

# TOP 5 LIVER CONDITIONS IN CATS



Liver disease in cats is distinctly different from liver disease in dogs (and both differ quite a bit from humans). The way the liver functions in the cat is different as well. The liver is responsible for processing drugs, toxins and metabolic products produced in the body (such as ammonia). However, cats lack one of the major enzyme systems that helps to detoxify the body in other species. This makes them susceptible to damage from drugs and toxins that would not bother a dog or a human. It also makes their livers more prone to oxidative stress – damage to cells and tissues in the body.

In addition, felines have a unique tendency to liver failure simply due to anorexia. A cat who does not eat for several days in a row, especially an overweight cat, can add liver failure to whatever disease affected its appetite in the first place.

Below are descriptions of the five most common liver disease syndromes seen in cats:

**1) Acute Neutrophilic Cholangitis (ANC)**, which was previously known as suppurative cholangiohepatitis. *Acute* means the disease came on quickly, though many of these cats go on to become chronically ill. The long term form of this disease is called Chronic Neutrophilic Cholangitis, or CNC, which is the next disease on our list.

*Neutrophils* are a type of white blood cell which can be found in large numbers in the livers of cats with ANC. Neutrophils primarily target bacterial infections. Culturing the liver tissue of cats with ANC often reveals bacterial infection. The bacteria usually have come from the intestines and worked their way up the bile duct to infect the liver. *Escherichia coli* (E. coli), *Enterococcus* and *Bacteroides* are several types of intestinal bacteria frequently found in feline hepatitis and cholangiohepatitis.

*Cholangitis* refers to inflammation (“itis” means inflammation) of the bile ducts or gall bladder. Dogs often have liver disease that effects the liver tissue but not the bile ducts or gallbladder. This is called *hepatitis*. In cats, both types of tissue are usually affected. *Cholangiohepatitis* means inflammation of both bile ducts and the liver itself.

Cats with ANC are typically young to middle aged. They present to us with sudden signs of vomiting, lethargy, poor appetite and/or diarrhea. Affected cats may be dehydrated, feverish, jaundiced or have abdominal pain. Blood testing will show elevated liver enzymes and often liver function tests show damage that means the liver cannot perform its many tasks adequately.

Ultrasound examination of the abdomen, here at Best Friends or by an internal medicine specialist, is often recommended. Ultrasound gives us a 3-D image that lets us obtain more information about what’s happening inside the liver and the gall bladder. Many times the ultrasound can be used to guide a needle into the liver to obtain small bits of tissue for culture for bacterial infection and to examine under the microscope by a

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pathologist. If needed, larger liver samples can be obtained via laparoscopy, where small incisions are made to introduce a small scope and biopsy instruments. The third way to obtain liver biopsies is with a standard abdominal incision.

Liver biopsy can lead to bleeding from the biopsy site. One of the liver's functions is to turn Vitamin K into clotting factors that enable the blood to clot properly. Since the liver disease itself can cause the liver to be unable to make enough clotting factors, the risk of bleeding is higher than for most other procedures. A blood clotting test can be done just before surgery begins. Vitamin K therapy may be started ahead of the biopsy to reduce the risk for bleeding.

The primary treatments for ANC are antibiotics and good supportive care. This means giving fluids for dehydration, sometimes on an outpatient basis and sometimes in-hospital depending on how ill the cat is. Pain, anti-nausea and liver support medications are used also important.

**2) Chronic Neutrophilic Cholangitis (CNC)**, which may also be called nonsuppurative cholangitis or lymphoplasmacytic cholangitis, is usually more of a low-grade, smoldering disease versus an acute one. Affected cats are usually older and have weight loss with intermittent episodes of poor appetite. Over time, the chronic inflammation in the liver will cause fibrosis or scarring, what is known as cirrhosis. Scarred liver tissue is no longer functional, so these cats slowly lose function in the liver.

CNC can be a subtle, insidious disease. If wellness blood testing is done on an affected cat we can often catch it early and prevent a lot of damage from being done. If caught late, these cats can come in severely ill and jaundiced with a similar presentation as ANC cats. Ultrasound, biopsy and culture can differentiate the two diseases.

With CNC there may be more severe bile duct and gall bladder changes seen on biopsy, as well as evidence of fibrosis. Under the microscope we see neutrophils but also lymphocytes and plasmacytes. These are immune system cells that are involved in other inflammatory diseases such as pancreatitis and inflammatory bowel disease. Many times the cat's immune system is part of the disease problem and is attacking healthy liver cells in an overreaction to the original inflammation that started the disease. Bacterial infection may or may not be a part of the picture.

