

## **Feline pancreatitis**

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#### **Affected Animals:**

Pancreatitis can occur in cats of all ages. It can affect cats of both sexes and all breeds, but one study found a relatively higher incidence of pancreatitis in Siamese cats.

#### **Overview:**

Pancreatitis, or inflammation of the pancreas, is difficult to diagnose. This is because cats with pancreatitis show signs that are not specific. Since there are no non-invasive tests that can confirm the presence of pancreatitis, the diagnosis is often tentative at best. The most common symptoms reported with pancreatitis are lethargy, loss of appetite, dehydration, vomiting, and abdominal pain. Screening blood tests may be normal, but will more often show non-specific changes including elevated white blood cell count, mild anemia, elevated kidney and liver values, abnormal glucose concentrations, and abnormal electrolyte concentrations. The serum concentrations of amylase and lipase, the most commonly measured pancreatic enzymes, are not reliable in the diagnosis of pancreatitis in cats. X-ray and ultrasound findings also are not specific. However, these studies may be helpful in raising the suspicion for a diagnosis of pancreatitis. They may also help eliminate other potential causes for similar symptoms in affected cats. Biopsy of the pancreas is required for a definitive diagnosis. However, because the risks associated with biopsy often outweigh the benefits, it is seldom performed.

Treatment for pancreatitis is usually supportive and symptomatic in nature. Therapeutic goals include allowing time for the inflammation in the pancreas to resolve, preventing complications, and addressing those complications when they occur. Surgery may be indicated if abscess formation or bile duct obstruction occurs.

The outlook for pancreatitis depends on the severity of the disease. Most cats survive with supportive treatment. Severely affected animals may require intensive care for several days or weeks. Nutritional support is critical for all feline patients with pancreatitis since fatty liver syndrome frequently occurs. The most severely affected cats may die despite all attempts at treatment. Since it may take time for a clearer picture to emerge with an individual cat, it may be best to start treatment when pancreatitis is suspected, and to see how the condition progresses.

#### **Clinical Signs:**

The most common signs of pancreatitis in cats are non-specific, and can include lethargy, anorexia, dehydration, hypothermia, vomiting, abdominal pain, diarrhea, and weakness. In severely affected cats shock, respiratory distress, and ascites may occur.

#### **Symptoms:**

Cats with pancreatitis can show any of a number of symptoms, but none of them are specific to the condition. Commonly seen symptoms include decreased activity, depression, reduced appetite, vomiting and diarrhea. Many cats with pancreatitis will act as if they have abdominal pain. Cats with pancreatitis are more likely to have an abnormally low body temperature than fever. Cats with severe pancreatitis can develop

respiratory difficulty, abdominal fluid accumulation and, in some cases, shock-like states.

### **Description:**

The pancreas is a small organ that sits in the abdominal cavity adjacent to the stomach and the small intestine. It has two main functions. As an endocrine gland, the pancreas produces insulin, a vital hormone. The pancreas is also an exocrine gland that produces digestive enzymes. Normally these digestive enzymes are not activated until they reach the small intestine via the pancreatic duct. The specific cause of pancreatitis in most cats is never determined. However, all cases of clinically significant pancreatitis involve inappropriate activation of digestive enzymes within the pancreas. This results in their release into pancreatic tissue and triggers a profound inflammatory response that is responsible for the signs and complications that occur with pancreatitis. Pancreatitis in cats may be classified as acute, chronic-active, or chronic in nature.

The most common symptoms of cats with pancreatitis are not specific. Most cats will show variable combinations of lethargy, decreased appetite, vomiting, abdominal pain, and dehydration. Jaundice may be seen if secondary changes in the liver are severe, or if bile duct obstruction secondary to inflammation in the pancreas occurs. Pancreatitis may be so severe that cats develop shock or die suddenly because of the disease. Diagnostic tests are helpful in assessing overall health status, and for identifying additional complicating factors. However, there are no non-invasive tests that are specific for the diagnosis of pancreatitis in cats. Bloodwork, x-rays, and abdominal ultrasound are the most commonly used non-invasive tests to evaluate cases of suspected feline pancreatitis. Tissue biopsy is required for confirmation of the diagnosis, but this is seldom done unless other factors are present that require surgical attention. Because the diagnosis is seldom definitive, the treatment for pancreatitis in cats is usually supportive and symptomatic in nature. Intravenous fluids, often with dextrose and potassium supplementation, antibiotics, pain medications, anti-vomiting drugs, and antacids are commonly used. Plasma transfusion may be given as well, but its effect on outcome is unknown. If cats are not eating, and vomiting is limited or absent, then nutritional support may be provided with feeding tubes. Surgery may be indicated to address abscess formation or bile duct obstruction if they occur.

The outlook for cats with pancreatitis depends on the severity of the affected animal's disease. Cats with mild clinical signs recover well with supportive care. Severely affected cats may require prolonged and intensive hospitalization if they are to recover. Hepatic lipidosis, or fatty liver syndrome, is a common sequela to severe pancreatitis, so nutritional support is critical to a good outcome. Even with aggressive diagnostics and supportive care, some cats with pancreatitis are either too ill to survive, or they develop life-threatening complications from their illness. Feline patients with severe or chronic pancreatitis may develop diabetes mellitus as a complication because inflammation of the exocrine pancreas may damage the insulin secreting cells of the endocrine pancreas.

