

# Hemangiosarcoma

## ABOUT THE DIAGNOSIS

Hemangiosarcoma is a very serious disorder: it is a malignant cancer that arises from cells lining the blood vessels. Hemangiosarcoma is considered malignant because it spreads rapidly and extensively (metastasizes) through the bloodstream and forms large blood-filled tumors that can rupture, causing life-threatening bleeding.

This type of cancer most often occurs in older dogs (usually >10 years) but can occur in cats as well; in cats, the outlook is not as serious as in dogs. Golden retrievers, Labrador retrievers, rottweilers, German shepherds, and other large-breed dogs develop this form of cancer more often than do smaller breed dogs. The most common organ affected by hemangiosarcoma is the spleen, a large, flat organ in the abdomen that is useful for blood production and immune function but is not essential for life. Hemangiosarcoma also commonly develops on the heart, where it can produce fluid that seeps into the sac that surrounds the heart (the pericardium) and, if excessive, compromises the circulation by severely compressing the heart. Hemangiosarcoma can also affect bone, which is also serious, or skin, which is the least damaging site and can in some cases be benign.

From the first (primary) hemangiosarcoma mass, cancerous cells from the tumor have the potential to spread through the body, especially to the lungs, liver, and spleen. By the time the primary mass is discovered, microscopic secondary tumors (metastases) are often present elsewhere in the body. That means that even with surgical removal of the primary tumor, the cancer might already have spread. Newer information indicates that a dog's hemangiosarcomas may all originate from the same source in the bone marrow and disseminate throughout the body, which would explain the widespread nature of this type of cancer.

The symptoms observed in a dog with hemangiosarcoma range from barely perceptible to life-threatening. Sometimes the dog is not yet showing any outward ill effects, and the tumor is detected incidentally when the dog has radiographs (x-rays) or an ultrasound for another purpose. The long-term outlook for these patients tends to be better than average. In other cases, hemangiosarcoma can rupture and cause symptoms such as weakness, listlessness, and even collapse (which often resolves on its own but leaves a persistent state of sluggishness and "not being himself/herself"), due to loss of blood from the circulation into the body cavity where the tumor has ruptured.

When confronted with symptoms of this type, your veterinarian should examine your dog closely. If the tumor is on the liver or spleen, a dog may have pale gums, exercise intolerance, weakness, and difficulty breathing due to loss of blood into the abdomen. Careful palpation of the abdomen (the veterinarian feeling the organs gently with the fingertips) can reveal the presence of the mass that is hemangiosarcoma. If the bleeding is severe, a dog can collapse and possibly die. In such an acute and extreme case, the dog passes away very suddenly, and it is only through a postmortem examination that the tumor is found.

If the tumor is on the heart, the rupture causes bleeding beneath the pericardium—a thin membrane covering the heart—as mentioned above. The accumulation of blood inside the pericardial sac interferes with the heart's normal beating function. Here, too, the dog may show signs of labored breathing, weakness, or collapse as a result.

Often, the initial symptoms (as described above) are vague and easily mistaken for symptoms of many other disorders. Therefore, your veterinarian will ask you questions regarding the duration of

the symptoms, what you observed, whether vital functions like appetite and comfortable breathing have been normal recently, and so on. It is important to answer these questions to the best of your ability since your answers will help the veterinarian determine whether hemangiosarcoma is more likely or less likely.

Even with the most information from your observations and a careful physical examination, your veterinarian should recommend diagnostic medical tests to be sure that hemangiosarcoma, and not an "impostor" problem of a totally different nature, is the cause of symptoms. This is particularly important given the serious nature of hemangiosarcoma and the need to give an accurate idea of the potential for long-term recovery and proper treatment. A variety of tests can help assess whether hemangiosarcoma, or some other less serious disorder, is responsible for the symptoms you are seeing:

- Abdominal radiographs (x-rays) and ultrasound to visualize any masses on the spleen or liver.
- Chest radiographs (x-rays) to help screen for spread of cancer to the lungs.
- Cardiac ultrasound to look for blood seepage around the heart and the presence of a tumor (hemangiosarcoma) on the heart.
- Blood tests including CBC (complete blood count, especially of red blood cells and platelets) to assess degree of anemia or to rule out other causes of bleeding; and serum biochemistry profile and clotting tests to assess dog's health and organ function.
- Abdominal or pericardial "tap": insertion of a needle to withdraw fluid or blood from the abdomen or pericardial sac for analysis.
- ECG (electrocardiogram) to detect any abnormal rhythms of the heart.
- A biopsy (e.g., of the spleen after removal) and microscopic evaluation is the most reliable way to make a definitive diagnosis and to assess to the best possible extent (approximately 90% certainty) that hemangiosarcoma is or is not present.

