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Acute Pancreatitis

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OVERVIEW

Acute pancreatitis results from sudden inflammation of the pancreas and is characterized by activation of pancreatic enzymes that can cause the pancreas to begin digesting itself. The pancreas lies in the upper abdomen alongside the first portion of the small intestine (called the duodenum) and between the stomach, liver and right kidney. It produces bicarbonate to neutralize stomach acid and several enzymes that facilitate digestion.

The cause of acute pancreatitis is poorly understood. Predisposing causes include obesity, high fat diet, liver disease, infection and recent abdominal surgery. For unknown reasons, miniature schnauzers tend to be predisposed to pancreatitis.

Acute pancreatitis can range in severity from mild to life-threatening. The body's reaction (systemic reaction) to the inflammation often determines the severity and prognosis. Recurrent bouts of acute pancreatitis can lead to chronic pancreatitis and may contribute to other disorders such as diabetes mellitus or exocrine pancreatic insufficiency.

WHAT TO WATCH FOR

- Loss of appetite
- Lethargy
- Vomiting
- Abdominal pain
- Diarrhea
- Fever
- Weakness

DIAGNOSIS

Diagnostic tests are needed to identify acute pancreatitis and exclude other diseases. These may include one or more of the following:

- A complete medical history and a complete physical examination including careful palpation of the abdomen to check for pain or abdominal masses.
- A complete blood count (CBC or hemogram) to evaluate the severity of the inflammatory process as well as to check for anemia and low platelet count.
- Serum biochemical tests to evaluate your dog's general health and to determine the effect of pancreatitis on other body systems.
- Serum enzyme tests including amylase and lipase are usually measured; however, these tests are not ideal and can be normal in dogs with pancreatitis. The serum trypsin-like immunoreactivity is a newer test that has been used to determine if pancreatic enzymes are being released into the bloodstream; however, the value of this test is still in question.
- Abdominal X-rays to evaluate for haziness in the region of the pancreas (right cranial quadrant)
- Abdominal ultrasound examination to evaluate for swelling of the pancreas, presence of pancreatic abscess or cyst or presence of peritonitis. During ultrasound examination, a specialized probe is applied to the abdomen and an image is generated on a monitor by the reflection of ultrasonic waves from the organs of the abdomen. This procedure is not painful and is well-tolerated without sedation.

TREATMENT

Severe pancreatitis can be life-threatening and requires intensive therapy. Treatment for acute pancreatitis may include the following:

- Food and water is withheld for 24 to 72 hours so as to rest the pancreas. This approach may be sufficient for dogs with mild pancreatitis.
- Fluids may be administered subcutaneously or intravenously to correct dehydration and to provide the dog's daily fluid requirements during the period that food and water are withheld.
- Food and water is gradually re-introduced if your dog responds favorably in the first few days. A bland diet (low in fat) is offered in small quantity if your pet has improved and has not vomited for at least 24 hours.
- Abdominal pain is treated by cage rest, withholding food and water and administration of pain medications as necessary.
- Antibiotics may be administered to prevent or treat secondary bacterial infections.
- Surgery may be necessary in severe cases and those complicated by pancreatic abscess, pancreatic cyst or peritonitis.

HOME CARE

At home, administer as directed any medications prescribed by your veterinarian and follow any special dietary recommendations.

Observe your dog's general activity level, appetite and attitude. Watch for loss of appetite, lethargy, or vomiting. Feed a low fat diet so as to maintain a normal body weight for your dog. Avoid exposure to table scraps, garbage, or other sources of high fat foods.

Schedule regular follow-up visits with your veterinarian to monitor your dog's progress and promptly identify any recurrence of pancreatitis.

PREVENTIVE CARE

Acute pancreatitis is difficult to prevent. Attempts to prevent pancreatitis may include:

- Weight loss in obese dogs followed by maintenance of a normal body weight.
- Feeding a low fat diet.
- Avoidance of table scraps.
- Attempts to lower blood fat (lipid) concentration in animals with abnormal blood lipid concentrations (e.g. some miniature schnauzers).

