

## **Hemoabdomen (blood in the abdomen)**

There are many possible causes of hemoabdomen. They most commonly occur in dogs and are considered major emergencies in all species. Some common causes are bleeding masses from major organs such as the spleen and liver, significant trauma to the abdomen and rodenticide toxicity (which decreases clotting). These are addressed in different manners and have different prognosis. The most common cause seen in veterinary medicine is due to ruptured a splenic mass.

Occasionally spleens grow masses. These are generally either benign tumors (hemangiomas) or malignant tumors (hemangiosarcomas grow from the red pulp, mast cell tumors and lymphosarcoma arise from the white pulp). In dogs, most splenic masses are either hemangiomas or hemangiosarcomas, while in cats they are usually either mast cell tumors or lymphosarcomas.

Since we are concerning ourselves here with dogs, we'll review the hemangioma (benign) and hemangiosarcoma (malignant). Both these tumors arise from the blood vessels of the red pulp and amount to a bunch of wildly proliferating abnormal blood vessels. Eventually the growth ruptures and the spleen bleeds. When a vascular organ like the spleen bleeds, a life-threatening blood loss can result (hemoabdomen).

1. Usually the patient is suddenly weak.
2. The patient may be obviously cold.
3. If one looks at the color of the gums, the patient will be pale in color.
4. If the bleed stops on its own, the patient will dramatically improve by the next day or even a few hours later.

Unfortunately, the splenic mass is certain to bleed again and if the spleen is not removed, eventually the patient will bleed to death. If the splenic tumor is benign, removing the spleen is curative provided that the patient has not lost too much blood to survive the surgery. Ideally, a splenic mass is detected before it has ever bled and the spleen is removed when the mass is not actively bleeding. Of course, if the splenic mass is actively bleeding, removing the spleen becomes an emergency surgery; it is not appropriate to try to wait until the bleeding has stopped.

If the splenic tumor is a malignant hemangiosarcoma, the spleen can still be removed to control the bleeding, but the problem is that hemangiosarcoma is an aggressive cancer. With the removal of the spleen and primary tumor, the patient is probably spared death by bleeding to death only to eventually succumb to cancer.

There are several ways to determine if a dog has a splenic mass. The first way is by physical examination. A large firm mass in the area of the spleen may be palpable during a routine physical examination. From there, radiographs are taken of the belly to see if the mass appears to be on the spleen, and radiographs of the chest are taken to see if there is evidence of cancer spread. Abdominal ultrasound will confirm fluid within the abdomen and pinpoint the location for possibly obtaining a sample through abdomenocentesis. Based on these findings (plus basic blood work) a decision for or against spleen removal can be made.

### **Is it benign or malignant?**

This is not always clear prior to surgery. If there is evidence of tumor spread on a chest radiograph, then one can be quite sure that the tumor is malignant. In this case it is likely too late to effect meaningful treatment.

If no evidence of tumor spread is present, the mass may be benign, or it may simply have produced tumor spread too small to see on radiographs. Abdominal ultrasound may help determine if small metastatic lesions are present but often times the mets are even too small to be seen with this diagnostic test as well. In this case, one may simply proceed with splenectomy, understanding that tumor spread may be obvious in the abdomen once the belly has been opened. If the spleen can be removed and minimal spread has occurred, then chemotherapy is a reasonable treatment option for maximizing quality life span if a malignancy is confirmed.

#### **If You Choose Not to Remove the Spleen**

Unfortunately, eventually the dog will have a bleed from which he cannot recover. Chemotherapy is not an option if the primary splenic tumor is left behind; however, since a moderate percentage of splenic tumors are benign and splenectomy is curative in this situation, surgery should be considered.