We will begin this discussion assuming the cat in question has already been diagnosed with liver failure, based on routine blood work, manifestation of jaundice (also called "icterus"), and general symptoms of malaise, appetite loss and/or intestinal distress. Since treatment and prognosis of liver failure vary highly with the actual nature of the liver disease in question, further tests are typically needed.

When the cat’s liver fails there are several conditions that we look to as the most common causes:

- Hepatic Lipidosis ("fatty liver")
- Lymphoma (a type of cancer)
- Cholangiohepatitis/cholangitis
- Feline Infectious Peritonitis
- Necrosis (usually from drugs or toxins)
- Misc. Cancers

Ultrasound or similar imaging helps sort out which is which but to really get the answer, a tissue sample of some kind is needed. An aspirate or needle biopsy involves withdrawing a small sample through a needle. This method can detect lymphoma and lipidosis readily but cholangiohepatitis will require an actual biopsy which is more invasive and requires a larger tissue sample. Let us assume for the rest of the article that we have confirmed or have strong suspicions that the cat has cholangiohepatitis.

**WHAT IS “CHOLANGIOHEPATITIS?”**

The word cholangiohepatitis breaks down into “chol” (bile), “angio” (vessel), hepat (liver) and “itis” (inflammation). Putting this all together means inflammation of the liver and bile ducts. Recently, it has been determined that the term "cholangiohepatitis" should probably be replaced by the term "cholangitis" because, in cats, inflammation into the liver itself separate from the bile system is not consistently found. Still, the term "cholangiohepatitis" has been used for years and will probably continue to be used. Your veterinarian may use either or both terms interchangeably.
You have probably heard of bile ducts but may not really be sure what bile is all about. Bile is a greenish material the liver makes, transports to the gall bladder via small bile ducts. The gall bladder is a small greenish sac about the size of a superball where bile is stored. When the appropriate hormonal signals are present, the gall bladder contracts and squirts bile into the small intestine via one very large duct called the “common bile duct.”

Bile has several functions. It emulsifies the fat in our diets so that we can absorb it into our bodies. It also serves as a medium to dump toxins that the liver has removed from our bodies and processed so they cannot be reabsorbed.

This is a fine system but problems can occur when the bacteria that live in the small intestine venture up the bile duct and invade the liver, which is normally sterile (free of bacteria). Inflammation results and the liver can fail.

WHAT IS THE CONNECTION WITH INFLAMMATORY BOWEL DISEASE AND Pancreatitis?

In one study, 80% of cats with cholangiohepatitis also had inflammatory bowel disease and 50% also had pancreatitis. Feline anatomy is a little different from that in other species. In the cat, the pancreatic duct, which delivers digestive enzymes to the intestine, opens into the same “pore” as the common bile duct. Both ducts share a “doorway” to the intestine. This means that if bacteria invade the doorway, both the liver and pancreas are at risk for infection.

Inflammatory Bowel Disease involves infiltration of the intestinal lining with cells of inflammation. Absorption of nutrients becomes altered which in turn alters the populations of
bacterial living in the intestine. An overgrowth of bacteria can occur or more aggressive species of bacteria can take over the area. It is easy to see how the bile duct can become invaded.

This combination of cholangitis (particularly the acute neutrophilic form), inflammatory bowel disease, and pancreatitis is often referred to as "triaditis." Often the patient does not recover until all three conditions are addressed.

Recently the World Small Animal Veterinary Association (WSAVA) has organized a classification system for liver disease and has defined several categories of cholangitis:

- Neutrophilic (sometimes called "Suppurative") Cholangitis (either acute or chronic)
- Lymphocytic Cholangitis
- Liver Fluke Cholangitis (a fairly rare parasitic disease which we will not include in this discussion)

The liver biopsy can generally distinguish all of these conditions.

**ACUTE NEUTROPHILIC CHOLANGITIS/TRIADITIS**

The average cat with this condition is a young adult male with fairly sudden onset of vomiting, diarrhea, appetite loss, and listlessness. Often there is a fever and abdominal pain. Blood tests are typical of inflammation and liver disease with elevations in liver enzymes, white blood cell count, and bilirubin. Ultrasound often shows distended bile ducts.

