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Dueling Diabetics

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INTERNAL MEDICINE SERVICES OFFERED

- Laparoscopy
- GI endoscopy including foreign body retrieval, rhinoscopy, cystoscopy, and bronchosopy
- Evaluation, diagnostics, and treatment for various medical ailments including cardiology, neurology, and oncology
- Consultation (gratis) by phone or e-mail at address above

When faced with the difficult to regulate diabetic, the question of insulin resistance usually arises. Commonly, the problem is persistently elevated blood glucose that does not seem to decrease at all after administration of insulin. Factors that are considered to cause insulin resistance include Cushing's disease, infections (particularly urinary tract or pyelonephritis), and diestrus among others.

One reason for insulin resistance that can be overlooked is the Somogyi phenomenon. Somogyi is typically thought to occur as a response to hypoglycemia, however it can also occur if the blood sugar drops very rapidly in a short period of time without going below the reference interval. In response to a rapid drop or hypoglycemia, the body secretes several counter-regulatory, insulin antagonizing hormones. Epinephrine, cortisol, glucagon, and growth hormone all work to raise the blood glucose. When a Somogyi occurs, these hormones can be in effect for 24-72 hours. During this time, an animal will be hyperglycemic and potentially not respond to administration of insulin. Also, the patient will be showing symptoms of a poorly regulated diabetic. Unless a hypoglycemic episode occurred AND was recognized, this situation will typically go undetected and be treated by increasing the insulin dose. Similarly, if the patient was normoglycemic but simply had a rapid drop in blood sugar (for example >600 down to 120 in 30 minutes), he may not even show signs of hypoglycemia but start secreting cortisol, glucagon and their buddies. Increasing insulin dosage may not be the right thing to do however the only thing we perceive as clinicians is persistent hyperglycemia with signs of hyperglycemia.

So how do we deal with this situation? One way is with regular glucose curves and fructosamine evaluation. Glucose curves seem to be coming out of favor due to day to day variability (February 2003 JAVMA), however there is still a place for them in veterinary medicine. A q2hr curve from 8am to 6 pm (typically owners are administering insulin between 6-8am) will hopefully allow us to catch a rapid drop or hypoglycemia.

Also, recognition of glucose toxicity, or reversal of it, would potentially warn a clinician of the potential for Somogyi. With persistent hyperglycemia, insulin receptors are down-regulated and residual functioning pancreatic beta cells decrease secretion of insulin. With better glycemic control, the insulin receptors are upregulated and any residual function in beta cells resumes resulting in greater endogenous insulin secretion and response to insulin. A patient may have adequate glycemic control early but then come in for a curve and be found to have hypoglycemia in a few weeks. This is most likely due to reversal of glucose toxicity and can be missed if a full curve is not done. Subsequently Somogyi can occur and be perceived as insulin resistance.

If there appears to be insulin resistance but you have not identified any of the other causes of it, it may be necessary to back up and start over to make sure this problem did not occur and was missed. With new diabetics, explain early to the owners that regulating diabetes takes time, patience, and an open mind to try different ideas when things are not going well. But with persistence, adequate control can typically be achieved.

IBD vs GI LSA in cats

The concern about the relationship between IBD and GI LSA in cats is a very real problem. Part of this is because a small percentage of cats have developed GI LSA after having already been diagnosed and treated for IBD. Also, subjective experience suggests that cats with GI LSA can do better than dogs with the same disease and present with less severe signs, therefore symptoms can commonly be construed as being more consistent with IBD since many of these cats may continue to eat or be active with LSA. Finally, obtaining an accurate diagnosis without biopsy can be difficult. Thickening of the intestinal tract and mesenteric lymphadenopathy can occur in both cases.

What is the best way to diagnose intestinal disease in cats and be confident with the diagnosis? We have routinely started performing laparoscopy on these patient.s. By obtaining full thickness intestinal biopsy and mesenteric lymph node biopsy, we can feel confident that a reactive lymph node is truly reactive or that severe lymphocytic inflammation in the bowel is really IBD and not LSA. Owners want to get accurate diagnoses however do not want to subject their pets to exploratory surgery, particularly because many of these cats are older. Owners are pleased with laparoscopy because their pets did not have to undergo laparotomy and a longer recovery time but we are still confident that we have the right diagnosis because of the quality of the histopathology samples obtained. See the reverse side for 2 cases that illustrate the benefit of laparoscopy for this dilemma.