### **Diagnosis:**

Because the signs are not specific, pancreatitis is seldom diagnosed unless it is suspected to be present. Bloodwork test results may range from normal to profoundly abnormal. On the complete blood count, possible abnormalities include an elevated white blood cell count, low red blood cell count, and reduced platelet count.

Biochemistry profile abnormalities may include unusually high or unusually low blood glucose levels, elevated liver enzymes, elevated kidney values, and abnormal sodium, potassium, chloride, and calcium concentrations. The two most commonly measured pancreatic enzymes, amylase and lipase, which are helpful in diagnosing pancreatitis in the dog, have been shown to be of minimal value in diagnosing the disease in cats. Another blood test called trypsin-like immunoreactivity, or TLI, may be sensitive for diagnosing feline pancreatitis. However, studies have shown that it is not always reliable in predicting the severity of the disease. Furthermore, obtaining TLI results requires several days; therefore this test can seldom be useful in the initial evaluation of a cat with possible pancreatitis. Additionally, serum TLI can be abnormally elevated in conditions other than clinically significant pancreatitis.

Abdominal x-rays and ultrasound may help to rule out other causes for symptoms in cats with pancreatitis. However, results of these tests are seldom specific for the diagnosis. X-rays may show reduced structural detail in the abdomen or a mass effect in the area of the pancreas. Abdominal ultrasound studies may reveal unremarkable findings, non-specific changes in the area where the pancreas is normally seen, mass lesions in the area of the pancreas, or abdominal fluid accumulation. Yet none of the positive findings are specific to the diagnosis of pancreatitis in cats. If abdominal fluid is present, measurement of amylase and lipase concentrations in the fluid may help in the diagnosis.

Ultimately, tissue biopsy is the most definitive way to diagnose pancreatitis in cats. However, many cats are so ill that surgical biopsy is too high-risk for diagnostic purposes alone. If other tests suggest the presence of abnormalities that are best addressed surgically, the diagnosis can be confirmed during exploratory abdominal surgery. Surgery may also allow for feeding tube placement into the small intestine for nutritional support in cats with severe pancreatitis.

### **Prognosis:**

The outlook for cats with pancreatitis is unpredictable, especially since the diagnosis of the condition is often tentative at best. Relatively stable cats without serious underlying diseases may do well. Those that respond quickly to supportive care may never have another occurrence, but repeated bouts are possible. Cats with severe signs like shock, low body temperature, low blood glucose concentrations, or other serious complicating factors like kidney failure may not survive the initial attack of pancreatitis. Cats with enough damage from a single bout of pancreatitis, or with multiple recurrent bouts of pancreatitis, may eventually develop diabetes mellitus if the endocrine portion of the pancreas is affected by chronic inflammation.

### **Transmission or Cause:**

Infections with parasites, viruses, or toxoplasmosis have been suggested as possible causes in some cats. Bile reflux from the small intestine into the pancreatic tissue may also trigger pancreatitis in cats. A connection may also exist between kidney disease and the development of pancreatitis. Despite these possibilities, the cause of pancreatitis in most cats remains unknown.

### **Treatment:**

There is no established, uniform way to treat pancreatitis, even when tissue biopsy confirmation of the diagnosis is available. Treatment is generally supportive, with

attention focused on meeting fluid needs with intravenous support, preventing infection, providing nutritional support, and treating symptoms while waiting for the signs to resolve.

Intravenous fluids are used first to correct shock or dehydration, and then to meet the maintenance fluid needs of cats with pancreatitis. Fluids can be supplemented as needed with dextrose and potassium to correct abnormally low blood sugar readings, and abnormalities in potassium concentrations, respectively. Vitamin B-12 is often added to the fluids. Plasma transfusion may help to support good blood flow to the pancreas.

The use of antibiotics in cats with pancreatitis is controversial. Most veterinarians use antibiotics to treat complications from secondary infections. However, there is no data that either supports or detracts from their use in this disease. Similarly, corticosteroids may be given to animals in shock, but their value in more stable cats with pancreatitis is unknown.

Cats may not show obvious signs of abdominal pain. If abdominal pain appears to be present, analgesic medications are often given. Pain medications can have side effects that complicate the management of seriously ill cats, and should be used cautiously and with close supervision for unexpected changes.

If vomiting is a problem, cats with suspected pancreatitis may be treated with anti-vomiting medications administered by injections under the skin or in the intravenous fluids. Antacid medications are also frequently used in vomiting patients.

Nutritional support is another controversial point for cats with pancreatitis. If vomiting is present, it is generally agreed that cats should not be fed. In dogs with pancreatitis, all oral food and water is usually suspended for several days once the diagnosis is made. However, cats may do better with more aggressive nutritional support early on, as long as vomiting is not present. Since many cats with pancreatitis refuse to eat on their own, nutritional support may be provided through a feeding tube placed into the nose or directly into the stomach. Nutritional support may be provided intravenously to patients that are vomiting, but parenteral nutrition is cumbersome and of limited availability. Surgery is usually not a primary treatment for pancreatitis. However, abscess formation, bile duct obstruction, and other complications may require surgery. Surgery also enables biopsy confirmation of pancreatitis. In cats with persistent vomiting, feeding tubes may be placed into the small intestine at the time of surgery to allow for nutritional support.

### **Prevention:**

Since the cause of pancreatitis in cats is usually obscure, there is no known means of prevention of its occurrence.