**Treatment**

The cat in liver failure will require hospitalization, fluid therapy, and some kind of nutritional support (force-feeding, tube feeding, syringe feeding of a liquid diet or whatever is necessary) regardless of the cause of the liver disease.

**Antibiotics**

Antibiotics are helpful in any liver failure case as they help reduce the intestinal bacterial populations (any noxious substances they produce are normally detoxified by the healthy liver but a sick liver will not be so efficient). Antibiotics also clear the liver of invading bacteria, which is what cholangiohepatitis is all about. Expect the cat to require 1-3 months of antibiotics after recovery.

**Choleretics**

A choleretic is a medication that makes bile more liquid so that it can flow smoothly without sludging. Flow of bile in the proper direction helps remove not only the toxins the liver is trying to remove in bile but also helps prevent bacteria from “swimming upstream” towards the liver tissue. The chief choleretic prescribed for animals is
Ursodiol. A cat may well be on this medication for life after an episode of cholangiohepatitis.

**SAMe**
This nutritional medicine has gained tremendous popularity in therapy for all liver diseases and should probably not be left out here. SAMe stands for S-adenosylmethionine. It has several desirable functions but mostly it is an antioxidant, protecting the sick liver cells from the toxins they have absorbed and normally would be excreting in bile.

**Silymarin**
This is the active ingredient in the herbal medication commonly known as “milk thistle.” It has been shown to be protective to the liver in Amanita mushroom poisoning and many have extrapolated that it should be protective to the liver in other toxic scenarios. It be prescribed for cats with cholangiohepatitis.

Most cats begin to show great improvement within one week of beginning proper therapy.

**CHRONIC NEUTROPHILIC CHOLANGITIS**
In time, the acute disease described above will progress into a chronic disease which is also called "lymphocytic-plasmacytic" cholangitis. Scarring begins to complicate the disease. Affected cats tend to be older than those with acute disease and tend to show a more waxing/waning disease course over time. Treatment is similar to what is described above except that immune suppression/anti-inflammatory medication is needed to control the inflammation and minimize the scarring. Often medication is needed indefinitely or very long term.

**Immune Suppression**
This may seem intuitively inappropriate for a condition that involves a bacterial infection, but some patients simply cannot get better until their immune system is suppressed. Why is this? For many cats, the problem started with Inflammatory Bowel Disease: infiltration of the intestinal lining with inflammatory cells. Immune suppression is the cornerstone of therapy for this condition. Once the immune reaction is suppressed, the lining of the GI tract regains normal thickness and function, the bacterial bloom subsides, the invasion of the liver and pancreas ceases. In some cases, immune suppression is simply needed to relieve the inflammation inherent to cholangiohepatitis. Typical medications include prednisone (or prednisolone depending on how severe the liver failure is). More aggressively, chlorambucil, a chemotherapy drug, or cyclosporine, an immune modulator, can be used.

**LYMPHOCYTIC CHOLANGITIS**
This version of cholangitis is the most chronic, often having been present for years, and involves the heaviest scarring. Persian cats seem predisposed and gamma globulins are almost always highly elevated on the initial blood tests. There is usually no fever and the age group is generally
atypical of feline infectious peritonitis, the other condition that commonly causes liver failure and elevated gamma globulins.

Treatment is largely the same for chronic neutrophilic cholangitis.

Overall, cholangiohepatitis is one of the more treatable liver conditions of the cat. This does not mean that every cat will recover; some cats are quite advanced by the time they are first seen by the veterinarian. Pancreatitis can represent a lethal complication, depending on severity and lipidosis can occur secondary to cholangitis, creating a more complicated disease picture. The cat that survives the acute episode can expect weeks to months of medication administration and the possibility of relapse or flare-up. The owner should become familiar with Inflammatory Bowel Disease and Pancreatitis as well.