

INFORMATION SHEET

Haemangiosarcoma

Haemangiosarcoma is an aggressive malignant tumour derived from the cells lining blood vessels (haem = blood, angio = vessel, sarcoma = tumour of structural tissue). As blood vessels are found throughout the body, this cancer can occur anywhere; however, it is seen more commonly in the heart, spleen, liver and skin. Less commonly, it can be found in the oral cavity, bone, lung, kidney and brain. It is not known what triggers the growth of this cancer, although excess sun exposure can cause one of the skin forms of this cancer in light-skinned (non-pigmented) animals. Haemangiosarcoma are more commonly diagnosed in middle-aged to older dogs, and are seen less commonly in cats. Most haemangiosarcoma (except some of the skin forms) are both locally aggressive and have a high likelihood of spreading to other parts of the body (these are called "metastases").

Clinical signs

Haemangiosarcoma can be found in almost any location; therefore, the history and clinical signs can be extremely variable and dependant on where the tumour is located. At the most extreme, haemangiosarcoma can cause sudden death due to tumour rupture, cardiac arrhythmias (irregular heart beat) and/or dramatic blood loss. At the other end of the spectrum is that for some patients the disease is found as an incidental finding on routine examination. Other problems include decreased appetite, vomiting, lethargy (lacking energy), pale gums, collapse, swollen abdomen, difficulty breathing and weight loss.

Haemangiosarcoma occurring in the skin may present as a lump or mass palpable within or underneath the skin.

Haemangiosarcoma occurring in the spleen or liver can present with signs related to blood loss into the abdomen resulting in the appearance of a swollen abdomen and clinical signs of weakness, collapse, lethargy and pale gums.

Haemangiosarcoma occurring in the heart can cause bleeding into the sac surrounding the heart, which can impede the hearts ability to pump blood around the body. This can cause exercise intolerance, shortness of breath (dyspnoea), syncope/fainting, and an irregular heart beat (arrhythmia). In some cases haemangiosarcoma is diagnosed after abnormalities are found on screening blood tests. Usually, by the time an animal is showing signs of haemangiosarcoma, the cancer has already progressed significantly.

Diagnosis and staging

Diagnosis of haemangiosarcoma commonly involves an abdominal ultrasound, chest radiographs and, preferably, a biopsy. For haemangiosarcoma in the skin, a fine needle aspirate or a biopsy is performed. A fine needle aspirate is a simple test done with a small needle and syringe collecting a small number of cells. This can be done with minimal (if any) sedation. Unfortunately it is uncommon for this test to be definitive for this disease.

A biopsy is a slightly more invasive procedure and involves taking a larger sample. It is much more likely to provide a diagnosis and is usually carried out under sedation and/or local anaesthetic. An incisional biopsy involves taking a small sample of tissue from within the tumour. This is indicated for larger tumours in which surgical removal of the entire tumour may be difficult. An excisional biopsy involves removing the entire tumour and usually requires a general anaesthesia. This could be considered for smaller tumours or after a fine needle aspirate has diagnosed haemangiosarcoma.

If haemangiosarcoma is suspected in the heart or abdomen an ultrasound can be performed to screen for a mass and/or an effusion (fluid collected in the abdominal cavity or within the sac surrounding the heart). Pericardial effusion (fluid in the sac around the heart) is associated with an underlying cancer in approximately 50% of cases. Of these, it is estimated that approximately 85% of tumours will be identified on ultrasound of the heart. Therefore, if a mass is not seen on ultrasound, this does not definitively rule it out.

In the spleen, approximately 66% of masses are associated with malignant cancer and of these 66% or more are haemangiosarcoma. Collection of fine needle aspirates and biopsies in the abdomen and heart are not routinely performed due to the risk of causing haemorrhage. These tumours are typically filled with blood and are very fragile. A biopsy is usually collected at the time of surgery, so that if haemorrhage occurs it can be controlled. Animals presenting with evidence of tumour rupture into the abdomen are often taken to surgery on an urgent basis.

Once haemangiosarcoma is diagnosed or suspected, staging is performed to screen the body for evidence of cancer spread (metastases). For haemangiosarcoma this may include an abdominal ultrasound and chest radiographs or CT scan. Haemangiosarcoma metastasise early and over 90% will have metastasised at the time of diagnosis (with the exception of haemangiosarcoma of the skin, which have a lower metastatic rate). These metastases may not be detected on our initial staging tests because they are initially very small (microscopic). Therefore we need to manage haemangiosarcoma by treating the initial site and the whole body (to treat metastatic disease). Blood tests (a complete blood count and biochemistry) and urinalysis are also performed to establish the general health of the patient prior to treatment.

Treatment

Treatment options for haemangiosarcoma include surgery and chemotherapy. Combination **surgery and chemotherapy** is the treatment of choice for haemangiosarcoma. Surgery offers the best approach to diagnose and treat haemangiosarcoma even though it is generally only palliative. Animals may require supportive treatment such as intravenous fluids or blood

transfusions prior to or during surgery, and some may require treatment for arrhythmias (irregular heart beat).

For haemangiosarcoma in the spleen, the entire spleen is usually removed. Animals cope well without a spleen and this is not usually a concern. At this time the abdomen is thoroughly explored and any other suspicious lesions removed or biopsied. Surgery can also be performed for haemangiosarcoma that occurs on the heart if they are small and accessible. An alternative to removing the tumour (if this is not possible), is removing a small window of the sac around the heart. This means that if the tumour causes bleeding it will not constrict the heart and interfere with its function. It is possible, however that this bleeding could be life threatening. Surgery alone is the treatment of choice for some of the skin tumours, especially the ones induced by sun damage.

Chemotherapy is recommended in addition to surgery in most cases given the high metastatic rate of haemangiosarcoma. Chemotherapy is also indicated if the cancer cannot be removed with surgery, has already metastasised, or if some residual cancer remains after surgery. The most commonly used chemotherapy drugs for haemangiosarcoma are doxorubicin, vincristine and cyclophosphamide. There are two options for treatment—doxorubicin can be given alone every three weeks, or it can be used in combination with vincristine and cyclophosphamide. The latter has a better response rate but has a slightly increased risk of side effects and requires weekly visits. The former has a slightly lower response rate and a slightly lower risk of side effects.

Doxorubicin and vincristine are administered by an intravenous injection, while cyclophosphamide is administered orally.

Chemotherapy is generally well tolerated in animals. (Please see 'Chemotherapy in animals' handout.)

Prognosis

The long-term prognosis for dogs and cats with haemangiosarcoma is generally poor. With no additional treatment, the average survival time is about three months after diagnosis and some studies have shown average survival times as short as six weeks. With chemotherapy the outcome improves, with average survivals of about nine months seen. Only 10% of dogs live for more than one year. The presence of metastatic disease has not been shown to affect outcome and survival times. We can also use this disease to assess if treatment is working.

Haemangiosarcoma of the skin typically have longer survival times. If it involves only the superficial layer (dermis) the average survival time with surgery alone is two years. Those tumours that invade deeper layers of skin and underlying muscle have survival times of 6–12 months and chemotherapy is recommended for these tumours. Cats with haemangiosarcoma in the skin have a high recurrence rate (60–80%), which often occurs reasonably soon after surgery (an average of four months). We have less information about treating cats with chemotherapy for this cancer, but it appears to help.

Follow up

Following the completion of chemotherapy we recommend periodic rechecks to screen for recurrence or metastasis. These are typically recommended one month after finishing chemotherapy and then every three months thereafter. Early detection of recurrence or metastases is beneficial and allows prompt management or treatment.

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