It is important to complete the tests that are recommended because impostors exist: benign liver nodules (imitating hemangiosarcoma metastases but actually harmless), splenic hemangioma or hematoma (benign lesions which make up some 30% of ruptured splenic masses and can only be differentiated from hemangiosarcoma through laboratory analysis of the tissue), and others. This can create a difficult situation where you are forced to decide whether to proceed with advanced tests or surgery, and only the results of these can point to whether hemangiosarcoma is present or something much less harmful.

## LIVING WITH THE DIAGNOSIS

This very serious disease has a grave prognosis, meaning that the long-term outlook for life expectancy is generally poor. Many dogs with hemangiosarcoma only live for a short time (weeks to a few months) after being diagnosed, although some sporadic exceptions occur. The life expectancy of the patient depends on the extent of the cancer spread, with cardiac hemangiosarcoma being the most serious (survival beyond 4 to 6 months is uncommon, even with extensive and complete treatment), hepatosplenic (liver and spleen) next most serious, and splenic hemangiosarcoma being the most likely to allow survival for 4 to 10 months or in some occasional cases 1 to 2 years or more. Cutaneous hemangiosarcoma (affecting the skin) is extremely variable in outcome and may be as serious as any of the other forms just described or may be fairly innocuous and cured by surgical removal of the tumor on the skin, if this is done sufficiently early.

When hemangiosarcoma is confirmed, your veterinarian can help you make decisions concerning your pet's quality of life and the appropriate treatment. You may be faced with preparing for the possibility of your dog's death or choosing to have your dog humanely euthanized if the situation is extremely advanced.

## TREATMENT

If your dog has collapsed or is in shock due to a ruptured hemangiosarcoma, in-hospital, intensive stabilization will be necessary to save his or her life. Intravenous fluids and possibly a blood transfusion may be required, as well as support of cardiac and respiratory function (supplemental oxygen, other). If there is bleeding into the pericardial sac, the fluid can be removed with an ultrasound-guided needle to rapidly improve cardiac function and circulation.

Once vital signs are stabilized, some or all of the tests described above will be performed to support or refute the diagnosis of hemangiosarcoma. Surgery is the most common treatment to remove the tumor if possible. A splenectomy (removal of the spleen) is often performed on an emergency basis if blood loss from the ruptured tumor into the abdomen is severe. If the primary tumor is on the heart or liver, surgery is more intensive or may not be possible if the mass is tightly interwoven into vital structures. *It is important to note that removal of the tumor only decreases the risk of death due to rupture and bleeding.* In most cases, surgery does not “cure” the cancer because there is usually already spread of the cancer to other locations in the body. In other words, the purpose of surgery is to provide a good quality of life.

It is also important to understand that the confirmation of hemangiosarcoma can only be done by microscopic analysis of suspect tissue by a laboratory. Therefore, the most common situation—a dog showing severe signs and requiring emergency abdominal surgery—does not immediately offer an answer of whether or not hemangiosarcoma is present. Rather, the decision to proceed with surgery must be made by you with the understanding that the splenic or liver mass that is removed may be hemangiosarcoma or may be a benign mass such as hematoma or hemangioma. Overall, about two thirds of dogs with splenic masses have a malignant cause while one third have a benign problem.

With confirmed hemangiosarcoma, anticancer chemotherapy may extend life expectancy somewhat. Single or multiple anticancer medications can be given, and if receiving such treatment, your dog may have to spend the day at the veterinary hospital to receive drugs through an intravenous (IV) catheter. Treatments are repeated, usually every 3 weeks, and the patient is frequently evaluated (physical exam and blood tests) to assess the effect on the organ systems. Dogs do not react the same way as humans to most chemotherapy drugs. In humans, the word “chemotherapy” may bring to mind serious adverse effects, and while these are not impossible in dogs, they are much, much less common, occasionally including gastrointestinal problems (decreased appetite, vomiting) and a drop in blood cell counts (increased risk of developing an infection).

Surgery and chemotherapy can be complicated and expensive, and decisions regarding whether to pursue these treatments may be urgent (e.g., when hemangiosarcoma tumor rupture has caused life-threatening internal bleeding) or, preferably, can be considered and discussed in greater depth once any life-threatening situations are under control. Follow-up is important; see below.

