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INTERNAL MEDICINE SERVICES OFFERED

- Laparoscopy including laparoscopic cholecystectomy (elective, non-emergency)
- 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

# Cystoscopic laser ablation of ectopic ureters

A new method for treatment of intramural ectopic ureters has been identified and is proving to be safe and highly effective. Via cystoscopy, we are able to ablate the ureter proximally to the trigone of the bladder thereby achieving continence in the majority of patients. Those that do not become continent with the procedure alone typically respond favorably to PPA or collagen injection after correction of the ectopic ureter.

A 1.5 year old female, intact Bichon Frise presented to our hospital for urinary incontinence since birth. Multiple urinary tract infections had been identified and treated with no resolution. Ectopic ureter was suspected and identified bilaterally on cytoscopic evaluation (figures 1&2). A diode laser fiber was passed and successfully ablated the distal part of both ureters such that the ureters opened into the trigone of the bladder (figures 3&4).

At follow-up examination two weeks after the procedure, the owner reported normal urination with no urine leakage even while the dog slept. A follow up urine culture was negative for infection. A 6 week follow up call revealed the dog was still continent and doing well.

The procedure has been done by several internists and surgeons around the country. The most recent abstract presented at the 2007 ACVIM and ACVS meetings reported 20 dogs that were treated safely and effectively using this procedure. More cases and long term follow up are needed to determine the true safety and efficacy, however this appears to be a very promising novel procedure. If you have any cases in which you suspect ureteral ectopia, please contact us to discuss the possibility of performing this procedure.

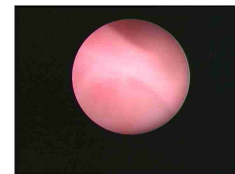

Fig 1: Right ureter

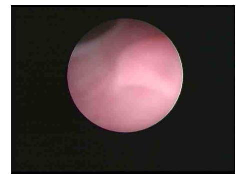

Fig 2: Left ureter

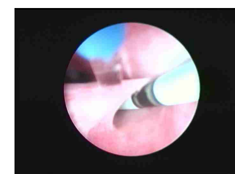

Fig 3: laser fiber in place

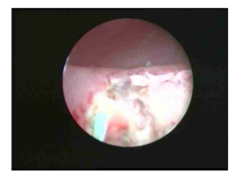

Fig 4: ureter ablated

# Update on Laparoscopic Cholecystectomy

BVS recently presented an abstract at the 2007 American College of Veterinary Surgeons Symposium in Chicago, IL with surgeons from two university veterinary hospitals regarding the safety and efficacy of laparoscopic cholecystectomy. At the time of the presentation, a total of six patients underwent the procedure. All did very well and their symptoms were significantly improved or resolved as a result of cholecystectomy. Since then two more cases have been done with similar results.

Typical signs of chronic gall bladder disease include fluctuation in appetite, vomiting, diarrhea, and abnormal stools. There can also be lethargy or abdominal discomfort appreciated by the pet owner. Ultrasound may reveal biliary mucocele or severe sludge accumulation and/or cholecystitis. The indications for removal included poor or incomplete response to ursodiol treatment or concern about bile stasis or gall bladder rupture.

This procedure is reserved for the stable, chronic patient suffering from gall bladder disease. It is not an option for emergency conditions such as biliary obstruction or gall bladder rupture. We are very pleased with our patient response and encourage laparoscopic intervention for these patients.

## In this issue:

- Cystoscopic treatment of ectopic ureter
- Liver disease—Where are we now?
- Update on laparoscopic cholecystectomy
- Recent news and literature

Continued on reverse side

*"Specialty care for four-legged family members."*

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# Liver disease—where are we now?

The patient with elevated ALT and/or ALKP often presents a frustrating challenge. The underlying etiology behind the liver inflammation can go undetected. Ultrasound can identify an abscess or mass, however masses and nodules can be benign or malignant and absence of nodules does not rule out neoplasia. Infectious, inflammatory, and neoplastic liver disease (lymphoma, others) can look very similar.