Continued on reverse side

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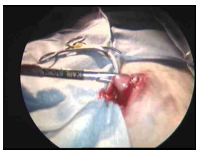
IBD vs. LSA in cats—laparoscopy as a tool to better treatment

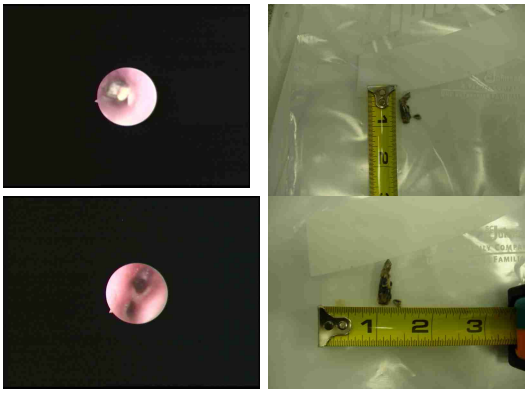
Case A: 14 year old female spayed DSH. History of vomiting but has a good appetite. No diarrhea. CBC, chem, and T4 were normal. Abdominal ultrasound revealed moderate mesenteric lymphadenopathy. Full thickness intestinal biopsy and mesenteric lymph node biopsy—lymphoplasmacytic IBD with reactive lymphadenopathy. Patient is doing well 6 months later.

Case B: 16 year old castrated male DSH. History of weight loss, cough/gag but normal activity and appetite. CBC, serum chemistry and T4 were normal. Chest radiographs were normal but abdominal ultrasound revealed mesenteric lymphadenopathy and thickened small intestine. Full thickness intestinal biopsy and mesenteric lymph node biopsy—lymphoma in both organs. Patient is doing well 4 months later.



Endoscopy Corner-Classic Cases

Each issue will present an interesting case. In this issue, we look at a cat that presented to the refering veterinarian for cough and gagging. The patient had a normal radiographic lung pattern and was treated with antibiotics and prednisone with no response. During a follow up examination, the patient exhibited inspiratory stridor, wheezing and experienced periods of cyanosis during stress. An airway problem was suspected. She was referred for bronchoscopy which revealed a tracheal foreign body (top left). The object was removed (bottom left) and turned out to be landscaping mulch (right).



Recent News and Literature

Elevated ALKP in Scottish Terriers

A study published in the January 2006 issue of JAVMA shows that Scottish Terriers have a higher incidence of elevation of alkaline phosphatase. While the breed does have a predisposition for Cushing's disease, this alone does not account for the increased number of dogs with elevated ALKP. Further studies are needed to identify the cause of this, however at this time the abnormality does not have any known clinical significance. Unfortunately, the only way to definitively determine that there is no liver pathology is to obtain a liver biopsy. We recommend laparoscopy for this as it is safe and allows for a good quality sample.

Ace promazine and seizures

Ace promazine has long been taboo for use in seizure patients. However a recent study (JAAHA July/August 2006) found that ace promazine did not increase the incidence of seizures when used in dogs with a known history of seizures. It was also used in effort to decrease seizure activity in dogs that presented to the hospital for this problem and was found to be of potential benefit by gaining control of the seizures more rapidly. While this study may not change traditional thought regarding the use of ace promazine in seizure patients, it may at least put us more at ease about the general use of this medication and the drug can be a consideration in a difficult seizure patient.

Canine influenza in KY

The first case of canine influenza in KY was diagnosed recently. The case occurred in Lexington. The patient was a 4-month-old puppy that was adopted from the humane society. The owner took it to the veterinarian for cough and nasal discharge. Radiographs revealed a diffuse pneumonia-type pattern. Virus isolation on the nasal exudate as well as titers performed on the serum were positive for the canine influenza virus. Samples were submitted to Cornell University.

Dog infected with avian flu

A dog was confirmed to have been infected with the H5N1 strain of avian influenza. The dog ate duck carcasses and contracted the infection. The case occurred in Thailand and ultimately proved fatal for the pet. The case report is in the November 2006 issue of *Emerging Infectious Diseases.*

Clinical signs in the dog included fever, panting, and lethargy. Symptoms started about 5 days after eating the carcasses and the patient passed away in 24 hours.

The virus has been documented to infect cats as well.