Icterus (Jaundice) in Dogs

Icterus is also known as jaundice or yellow jaundice. It means that a yellow pigment is found in the blood and in the tissues. It is most easily seen in the gums, the sclerae (white part of the eyes), and the pinnae (ear flaps). However, if these tissues normally have a dark color, icterus will probably not be seen.

Causes/Transmission

The causes of icterus fall into three major categories:

Destruction of red blood cells. This can occur within blood vessels (intravascular) or in the spleen and liver (extravascular). The process of red cell destruction is known as hemolysis.

Liver disease. Any disease that causes destruction of liver cells or causes bile to become trapped in the liver can cause icterus.

Obstruction of the bile duct. The bile duct carries an important fluid for digestion (bile) from the gall bladder to the small intestine. Obstruction can occur within the gall bladder or anywhere along the bile duct.

Clinical Signs

Regardless of the underlying cause, dogs with icterus are often weak and depressed. If the dog is very anemic, these signs may be even more pronounced. In addition to the yellow color of the skin, the urine often is dark yellow. In a rare instance, the bile duct is completely obstructed and the dog's feces will appear pale gray or whitish in color.

Diagnosis

Within each category listed above are several possible causes. Determining the cause of icterus requires a series of tests. Some of these tests determine which category is involved. Once that is known, other tests are done to look for a specific disease that is leading to the icteric state.

1. Hemolysis Hemolysis can be caused by toxic plants, chemicals, or drugs, parasites on the red blood cells, heartworms, autoimmune diseases, and cancer. Several tests are needed to determine which of these is the cause.

Since hemolysis results in red blood cell destruction, determination of red blood cell numbers is one of the first tests performed on the icteric patient. There are three tests that may be used for this. The **red blood cell count** is an actual machine count of red blood cells. The **packed cell volume (PCV)** is a centrifuge-performed test that separates the red blood cells from the serum or plasma (the liquid parts of the blood). The **hematocrit** is another way to determine if there is a reduced number of red blood cells. All three of these tests are part of a complete blood count (CBC).

2. **Liver Disease** The most common causes of liver disease include bacterial infections, viral infections, toxic plants, chemicals, or drugs, cancer, autoimmune diseases, and certain breed-specific liver diseases.

A chemistry profile is performed on dogs with icterus. This is a group of tests that are performed on a blood sample. The chemistry profile contains several tests that are specific for liver disease. The main ones are the ALT, alkaline phosphatase (ALKP), GGT and total bilirubin. If these tests are normal, and there is reason to suspect liver disease, a bile acid analysis can be performed.

Although these all look at the liver from a slightly different perspective, ultimately they only determine that liver disease is occurring. None of them are able to determine the exact cause of the disease. To make that determination, a biopsy of the liver is necessary. The dog is placed under general anesthesia, and the abdomen is opened surgically. This permits direct visualization of the liver so the exact site for biopsy can be chosen. A piece of the liver is surgically removed.

3. Obstruction of the bile duct. Obstruction of the bile duct may occur as a consequence of pancreatitis (inflammation of the pancreas), cancer, trauma to the abdomen, thickened bile that is sludged in the bile duct, or a stricture of the bile duct. Surgical exploratory and examination of the gall bladder and bile duct are often necessary to treat obstruction of the bile duct. If the obstruction is mild and caught early, there are some medications that may help to thin the bile and help it to pass.

Important tests for diagnosis of these disorders include a CBC, chemistry profile, abdominal x-rays, abdominal ultrasound, and specific tests for pancreatitis.

Treatment

General supportive care for liver disease often includes intravenous fluid therapy and antibiotics. Additional treatment is dictated by the underlying cause of the icterus.

Prognosis

Prognosis is dependent upon identification and successful treatment of the underlying cause.