Empirical treatment with metronidazole plus a broad spectrum antibiotic and SAMe is a good place to start. However, when do we start using other medications for chronic active hepatitis? Furthermore, how do we know we are treating hepatitis vs. copper storage disease, infectious disease, or neoplasia? We start with a liver biopsy (preferred over fine needle aspiration). This can be done laparoscopically. Then based on the variety of tests done on the liver (aerobic and anaerobic culture, copper levels, histopathology), we can develop a good treatment plan based on the results. Things we look for aside from infection and copper levels include the amount and type of active inflammation, the pattern of the inflammation, the amount of fibrosis present, and the nature of the hepatocytes. All of this is in addition to evaluation for infectious organisms and neoplastic cells. Most of this information cannot be gained from cytology alone and will be essential for developing a treatment plan. Once the status of the liver is known, a reasonable treatment plan can be instituted with *greater client compliance* because we can explain why any individual drug is necessary. The benefit of biopsy should not be underestimated.

Anti-inflammatory and immunomodulatory medications include prednisone, azathioprine, colchicine, ursodiol, SAMe, and metronidazole. Aside from the last two, it is not recommended to use these without a biopsy. Antioxidants include Vitamin E, SAMe, milk thistle, zinc, and ursodiol.

Therapy for chronic active hepatitis should consider three areas. The first is to treat the underlying etiology if that can be identified (leptospirosis, other infectious disease, copper storage disease). Secondly, supportive therapy is started to reverse liver pathology. This is achieved with the anti-inflammatory/immunomodulatory drugs. Because there are so many possible medications, the ability to explain to the owner what areas of liver pathology we are addressing with treatment based on histopathology will increase the compliance and likelihood of success. Finally, symptomatic therapy is administered to treat complications of liver disease or failure (hepatic encephalopathy, coagulopathy, fluid and electrolyte imbalance, GI ulceration, etc).

For monitoring, we typically use blood work and clinical signs along with occasional ultrasound and/or bile acids. While it would be ideal medically, we do not repeat biopsy unless absolutely necessary. Liver values can be misleading with the use of prednisone, however when tapering down to a maintenance dose, we have often found the ALT to be improved in relation to pre-treatment levels despite the use of steroids. The serum albumin, BUN, glucose, and cholesterol are very good indicators of liver function and if they are low normal or low, one should be seriously concerned about liver failure. We have performed laparoscopic liver biopsies on several dogs with presumably end-stage liver disease and have been successful in reversing some of the pathology in order to improve their quality of life and increase survival time. The role of the biopsy in those cases was integral to providing information for developing an effective treatment plan. Client compliance was excellent, initially because of the design of the plan based on the biopsy, and ultimately because of the response of the pet to treatment. Encourage owners to consider biopsy of the liver for better treatment of their pet's disease. This will be particularly effective early in the course of disease but is still recommended for late-stage disease. A good review can be found in *Clinical Techniques in Small Animal Practice,* November 2003.

# Recent News and Literature

### Heart failure may be common cause of death in diabetic cats

A recent retrospective study identified that cats with diabetes were more likely to pass away or be euthanized due to development of congestive heart failure compared to the general population ( *J Sm Anim Pract*, Jan 2008). The type of heart disease was mixed between HCM and right sided heart failure suggesting the diabetes may not be a direct cause, however it seems to play a role in development of heart disease. Death occurred soon after the development of heart disease. Symptoms related to the cardiorespiratory system should be discussed with owners of diabetic cats and early screening and treatment emphasized.

### Folate, cobalamine, and phosphorus in GI disease in cats

A study found that low cobalamine correlated with significant drops in body condition in cats. Low folate by itself did not necessarily correlate with decreased body condition, although when both b-vitamins were decreased, the severity of disease increased ( *J Fel Med Surg*, Aug 2007). An unexpected finding in cats with GI disease was hypophosphatemia. If you notice hypophosphatemia on serum chemistry, consider the possibility of gastrointestinal disease. We highly encourage the pursuit of endoscopic/laparoscopic biopsy to assess the cause of the disease, especially prior to the use of steroids.