



Hepatic Lipidosis in Cats (Fatty Liver)

Please note that this is an **emergency situation as this is a potentially rapidly fatal disease.
Please seek prompt medical treatment.**

Hepatic lipidosis is one of the most common liver diseases in cats that results in the excess accumulation of fat in the liver ultimately impairing the organ's ability to function. Cats in the early stages that are treated promptly have a recovery rate of 60-80%; if left untreated it can be fatal.

Clinical Signs

- Typical cat affected: middle-aged, overweight cat with a poor appetite that has recently lost a significant amount of body weight (>25%) in a short period of time – but this disease can present in a cat of any age and of any body condition
- Poor appetite to anorexia, dramatic weight loss, vomiting, diarrhea or constipation, weak, jaundice (yellow color in the whites of the eyes, skin, and gums), excessive drooling, neck ventroflexion (looking down), dehydrated

Pathophysiology

- Hepatic lipidosis is a multifactorial disease, where over 90% of cats have an underlying condition and hepatic lipidosis happens as a consequence to the primary disease process. The primary disease can be things such as another type of liver problem, cancer, inflammatory bowel disease, diabetes, hyperthyroidism, pancreatitis, obesity, or kidney disease. A period of little to no eating almost always precedes the occurrence of hepatic lipidosis.
- In a normal, healthy cat once food is consumed, fat is processed by the liver and packaged up to be sent throughout the body for energy usage or storage. However, in a cat that is not eating, in order to compensate for the lack of food (energy) intake, the body mobilizes large amounts of fat from the stores throughout the body to be sent to the liver to be processed. The excessive mobilization of fat overwhelms the liver and ends up accumulating in and around the liver cells, reducing the organ's ability to function properly. Cats with severe hepatic lipidosis, or those that are not treated promptly can go into liver failure and ultimately die as a result.

Diagnosis

- Physical examination
Upon exam your veterinarian may be able to identify that your cat is in liver failure, potentially feel an enlarged liver, and might be able to identify other markers for potential comorbidities that are resulting in hepatic lipidosis
- Blood tests
Elevation in liver enzymes, but most notably alkaline phosphatase (ALP)



ALP is found in the liver cells that line the bile tract and has a very short half-life in a cat (6-8 hours). When ALP is elevated in a cat it is a specific indicator of liver disease and most importantly hepatic lipidosis. Elevation in bilirubin

Bilirubin is orange-yellow in color and is found within blood cells. When old blood cells are taken out of circulation by the liver and spleen, bilirubin is released into the blood stream and travels to the liver where it's stored in the gallbladder. When there is too much bilirubin in circulation, it can deposit throughout the body – most noticeable in the whites of the eyes, skin, and gums.

Increased bile acids.

When animals eat, bile is secreted from the gallbladder to help break down foods, especially fat. Bile acids are then absorbed by the intestines, enter the blood circulation, delivered to the liver to be processed, and returned to the gallbladder for future use. This is called enterohepatic circulation and is a form of the body recycling and reusing an important factor in digestion. When a liver loses its ability to function properly, bile acids remain in the blood circulation for a longer than normal period of time after eating.

- **Ultrasound imaging**
Abdominal ultrasound can reveal an enlarged liver that is abnormal in appearance. A normal liver will appear more hypoechoic (not as bright on an US image) compared to the spleen and falciform fat. A liver that is storing excess fat will appear more hyperechoic (brighter) than normal.
- **Analysis of liver tissue samples (fine needle aspirate or biopsy)** Large amounts of fat will be visible within and among the liver cells

Treatment

- **Aggressive nutritional support – initiating food intake**
On average, it takes 6 to 8 weeks of constant, aggressive nutritional support required for the liver to potentially resume normal function. Palatable food will usually be offered initially to see if the cat will eat on its own. If the cat rejects the food or starts to salivate, the food is removed and either force feeding the cat will occur or a feeding tube will be surgically placed (see information at the end of the document regarding different feeding tubes). A feeding tube allows both the veterinary staff and you, while at home, the easiest method to syringe-feed a special diet directly into the cat's GI tract until a normal appetite returns. Your veterinarian will provide you with the exact amount of caloric requirements your cat will need to be tube fed.
- **Expect your cat to be hospitalized for the first few days after the feeding tube placement to allow for strict caloric intake to prevent refeeding injury.** Refeeding injury is when the pancreas in response to the increase in food intake, releases insulin which can result in electrolyte shifts of potassium and phosphate into cells. This shift can result in cardiac depression, and severe anemia. Constant monitoring is required to observe for and treat this condition if it occurs.
- **Correcting fluid, electrolyte, and metabolic deficiencies**
Many cats will be hospitalized for IV fluids during the first several days of treatment



- General liver support medication, supplements, and antibiotics Ursodiol, SAM-e, L-Carnitine, Taurine, Vitamin B12
- Vitamin K – if your cat has prolonged clotting times. The liver plays an important role in recycling vitamin K dependent clotting factors. In cats with reduced liver function might experience prolonged clotting times.

Follow-Up Care

- Feeding tube bandage change every few days and constant monitoring for infection around the tube placement site
- Monitoring of weight
Please schedule an appointment if your cat is still losing weight despite tube feeding the veterinarian recommended amount.
- Offering food and monitoring intake
Begin offering food to your cat weekly to see if it regains interest in eating on its own. If it starts to show interest and eats some, please gradually decrease how much you're feeding via the feeding tube accordingly.
- Removal of the feeding tube
Please do not attempt to remove on your own
Once your cat has been eating consistently for a few without any supplemental tube feedings and has had no weight loss, please schedule an appointment for tube removal.

Prevention/Avoidance

- Address the underlying cause of the hepatic lipidosis
As previously mentioned, hepatic lipidosis is a multifactorial disease, where over 90% of cats have an underlying condition and hepatic lipidosis happens as a consequence to the primary disease process. The primary disease can be things such as another type of liver problem, cancer, inflammatory bowel disease, diabetes, hyperthyroidism, pancreatitis, obesity, or kidney disease. Additional diagnostics are almost always needed to discover and treat the underlying cause. Recurrence of primary hepatic lipidosis is rare in recovered cats.
- Keep your cat in a good body condition and that they're eating an appropriate amount **If you notice your cat has not eaten for more than 2-3 days, seek veterinary attention immediately.**

Different Feeding Tubes ●

Nasogastric

During this procedure your cat will be sedated and a tube will be passed through the nose and into the stomach. The tube will then be sewn into place around the nose and cheek to prevent it from moving. An e-collar will then be fitted around your cat's head to prevent them from pawing at the tube. Since this tube can be easily dislodged by a cat's paw and if the cat attempts to vomit, this is most often not the feeding tube of choice for long-term feeding tubes.

- Esophagostomy



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During this procedure your cat will be anesthetized and a tube will be placed through a small incision in the side of the cat's neck and passed into the esophagus and the stomach and sewn into place. A bandage or padded collar will be placed around the tube and generally an e-collar is not necessary. This tube must remain for a minimum of 2 weeks, but can stay in for up to a few months if needed and will not interfere with normal eating of the cat regains interest in eating.

- Percutaneous gastrostomy

During this procedure your cat will be placed under general anesthesia and a tube will be endoscopically placed from an incision in the outside of the abdomen into the stomach. A bandage around the belly or stocking shirt will be placed on your cat to prevent them from dislodging the tube and keeping the site clean. This is the most comfortable feeding tube that can be placed in a cat and can stay in place for a minimum of 2 week to up to 1 year.