ANTECH® DIAGNOSTICS News

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Canine and Feline Inflammatory Bowel Disease

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There is increasing awareness and diagnosis of inflammatory bowel disease (IBD) in dogs and cats. Idiopathic inflammatory bowel diseases are defined as a group of disorders characterized by persistent clinical signs of gastrointestinal (GI) disease, and histological evidence of inflammation of undetermined cause in the lamina propria of small and/or large intestines.

In order to diagnose IBD correctly, certain criteria should be met. These include: 1) primary or secondary signs of GI disease observed by the clinician or owner; 2) persistent clinical signs (weeks rather than days); 3) clinical signs associated with chronic inflammation in the lamina propria of the small and/or large intestines (endoscopic or surgical biopsies); and 4) GI inflammation of no demonstrable cause (clinically or pathologically).

Pathophysiology

The proposed pathophysiology of IBD questions whether the disease is due either to an appropriate or excessive response to a foreign antigen or an inappropriate response to a normal antigen. Possible antigens include bacterial, dietary and/or parasitic antigens. Increased GI tract permeability, which enables larger peptides to access and stimulate the immune system, may also play a role. It is unclear whether the increased GI tract permeability is a cause or an effect of IBD, or possibly both. Presently the role of cytokines and immune modulation is being investigated, as well as possible roles of genetic predisposition via the major histocompatibility complex and IgA deficiency (failure to bind antigens in the GI lumen).

Breed Predisposition

Any dog breed may be affected. However, breeds that have a higher prevalence of IBD include the German Shepherd, Shar Pei, and Yorkshire Terrier, however, many other breeds such as the Rottweiler, Basenji (immunoproliferative enteropathy), Irish Setter (gluten-sensitive enteropathy) and Soft-coated Wheaten Terrier (protein-losing enteropathy plus protein-losing nephropathy) have their own variant of IBD. There is no apparent breed predisposition in cats, and no sex predilection in either species.

Clinical Signs

History and clinical signs depend upon the segment of bowel that is affected. Vomiting, diarrhea (small and/or large bowel), anorexia, borborygmi, flatulence, weight loss, melena, and perhaps regurgitation (secondary to gastroesophageal reflux) may be observed. These can be persistent or cyclic. Vocalization during defecation (especially in cats) may also occur with severe colitis. In dogs, IBD typically affects young to middle-aged patients. In older dogs, neoplasia would be highly suspected. In cats, IBD most commonly is seen in middle-aged to older cats, although it has been reported in kittens as young as 5 months of age. The physical examination can be normal. Abnormal findings may include weight loss, cachexia, “gassy” or thickened bowel loops (the latter primarily in cats), and generalized poor condition.

Laboratory Diagnosis and Biopsy

Routine laboratory results may be normal. Panhypoproteinemia, hypoalbuminemia or hypergammaglobulinemia can be found in moderate to more severe cases. Liver enzymes may be elevated due to GI tract flora and toxins entering the portal venous circulation, from immune-mediated liver disease, or from ascending cholangiohepatitis secondary to small intestine bacterial overgrowth (SIBO) and changes in GI motility. Eosinophilia may be present, but leukocytosis is not typical, and if found, would be suggestive of a significant bowel inflammatory response or fungal infection. With GI hemorrhage, anemia may be seen.

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Chronic GI hemorrhage results in microcytic, hypochromic anemia from iron deficiency. Other laboratory tests that are important to consider in animals with GI signs include: fecal tests (fecal flotation, direct smear, *giardia* screen (ELISA) method, *Clostridium perfringens* enterotoxin, and FA for *cryptosporidiosis)*; serum thyroid profile (especially in cats); FeLV and FIV screen; FIP-specific ELISA (FIPSE, if the "dry" form of FIP is suspected); toxoplasma titers; serum cobalamin/folate levels (significance of SIBO is questionable in cats); and fasting trypsin-like immunoreactivity (TLI) levels. In feline, but not canine IBD patients, the TLI is often elevated, as it is in canine and feline pancreatitis.

In certain locations, screening for histoplasmosis or other fungi may be indicated. In canines, consider an ACTH stimulation test to rule-out Addison's disease. Lead poisoning is another possible cause of chronic GI signs. With hypoalbuminemia, determining pre- and post-prandial bile acids and urine protein:creatinine ratio can be helpful. Radiographs may be normal. A barium series also may be normal or reveal mucosal irregularity and narrowed dye columns or strictures. Ultrasound examination may be unremarkable or reveal thickened bowel loops. Marked lymphadenopathy with hepatomegaly and/or splenomegaly should raise suspicions of lymphosarcoma, mastocytosis or hypereosinophilic syndrome in cats. Fine needle aspirate cytology of the liver, spleen and/or lymph nodes may provide a diagnosis (fungal or neoplasia).

A *diagnosis of IBD is confirmed by intestinal biopsy*. Multiple sites of the GI tract should be biopsied, even if the intestine looks grossly normal.

Management and Treatment

Management of IBD varies widely. Lasting remission (oral tolerance) cannot be regained until the memory of GI hypersensitivity is lost. For "primed" circulating immunoglobulins, at least one month without ongoing antigenic stimulation is necessary for that stimulus to wane. When T-lymphocytes are involved, at least three months are required for immune stimulation to wane.

Dietary management and drug therapy are the hallmarks of therapy. Feeding "novel" and/or a highly digestible protein source is recommended (i.e. elimination diet). "Bulking" agents are an adjunct therapy for colitis; various fiber sources, including sweet potatoes, yams or canned pumpkin sometimes produce good clinical results. Empirical use of immunosuppressive drugs and prednisolone without performing GI tract biopsies is generally not advisable. Misdiagnosis could lead to disastrous consequences as well as alter the appearance of histopathological biopsies done at a later time. Prednisolone (in decreasing dosages), metronidazole (antiprotozoal, inhibits cell-mediated immunity, treats SIBO), azathioprine, sulfasalazine (large bowel diarrhea only), and chlorambucil have been utilized to control confirmed cases of IBD. Depending on the severity of the lesions, different protocols and drug dosages are recommended. Judicious use of motility modifiers also can be beneficial.

Prognosis is good for most patients except those with severe mucosal distortion and fibrosis, eosinophilic enteritis/hypereosinophilic syndrome of cats, and granulomatous IBD. Treatment failures may reflect misdiagnosis, poor client compliance, and lack of perserverance with treatment regimens.

***References*:** Twedt, Current Vet Therapy XI, Saunders, Philadephia, 1992, pp 602-604; Jergens, Consult Fel Int Med, Vol 2, Saunders, Philadelphia, 1994, pp 75-81; Tams, Handbook Sm An Gastroenterol, Saunders, Philadelphia, 1996, pp 267-319; Marks et al, JAVMA 214: 357-360, 1999; Jergens, Vet Clin N Am, 29(2): 501-522, 1999.

LAB TIPS

Urine Culturettes

For performing urine cultures using culturette swabs, please do NOT fill the culturette tube with urine as the tubes invariably leak urine everywhere. Instead, dip the culturette swab into the urine specimen and then place the urine swab back into the culturette tube.

***Note*: With the heartworm season approaching, please remember the preferred specimen for heartworm testing is a Red Top tube. Lavender Top tubes can cause false positives.**