INFORMATION IN-DEPTH

Other medical problems can lead to symptoms similar to those encountered in acute pancreatitis. It is important to exclude these conditions before establishing a definitive diagnosis.

- Acute pyelonephritis is an infection of the kidneys
- Biliary tract obstruction caused by cancer or gall bladder stones (rare). Also, severe pancreatitis can cause compression of the bile duct and clinical symptoms of biliary obstruction (icterus or jaundice – a term that refers to yellow color of the mucous membranes such as the sclera of the eye and the gums).
- Intestinal perforation by a foreign body or tumor
- Diabetes mellitus with ketoacidosis (accumulation of acid ketone by-products in the blood resulting in metabolic acidosis) can cause symptoms similar to those observed in dogs with pancreatitis. Also, some dogs with diabetes mellitus may have complicating pancreatitis.
- Intestinal foreign body
- Hemorrhagic gastroenteritis is an inflammatory condition of the gastrointestinal tract that causes clinical symptoms similar to those observed in pets with pancreatitis.
- Some inflammatory liver diseases can cause abdominal pain, vomiting and lethargy and thus be confused with pancreatitis.
- Intestinal obstruction caused by a tumor or foreign body.
- Parvovirus gastroenteritis is an infectious disease caused by a virus that usually affects young unvaccinated dogs.

Peritonitis is an inflammation of the lining of the abdominal cavity, and can be caused by several mechanisms including intestinal perforation. Peritonitis can also occur as a complication of pancreatitis.

- Acute prostatitis is an inflammatory condition of the prostate gland usually caused by bacterial infection that can cause severe abdominal pain, fever and lethargy.
- Pyometra is a bacterial infection of the uterus in intact female dogs.
- Pancreatic abscess can complicate pancreatitis and usually requires surgical treatment.
- Kidney failure can produce clinical symptoms (loss of appetite, vomiting, lethargy) similar to those observed in dogs with pancreatitis.
- Body-wide bacterial infections (sepsis) can also cause clinical symptoms (loss of appetite, vomiting, lethargy) similar to those observed in dogs with pancreatitis.
- Intestinal volvulus is an abnormal twisting of the intestine that can cause clinical symptoms similar to those observed in pancreatitis.
- Intestinal intussusception is a telescoping of the intestine onto itself that can cause clinical symptoms similar to those observed in pancreatitis.

VETERINARY CARE IN-DEPTH

DIAGNOSIS IN-DEPTH

Diagnostic tests are needed to recognize acute pancreatitis and exclude other diseases. Tests may include:

- Your veterinarian will take a complete medical history and perform a thorough physical examination. The abdominal will be carefully examined by palpation to test for abdominal pain and abdominal masses.
- A complete blood count (CBC or hemogram) to evaluate for infection or inflammation, anemia, and low platelet count.
- A serum biochemical profile to evaluate the general health of your dog and the possible effects of pancreatitis on other body systems.
- Urinalysis may be recommended to evaluate your dog's kidney function and check for urinary tract infection.
- Serum enzyme activities including amylase, lipase and trypsin-like immunoreactivity may be recommended to evaluate for pancreatitis. Some of these enzyme activities (amylase, lipase) are readily available but may be of limited value in the diagnosis of pancreatitis. Trypsin-like immunoreactivity is a test that likely will require shipping of a serum sample to a specialty laboratory.
- Abdominal X-rays may be recommended to evaluate the region of the abdomen in which the pancreas is located ("right cranial quadrant") and to help eliminate other potential causes of your dog's symptoms.
- X-rays taken after administration of a radiographic contrast agent ("GI series" or "barium series") may be recommended if intestinal obstruction is suspected.
- Abdominal ultrasound examination may be recommended. This test may help identify abnormalities within the pancreas and other abdominal organs. Ultrasound examination may identify masses, cysts, or abscesses within the pancreas, and also can identify biliary obstruction caused by pancreatic swelling. This examination may require referral to a veterinary specialist.