## DOs

- Call your veterinarian promptly if your dog shows sudden weakness or collapse.
- After surgery, follow directions regarding restricting activity and care of the incision.

- Observe changes in behavior and appetite, especially if your animal is receiving chemotherapy.

## DON'Ts

- Do not ignore signs of weakness or “getting tired.” Even in older dogs, this can be a sign of serious illness.
- Sun exposure has been shown to increase the risk of developing hemangiosarcoma of the skin. Do not expose dogs, especially those with thin hair or pale skin, to lengthy periods of sunlight.

## WHEN TO CALL YOUR VETERINARIAN

- Phone your veterinarian if you notice your dog show any of the symptoms/signs listed below. In acute cases of collapse, your dog will require immediate veterinary attention. This may be a severe life-threatening emergency and should be tended to promptly.
- If your pet has undergone treatment for hemangiosarcoma, you still need to watch for the following clinical signs. They may signal a worsening of the cancer.

## SIGNS TO WATCH FOR

As possible signs of new onset, or recurrence, of hemangiosarcoma (remember that these are nonspecific—many other disorders can cause such symptoms without hemangiosarcoma):

- Weakness, staggering, or collapse.
- Difficulty breathing.
- Sudden pallor (changing of the color of the gums from pink to pale or white).
- “Tired” (exercise intolerance).
- Suddenly bloated abdomen due to fluid accumulation.
- Any new lumps on skin.
- Swelling or pain over the rib cage or limbs.

If undergoing chemotherapy:

- Weakness, poor appetite, vomiting, and diarrhea.

## ROUTINE FOLLOW-UP

- If you decide to pursue treatment for hemangiosarcoma, the follow-up typically involves periodic medical/diagnostics tests, and your veterinarian may recommend a visit to a specialty center for ultrasound, surgery, or chemotherapy. Veterinary oncologists are veterinarians who are specialty-trained and board-certified in cancer treatment for dogs and cats (directory: [www.acvim.org](http://www.acvim.org) or [www.vetspecialists.com](http://www.vetspecialists.com) in North America; [www.ecvim-ca.org](http://www.ecvim-ca.org) in Europe) and can be an excellent resource for a second opinion or for the latest treatments. Your veterinarian can help you determine what is appropriate.
- Acquiring a biopsy for confirmation or removal of the tumor requires surgery, as mentioned above. If uncomplicated, the hospital stay usually will be 2 to 3 days. Home care is required to monitor and care for the incision. If chemotherapy is used, visits usually will be scheduled every 1 to 3 weeks for the first few months, then less frequently (as needed). Blood counts are performed to monitor the effects of the drugs on the bone marrow. If your dog suffers side effects such as appetite loss or vomiting, supportive medications may be prescribed. Rarely, some dogs need to be admitted into the hospital to correct dehydration resulting from vomiting or diarrhea if they react adversely to chemotherapy (uncommon in dogs and cats).
- Once your pet is through the initial phases of surgery and chemotherapy, monitoring is important, and you may be asked to return for regular visits to detect possible cancer growth. Radiographs (x-rays) or ultrasound scans often are repeated for this purpose.

## ADDITIONAL INFORMATION

- The only way to have a definitive confirmation of hemangiosarcoma is through excisional biopsy (removal of affected tissue for lab analysis) because other illnesses cause virtually identical symptoms but have a much different—usually better—outlook than hemangiosarcoma. “Impostors” for hemangiosarcoma include:
  - Hemangioma is a benign blood-filled tumor. It still requires removal but does not spread to other organs.
  - Rodenticide (rat bait) poisoning or other bleeding disorders can cause weakness and pale gums but may be treated with an antidote and potentially permanently cured without surgery.
  - Splenic torsion, rupture, or hematoma is usually associated with trauma; surgery is curative.
  - Hemolytic anemia is the increased destruction of red blood cells, resulting in pale gums and weakness. It is treated with medications (pills, injections), not surgery.
- Treating hemangiosarcoma requires a tremendous commitment of emotions, finances, and time. With a complete approach to confirm the presence of hemangiosarcoma (not one of the

impostors listed above) and treatment based on the specifics of your dog’s case, a good quality of life is still possible for some time, and when hemangiosarcoma is confirmed, legitimate comfort and some peace of mind may be gained from knowing that an easily curable problem was not overlooked or mistreated.



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