

Spec cPL™: Redefine the Way You Diagnose Canine Pancreatitis

Pancreatitis occurs commonly in dogs, but is often difficult to diagnose because patients with this disease often present with nonspecific clinical signs and because of the limited performance of currently available diagnostic tests. Recognizing these challenges, Dr. Jörg Steiner and Dr. David Williams, of the Gastrointestinal Laboratory at Texas A&M University, recently developed and validated the canine pancreatic lipase immunoreactivity (cPLI) assay for the diagnosis of pancreatitis. Serum cPLI is highly sensitive and specific for pancreatitis in dogs.¹ Serum cPLI concentration demonstrates greater than 80% sensitivity for pancreatitis in the dog (based upon histologically confirmed cases of pancreatitis). In contrast to serum lipase activity, serum cPLI concentration is not affected by renal failure or administration of prednisone, and can therefore be used to diagnose pancreatitis in patients with acute or chronic renal failure, and those patients treated with prednisone.

Due to the promising performance of the cPLI assay, IDEXX has collaborated with Drs. Steiner and Williams to further refine the cPLI assay and create the new Spec cPL™ (canine pancreas-specific lipase) assay. The Spec cPL assay utilizes monoclonal antibody and recombinant antigen technology to provide faster results, and is now available through IDEXX Reference Laboratories.

Pancreatitis

Definition. Pancreatitis is an inflammatory disease of the pancreas that can be either acute or chronic, and mild or severe.² Severe pancreatitis is often associated with pancreatic necrosis, multiple systemic complications and a poor prognosis.²

Incidence/Prevalence. The true prevalence of pancreatitis in dogs is unknown. Studies of necropsy findings have shown evidence of pancreatitis in 1% of all canine pancreata examined.³ However, recent evidence looking at 200 dogs presented for necropsy would suggest that, as in humans, more than 90% of all cases of pancreatitis in dogs remain undiagnosed.⁴

Signs. Clinical signs of pancreatitis are nonspecific in dogs, with the most commonly reported signs being vomiting, abdominal pain, anorexia, weakness and dehydration.⁵ Abdominal pain is the key clinical sign in humans with pancreatitis and, when present in dogs, pancreatitis should be suspected. It should be noted that in some patients, abdominal pain may only become evident after therapy has been instituted.

Pancreatitis should be considered in EVERY dog with vomiting, abdominal pain and/or anorexia.

Laboratory Findings

Chemistry and Hematology. Routine CBC and chemistry results are nonspecific. The CBC results in dogs with pancreatitis are nonspecific, with thrombocytopenia, neutrophilia with a left shift, and anemia being the most common findings reported.⁵ Findings on serum chemistry analysis are also nonspecific and can include elevated hepatic enzyme activities, azotemia, hyperbilirubinemia, hypoalbuminemia, hyperglycemia and/or hypocalcemia.⁵

Serum amylase and lipase activities have been used to diagnose canine pancreatitis for decades. These tests are readily available, fast and inexpensive. Measurement of these enzymes detects pancreatitis in approximately 50% of all dogs with this disease.^{5,6} Also, about 50% of patients with elevated serum amylase and/or lipase do not have pancreatitis as both enzymes are affected by other nonpancreatic conditions.^{6,7,8} The primary benefit of these tests is that they can be performed quickly with in-house analyzers. Patient-side amylase and lipase activities provide early warning for pancreatitis while the Spec cPL assay or abdominal ultrasound can help you confirm the diagnosis.

Diagnostic Imaging

Radiographic findings in dogs with pancreatitis are subjective and rely heavily upon the quality of the radiograph and the experience of the reader. The supportive radiographic changes include loss of detail in the area of the pancreas, shifting of abdominal organs and increased intestinal gas.⁵ Abdominal radiographs are more useful for excluding other conditions (such as a radiodense foreign body) than for diagnosing pancreatitis. Abdominal ultrasonography is highly specific for pancreatitis when performed by an experienced operator and when stringent criteria are applied. Sensitivity of abdominal ultrasonography has been shown to be highly operator-dependent and has been reported to be up to 68% in dogs.⁵

Minimally Invasive Tests

Serum trypsin-like immunoreactivity (TLI) concentration is specific for exocrine pancreatic function and is the test of choice for exocrine pancreatic insufficiency in dogs. However, sensitivity of serum TLI concentration for the detection of pancreatitis is limited to 30% to 60%, making serum cTLI concentration a suboptimal diagnostic test for canine pancreatitis.^{1,4,6}

Monitoring

Because of its sensitivity for pancreatic inflammation, Spec cPL concentrations can also be used for follow-up. Serum Spec cPL concentrations should be repeated at different intervals, depending on the severity of the disease process. With acute severe pancreatitis, it may be useful to evaluate the patient every several days, while re-evaluation every few weeks is sufficient for dogs with mild disease.

Also, a recent study has shown that dogs treated with potassium bromide (KBr) were at increased risk for developing pancreatitis, and approximately 7% had elevations of serum cPLI concentrations. Thus, intermittent measurement of serum cPLI (now Spec cPL) concentration may be useful in detecting subclinical cases before development of severe systemic complications.

Prognosis.

The prognosis for canine pancreatitis is directly related to the severity of the disease. Patients with mild chronic pancreatitis may do well long-term, but may also develop intermittent episodes of severe disease. Patients with severe disease, especially if systemic complications are present, have a poor prognosis.

Recent data suggest that most cases of canine pancreatitis go undiagnosed. With the availability of the new Spec cPL assay, a definitive diagnosis of pancreatitis can be made more readily and earlier in the disease process. Earlier diagnosis may lead to an overall improvement of outcome. It is also likely that the increased availability of this diagnostic modality will lead to diagnosis of even subclinical forms of pancreatitis, resulting in a need to refine therapy for these cases.

Availability

Beginning December 1, this test will be available from many of our laboratories, with a turnaround time of 12–24 hours. The Spec cPL assay is available as an individual test or as a component of several protocols for diagnosing pancreatitis.

| Test Code | Test Name |
|-----------|--|
| 1849 | Spec cPL |
| 18491 | Spec cPL Add-on |
| 2337 | Pancreas Profile 1 with Spec cPL Spec cPL, HealthChek™ (Chem 25, comprehensive CBC) |
| 2339 | Pancreas Profile 3 with Spec cPL Spec cPL, glucose, fructosamine, cholesterol |
| 2364 | Pancreas Profile 4 with Spec cPL Spec cPL, HealthChek™ (Chem 25, comprehensive CBC), urinalysis |
| 2365 | Pancreas Profile 5 with Spec cPL Spec cPL, cobalamine (vitamin B ₁₂), folate, trypsin-like immunoreactivity (TLI) |

Our nationwide network of laboratories provides daily courier or IDEXX-Direct® overnight service, with the latest pickup times, early delivery of results, and more than 50 board-certified veterinary pathologists and specialists to support your cases. For more information or to order tests from IDEXX Reference Laboratories, call 1-888-433-9987.

References

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The information contained herein is intended to provide general guidance only. As with any diagnosis or treatment, you should use clinical discretion with each patient based on a complete evaluation of the patient, including history, physical presentation and complete laboratory data. With respect to any drug therapy or monitoring program, you should refer to product inserts for a complete description of dosages, indications, interactions and cautions.