

Pancreatitis in Dogs



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The pancreas is a boomerang-shaped organ located next to the stomach and the first part of the small intestine. It has two main functions which are the production of insulin and the storage of digestive enzymes. While in the pancreas, these enzymes are usually in an inactive form. They become activated when they are released from the pancreas into the small intestine in response to eating a meal.

Pancreatitis results from premature activation of digestive enzymes to the active form while still in the pancreas. Activated pancreatic enzymes can gain access to the circulation and the abdominal cavity, causing direct damage to surrounding organs, such as the liver and gastrointestinal tract and can cause systemic inflammation, vasculitis (inflammation of the blood vessels) and in severe cases, can result in multiple organ dysfunction and clotting abnormalities.

Causes of Pancreatitis

There are many speculated causes of pancreatitis, including nutrition, toxins, drugs, trauma, immune-mediated disease and infectious causes, although the cause of

pancreatitis in an individual dog is often times not known.

Nutrition has long been thought to be an important cause of pancreatitis in dogs and there is anecdotal evidence that diets high in fat can predispose dogs to pancreatitis. High-fat diets can lead to elevated lipids in the blood and it is speculated that this stimulates the activation of one of the pancreatic enzymes, lipase. Studies have shown that severely protein-restricted diets can also predispose dogs to pancreatitis.

Some drugs and toxins can also predispose dogs to pancreatitis. The most common drug implicated in dogs is potassium bromide, a common anti-seizure medication. Some drugs used for chemotherapy have also been implicated.

Immune-mediated mechanisms (when the animal's own immune system attacks the pancreas) can also result in pancreatitis. Immune-mediated pancreatitis is becoming a more frequent diagnosis in human medicine and is suspected in some of our canine patients as well.

Trauma to the pancreas, as might be seen with vehicular trauma or falls from a significant height, have also been reported to result in pancreatitis. Any condition that causes shock or decreased blood flow can also result in pancreatitis.

Idiopathic (undetermined cause) pancreatitis is by far the most common diagnosis in dogs. We are unable to determine the true underlying etiology in many of our veterinary patients.

Clinical Signs of Pancreatitis

The common clinical signs of pancreatitis in dogs include depression, anorexia, vomiting, abdominal pain, dehydration, diarrhea and sometimes fever.

No one diagnostic test can definitively diagnose pancreatitis in dogs, but a diagnosis is often reached based on a combination of history, clinical signs, blood work and imaging such as x-rays and/or ultrasound. The clinical signs of pancreatitis and some of the test result findings can be seen with other disease processes as well, so diagnosis is not always straightforward.

Treating Pancreatitis

The treatment of pancreatitis is largely based on the severity, underlying cause, if it can be determined, and concurrent medical problems. There has been much controversy regarding the best way to treat pancreatitis in dogs and no single treatment protocol is universally accepted.

Supportive medical therapy is the mainstay of treatment for pancreatitis in dogs. Intravenous fluid therapy is warranted, as these dogs are often dehydrated and have ongoing fluid loss from vomiting and diarrhea. Analgesics to control abdominal pain play an important role in the treatment of pancreatitis as well. Antiemetics should also be considered in patients with pancreatitis to minimize nausea and vomiting. Antibiotic therapy in dogs with pancreatitis remains controversial. The majority of cases of pancreatitis in dogs are not associated with bacterial infection. Antibiotics may be used to try to prevent bacterial translocation from a compromised GI tract. Fresh frozen plasma might also be beneficial in some dogs with pancreatitis. Plasma contains substances which act to help resolve the pancreatitis and are invariably depleted in these patients. Plasma is also a good source of clotting factors for dogs that develop clotting abnormalities.

One of the most controversial aspects of treating pancreatitis is whether or not to feed or fast the patient. Given that eating a meal causes the release of digestive enzymes from the pancreas, short fasts (1-3



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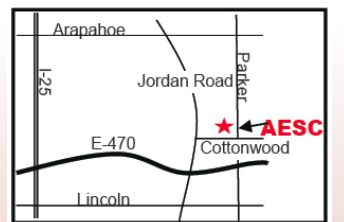


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days) might be indicated to give the pancreas time to "rest" in attempt to decrease the risk of additional digestive enzymes being turned on while still in the pancreas. If the dog is still vomiting or unwilling to eat and fasting is going to exceed 72 hours, placement of a feeding tube with trickle feeding of electrolyte and glucose solutions may be beneficial. Placement of a feeding tube in the lower small intestine might also be considered in severe cases to provide nutrition without stimulating production of digestive enzymes by the pancreas.

It is difficult to determine with certainty when it is appropriate to re-feed a dog with pancreatitis. Some guidelines include

resolution of vomiting, resolution of abdominal pain in the absence of analgesia, resolution of fever and resolution of elevated white blood cell counts. The dog should be started on small frequent servings of water and if this is tolerated, small frequent servings of an easily digestible, moderately to severely fat-restricted diet. If the dog has normal serum triglycerides and cholesterol and doesn't have historical bouts of pancreatitis, a diet that is moderately restricted in fat and easily digestible might be appropriate. For breeds such as Schnauzers that are predisposed to pancreatitis and dogs that have excess triglycerides in the blood or excess cholesterol in the blood, a more severely fat-restricted diet might be warranted.

Pancreatitis can be a frustrating disease in that it is difficult to determine the clinical course that each patient might take. The majority of cases are mild and self-limiting, but a presumptive diagnosis of pancreatitis shouldn't be taken lightly, as severe cases can ultimately be fatal. Should you suspect your dog may have pancreatitis, consultation with your veterinarian for examination and testing is recommended.

Michelle Marsh is a Board-Certified Specialist in Small Animal Internal Medicine and sees patients by appointment at Animal Emergency & Specialty Center in Parker. For more information, please call at 720-842-5050 or visit www.AESCparker.com.