical signs. While the patient is not losing blood outside the body, the blood is being lost outside the blood vessels and circulatory system and pooling in places where it is either not useful for the body or obstructing the function of the body's organs.

One of the most unfortunate problems with these tumors is that they can often mimic other benign tumor types, such as hematomas. It is hard if not impossible to obtain a needle sample and make a diagnosis because usually, you only collect a sample of blood. However, staging diagnostics can be used to increase suspicion, search for spread of disease to other sites, and determine whether additional treatment is warranted.

For staging, we recommend a minimum of blood work, urinalysis, 3-view chest radiographs (x-rays), and abdominal ultrasound. There may be other tests considered depending on the situation. In addition, there may be immediate supportive treatments required. Many of these patients arrive at the hospital with a belly full of blood in a state of shock. They need fluids, a belly wrap to help stop the bleeding, blood pressure monitoring, and other supportive care measures prior to surgery.

In general, surgery is often recommended. One reason is that despite our best efforts with staging, one can often not be sure that the mass is malignant, even though it is often our primary suspicion. Another reason is that there are few options other than surgery when a patient comes in with a large bleeding tumor. It is sometimes the only way to stop the internal bleeding. Thus, it can save the patient's life immediately, and it can be used to obtain a piece of tissue used to confirm the diagnosis.

Unfortunately, surgery is rarely if ever a cure. HSA is such an aggressive disease, that even with surgery, survival is often only weeks to a very few months. Metastatic disease arises early and spreads avidly. Thus, we do recommend following surgery with chemotherapy.

The optimal regimen has not yet been determined, but the current standard of care includes a protocol which uses Adriamycin (doxorubicin) or combines this drug with one or two other medications. Often, we now recommend following this treatment with an oral maintenance protocol which may hopefully slow tumor growth as well. Overall survival with patients treated with both surgery and chemotherapy is around 6 to 8 months, though there are patients who are cured, they are few. This is one tumor where continued research and innovation are sorely needed, and where we still need funding to evaluate and develop novel therapies.

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