Treatment is much the same as for ANC with the addition of prednisolone to tamp down the immune system and reduce inflammation, and antioxidants such as Vitamin E and sAME, to reduce scarring and fibrosis. Long term treatment and monitoring will be needed for these cats.

**3) Lymphocytic cholangitis (LC)**, also called nonsuppurative cholangiohepatitis, has signs and blood test results similar to ANC and CNC but it is more slowly progressive. The liver is more likely to be enlarged, there may be fluid accumulating inside the abdomen (which is called ascites), and we may see elevations of globulin and lymphocytes on blood testing. Persian cats have a higher tendency toward LC than other breeds.

LC can resemble other diseases that involve the liver, including Feline Infectious Peritonitis, lymphoma and bile duct obstruction. Getting a liver biopsy is important to properly diagnose this disease.

Treatment involves some of the same medications as for ANC and CNC but Vitamin B12 supplementation, diuretics for ascites and treatment for lymphoma may be needed as well.

**4) Triaditis** means inflammation of three organs, in this case the liver, the intestines and the pancreas. Diagnosis and treatment will involve all of these organs and is more difficult and complicated than treating hepatitis or cholangitis alone. The prognosis is

also worse. For more detailed information on triaditis see our separate handout on this disease. The liver part of the diagnosis is treated much the same as the three previous diseases.

5) The fifth common liver problem we see is **Hepatic Lipidosis**, or fatty liver. This form of liver disease occurs when a cat stops eating. In an effort to feed itself, the cat's body mobilizes its fat stores. Fat (also called lipid, hence the name hepatic lipidosis) floods into the bloodstream. The liver is the organ that processes fat and turns it into sugar for use by the rest of the body for its energy needs. Too much lipid clogs the liver and its cells, interfering with the rest of the functions the liver cells need to perform. In short, Hepatic Lipidosis is sudden, and often severe, liver failure caused by the rapid accumulation of fat inside liver cells.

Hepatic lipidosis does not involve white blood cells or inflammation. In other words, it does not cause hepatitis, nor will we see elevated liver enzyme levels on blood tests. The liver is not inflamed, it's just overwhelmed. This disease is more easily diagnosed on blood testing than other liver diseases. We would see normal enzyme levels but very abnormal liver function tests and often a high triglyceride level (triglyceride is a type of fat). It is less likely that we will need ultrasound or biopsy of the liver itself, but we will need to diagnose and treat whatever disease or problem caused anorexia in the first place. It's not uncommon for a healthy but overweight cat to get lost or trapped somewhere where it has no food and to end up with this disease. If we don't have an obvious cause we will need to figure out what got it started.

Liver support medications and aggressive nutritional support are used to treat hepatic lipidosis. This often involves placing a feeding tube for long term supplemental feeding. Cats tolerate these tubes very well. It can take months for hepatic lipidosis to resolve, even though it can start very suddenly. There is no short cut for the liver cells to get rid of all the fat inside them, it just has to be slowly processed until it's all gone.

Cats should never be allowed to go more than two days without eating, especially overweight cats with lots of fat to mobilize. Anorexia is a much more serious concern in a cat than a dog.

#### **IN SUMMARY:**

Our standard protocol for cats with liver disease, other than hepatic lipidosis, is to start with treatment for a bacterial infection in the liver. We recheck the blood tests in 3-4 weeks. If the blood values do not improve, or if they worsen, a surgical or an ultrasound-guided liver biopsy becomes extremely important. We can do both bacterial culture and histopathology of the liver tissue, which will allow us to check for resistant infection and tailor a specific treatment plan for your pet.

If your cat is very ill, or if you want a precise diagnosis quickly, we can proceed to an ultrasound and/or biopsy immediately. For suspected triaditis, where we need biopsies of the intestines, stomach and pancreas as well as the liver, we would do exploratory surgery to obtain tissue from all those different locations.

In many cases, after a few weeks of medication and some loving care, your cat will be well again.

For additional information on how long term liver disease can play out, visit our website, [www.bestfriendsvet.com](http://www.bestfriendsvet.com), and click the Fun Stuff tab. Choose Ask Holly from the drop-down menu. Our clinic cat Holly had chronic hepatitis and kept a blog with updates as her treatment progressed.