

Pancreatitis

Pancreatitis in cats has two forms, acute and chronic, which are usually diagnosed by symptoms and by ruling out other diseases. There are diagnostic tests for pancreatitis, but they are not always accurate, they can be costly, and can be quite invasive for a definitive diagnosis. Pancreatitis can also predispose your cat to other disease processes.

Pathophysiology:

- The pancreas is an organ that makes two primary products – digestive enzymes and insulin. Normally the digestive enzymes are released in an inactive form and are not activated until they reach the intestinal tract. This is to prevent the enzymes that are designed to break down food from coming into contact with the delicate pancreatic tissue.
- In pancreatitis, for reasons yet unknown to us, these digestive enzymes will become activated while they are still in the pancreas. This results in significant inflammation and irritation to the pancreatic tissue, which can also cascade to other surrounding tissues such as the liver and intestinal tract. This can lead to secondary bacterial infections in the pancreas.
- If the activation of the digestive enzymes is significant enough, then your cat can develop acute pancreatitis which can range from mild to severe and life threatening. If the activation of the digestive enzymes remains mild and continues long term, then your cat may develop chronic pancreatitis, which can result in the development of scar tissue in the pancreas, and eventually pancreatic insufficiency and predisposition to diabetes. It has been estimated that 30% or more of cats have chronic pancreatitis, but many may never show symptoms.

Acute pancreatitis:

- **Symptoms:** Every cat will have different symptoms, some may have several, and some may have only one.
 - **Intense vomiting.** Your cat may vomit multiple times over a period of hours or days, and may not be able to keep food down. This needs to be addressed quickly to prevent dehydration.
 - **Pain.** Your cat may be sitting in a hunched position with their head tucked, or not want to be picked up or touched. Acute pancreatitis is very painful in all mammals.
 - **Anorexia.** Your cat may be feeling intensely nauseous and painful, so it is unlikely that they will want to eat.
 - **Lethargy.** Your cat may be extremely tired and lethargic.
 - **Diarrhea.** If your cat's pancreas is so inflamed that it is not secreting digestive enzymes into the small intestine, then any food that your cat does eat may come out as diarrhea with a very foul odor.
- **Diagnosis.** With acute pancreatitis, we may need to begin treatment immediately. How we treat at this point will be based on the severity of the symptoms and blood work.
 - **Basic blood work.** There are several things that we will look for on a basic CBC and serum chemistry that we may see with acute pancreatitis.
 - **White blood cell count.** If elevated, this can indicate significant inflammation or infection.
 - **ALT.** This is an enzyme that we associate with inflammation in the pancreas, liver, and/or intestinal tract. This is commonly elevated with pancreatitis, but only in later stages.
 - **Bilirubin.** A slightly elevated level can indicate that bile is starting to back up into the liver, which can happen with pancreatitis since the liver and pancreas share the duct into the intestinal tract.

- **Alk Phos.** This can indicate that we have liver involvement, which may be secondary to acute pancreatitis. This can also happen if your cat has not eaten for a prolonged period of time.
 - **Amylase.** This is a more specific enzyme for pancreatitis in dogs than in cats, and while normal healthy cats can have elevated amylase, we may see fairly high elevations in cats with active pancreatitis.
 - **Glucose.** Since the pancreas also makes insulin, if it is actively inflamed, we may see an elevated glucose level from a decrease in insulin production. Pain can also cause an elevated glucose in cats.
 - **Electrolytes.** In more severe cases of acute pancreatitis, we may see significant electrolyte abnormalities. This can help distinguish mild cases from more severe cases.
- **fPLI.** This stands for feline pancreatic lipase immunoreactivity. This is an enzyme that can be elevated in pancreatitis in cats. However, while a positive test can confirm a diagnosis of pancreatitis, a negative test does NOT rule it out. It is possible to have a false positive with this test. The accuracy of this test has been estimated to be between 50-80%. So, while we may use this test to try and confirm a diagnosis of pancreatitis, we will not use it to make an initial diagnosis.
- **Ultrasound.** For an experienced ultrasonographer, this can be a good way to diagnose pancreatitis, by finding an enlarged, thickened pancreas on ultrasound. However, this requires a more advanced skill level of ultrasonography than most general practitioners have.
- **Biopsy.** This is considered the gold standard for a 99.9% accurate diagnosis. However, this requires exploratory abdominal surgery which is invasive to your already sick cat, and it can take 2-3 days to get the histopathology results, so we do not do this routinely.
- **Treatment.** The goal of treatment for acute pancreatitis is to reduce your cat's pain and nausea, stabilize any electrolyte abnormalities, treat any secondary infections, and reduce the inflammation until your cat is able to heal.
 - **Pain management.** This is one of the most important aspects of treating acute pancreatitis.
 - **Buprenex.** This is a narcotic that has shown to have excellent pain control in cats. This is our most common first line pain management for acute pancreatitis.
 - **Metacam.** This is a pain medication similar to ibuprofen. We will only use this medication if your cat's hydration status is under control. This also has some anti-inflammatory effects.
 - **Nausea.** We have several anti-nausea medications that we will use in cats with acute pancreatitis.
 - **Cerenia (maropitant).** This is a newer drug, but has quickly become our first line of defense for nausea in cats. This drug not only reduces nausea and vomiting, but it also has anti-inflammatory and anti-pain properties.
 - **Pepcid (famotidine).** This drug reduces gastric acid secretion in the stomach, which can help an already nauseated cat.
 - **Reglan (metoclopramide).** This is an older drug that has been mostly replaced by Cerenia, but in cases where Cerenia cannot be used, this drug blocks the nausea signals from getting to the brain, so your cat does not feel nauseous.
 - **Antibiotics.** We will commonly treat with antibiotics to treat any secondary infections. The antibiotics we will use include but are not limited to:
 - Amoxicillin
 - Baytril
 - Clavamox
 - Metronidazole
 - Clindamycin
 - Doxycycline