TREATMENT IN-DEPTH

Treatment of acute pancreatitis must be individualized and based on the severity of your dog's condition and other factors that must be analyzed by your veterinarian. Treatments may include:

- If your dog has mild acute pancreatitis, outpatient treatment including withholding of food and water for a short time to rest the pancreas, may be recommended. Your veterinarian may also recommend subcutaneous administration of fluids, drugs to control vomiting, and, in some cases, antibiotics to prevent or control bacterial infection. In this situation, regular follow-up visits to your veterinarian are important to insure that the condition does not progress and that your dog does not become dehydrated.
- If pancreatitis is moderate or severe, hospitalization likely will be recommended and additional tests and treatments will be performed. Treatment consists primarily of intravenous fluid therapy, withholding of food and water to rest the pancreas, drugs to control vomiting and, in some cases, antibiotics to prevent or control infection. As the animal responds to treatment, water and a bland diet are gradually re-introduced.
- Abdominal pain may be treated with cage confinement and analgesic medications such as meperidine or butorphanol.
- Antibiotics may be used to control or prevent bacterial infection.

Surgery may be necessary for complications of pancreatitis such as pancreatic abscess, infected pancreatic cyst, peritonitis or biliary obstruction.

- Abdominal lavage (flushing of the abdomen with sterile fluids) may be used to promote the removal of activated enzymes from the peritoneal space.
- A body-wide clotting disorder (“disseminated intravascular coagulation”) occasionally may complicate pancreatitis and require additional treatment including heparin administration.

FOLLOW-UP

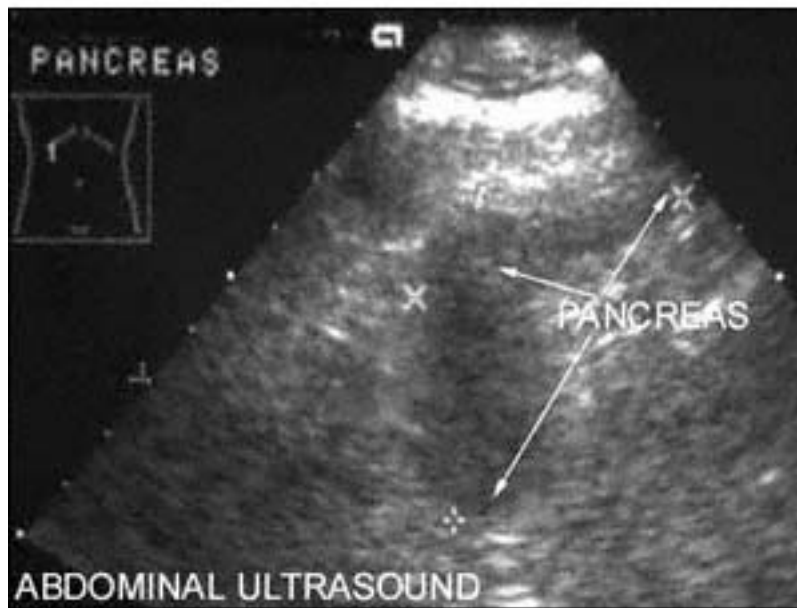
Optimal treatment for your dog requires a combination of home and professional veterinary care. Follow-up can be critical. Follow-up for acute pancreatitis often includes:

- Administer as directed any medications prescribed by your veterinarian and contact your veterinarian promptly if you have difficulty treating your dog.
- Follow dietary recommendations made by your veterinarian. Dogs with pancreatitis often are placed on a low-fat diet and should not be fed table scraps.
- Consider a weight loss program for obese dogs since obesity may predispose to pancreatitis.
- Keep your dog under close supervision so that it cannot get into and eat garbage.
- Observe your dog's activity level, appetite and watch for vomiting or diarrhea. Also watch for signs of abdominal pain, vomiting, loss of appetite or other abnormalities.
- Actual prescribed follow-up will depend on the severity of your dog's disease, response to therapy and your veterinarian's recommendations.

Pictures



View of necrotic pancreatic area. Compare this photograph with the photograph of the normal pancreas and note the significant difference.



Abdominal ultrasound may help identify abnormalities within the pancreas and other abdominal organs. The normal pancreas will appear darker on ultrasound than surrounding tissues.