- **IV fluids.** If your cat is having a hard time staying hydrated due to vomiting or not drinking, or if your cat has abnormal electrolytes, then we may want to start an IV.
- **Steroids.** These are used very rarely with acute pancreatitis due to a high risk of side effects, but may be used in select cases when other treatments are not effective. These are used primarily for their anti-inflammatory effects.
- **Syringe feeding.** It is very important that your cat eats. If they are too nauseous to eat, we may syringe feed them a very bland diet such as human chicken baby food, or a prescription diet such as I/D pureed through a blender.
- **Possible long term effects.** Acute pancreatitis can lead to destruction of a fair amount of pancreatic tissue. How much tissue is affected can determine what happens next. Some of the more common sequelae are:
 - **Scar tissue.** After the inflammation subsides, there is a chance of scar tissue developing in the healing process. As long as there is enough healthy tissue remaining, then your cat may never have any additional problems.
 - **Chronic pancreatitis.** This is what happens when your cat's pancreas continues to have low grade chronic inflammation. This can result in regular vomiting and anorexia episodes.
 - **Pancreatic insufficiency.** When too much of your cat's pancreas that makes digestive enzymes is destroyed, either by severe acute pancreatitis, or by chronic pancreatitis, eventually the pancreas will not be able to make enough enzymes to digest food. Your cat may then have large fluffy diarrhea and an increase in vomiting. This can be treated by giving your cat synthetic digestive enzymes.
 - **Type I diabetes.** When enough of your cat's pancreas that makes insulin is destroyed, it will not be able to make enough insulin to counteract the glucose in the body. Your cat may then develop diabetes and will need to be started on insulin injections.

Chronic pancreatitis:

- **Symptoms.** The symptoms of chronic pancreatitis are very similar to acute pancreatitis, but on a milder scale. A common pattern we will hear is that your cat will vomit several times a day for a few days, not want to eat, and may act uncomfortable and lethargic, and then a few days later, will be fine until the next episode. These symptoms can also be similar to inflammatory bowel disease, so we may ask you lots of questions about exactly what goes on with each episode, and frequency to try and distinguish between the two.
- **Diagnosis.** Diagnosis again is similar to acute pancreatitis, but it can be harder as the blood work will be more likely to look normal, fPLI will only be positive if there is significant inflammation, and ultrasound will be even harder to detect. There is a blood test available that will test for two pancreatic enzymes and two intestinal enzymes to try and differentiate between pancreatitis and inflammatory bowel disease, but if it is negative, it still doesn't rule either one out for sure.
- **Treatment.** Treatment most commonly is symptomatic, with pain medications, antibiotics, and anti-nausea medications. For cats who do have routine flare ups of chronic pancreatitis, we may want to treat long term with Cerenia as a preventative. We have a few other preventative treatment options as well if Cerenia is not an option.

While pancreatitis is one of the more painful nauseating diseases we can see in cats, there are things we can do to decrease its effects and help your cat to feel better.

If you have any questions or concerns on any of this, please contact us at All Feline Hospital at 402-467-2711 or info@allfelinehospital.com.