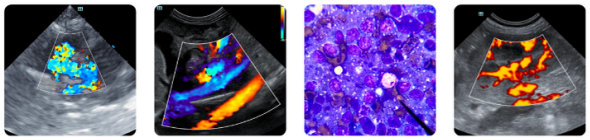

PATIENT

Tux Mahoney

SPECIES

Feline

BREED

DSH

SEX

MN

AGE

7 years

WEIGHT

3.15 kg

INTERPRETED BY

Kim Radway, DVM, DABVP (Canine/ Feline)

IMAGING PERFORMED BY

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PRESENTING CLINICAL SIGNS

Presented on April 1st, 2026 for wellness and owner reported chronic diarrhea and urinating outside litter box. Exam notes revealed 13-ounce weight loss, historic 4/6 murmur. Patient was rx forti flora and flagyl per chart notes. Blood work revealed mild neutrophilia, chem wnl, T4=2.0 and UA USG 1.050 and quiet. Chart notes indicate an update from owner on April 16th reporting no improvement. Patient was rx Tylan powder at that time. This DVM spoke to owner yesterday while performing a wellness visit on a housemate and she reported no improvement and patient won't eat anything with the Tylan powder in it. AUS recommended at that time. Patient was kept overnight in hospital for AUS today as owner has a very hard time catching patient for transport.

Abnormal PE/Chem/CBC/UA Results: Inc neuts (19.8k) Fecal - Negative

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone and pelvic urethra presented with normal wall thicknesses and normal tone. The urine had an anechoic background but contained a large amount of hyperechoic suspended cellular material. No uroliths or masses were noted in the lumen of the bladder. No evidence of inflammatory or neoplastic changes were noted. The ureters were not visible and considered normal.

The **kidneys** revealed normal size, corticomedullary definition and ratio with the cortex being 1/3 of medulla. Both kidneys were found to have a hyperechoic and course echogenicity with a mild decrease in overall cortico to medullary definition. Left kidney measures 4.13 cm, and the right kidney measures 4.16 cm.

Adrenal Glands

The **left adrenal gland** was visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were acceptable. Left adrenal measures 1.44 cm x 0.55 cm.

The region of the **right adrenal gland** was evaluated and found to be free of obvious pathology. However, the right adrenal gland was not specifically identified in the images provided.

Spleen

The **spleen** presented with a smooth homogeneous parenchyma hyperechoic to liver and kidney. The capsule was smooth and linear in its contour. The splenic vasculature demonstrated normal volume without signs of congestion, significant contraction, or thrombosis.

Liver

The **liver** revealed normal size, contour, and structure. Parenchymal echogenicity was smooth and homogenous in appearance. Vascular and biliary tracts were of normal volume and no evidence of congestion was noted. The gallbladder presented with anechoic contents and a thin hyperechoic wall. The background gallbladder contents were anechoic but contained approximately 25% of the contents appearing non-shadowing, hyperechoic and gravity dependent. The cystic and common bile ducts were normal. No periportal lymphadenopathy was evident.

Gastrointestinal

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The **gastrointestinal tract** revealed a stomach free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. There was a small amount of gas in the lumen of the stomach. No obstructive or overt infiltrative disease was noted. The small intestinal tract was found to have a mildly thickened muscularis layer throughout. The average width of the jejunum was 0.32 cm. There were no discrete masses or regions of loss of wall layering.

Pancreas

The right and left limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic capsular contour was acceptably normal. No overt evidence of active inflammatory or neoplastic disease was noted.

Free Abdomen

A mesenteric lymph node was noted to be mildly enlarged measuring 1.58 cm x 0.58 cm in size.

There was no free abdominal effusion present.

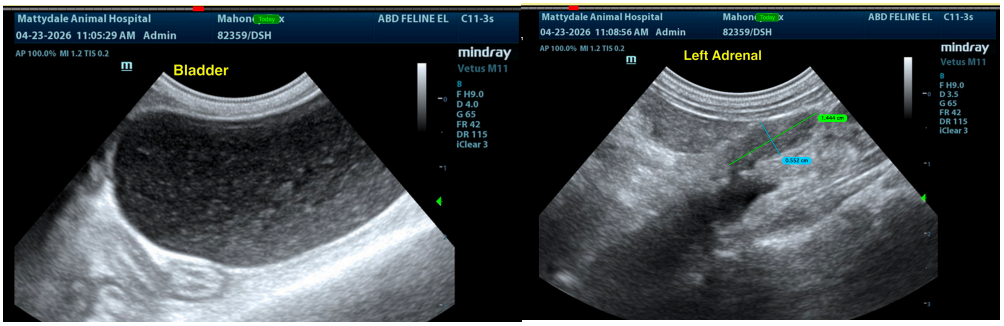
ULTRASONOGRAPHIC FINDINGS

- Large amount of hyperechoic cellular debris suspended within the urine.
- Hyperechoic and course renal cortices bilaterally.
- Mildly thickened muscularis layer throughout the jejunum.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

It is recommended to obtain a cystocentesis urine sample for urinalysis and urine culture to better characterize the underlying cause of the cellular material within the urine. It is also recommended to carefully monitor this patient for any development of renal dysfunction given the hyperechoic and course appearance of the renal cortices. It is also recommended a systemic blood pressure to screen for any evidence of underlying systemic hypertension.

There is concern that the chronic diarrhea may be secondary to underlying chronic inflammatory bowel disease or GI lymphoma. It is recommended to consider full thickness intestinal biopsies in order to obtain a definitive diagnosis via histopathology. If this is declined than endoscopic or biopsies obtained with colonoscopy can be considered. However, they will not be able to sample the mid region of the jejunum. Empiric therapy would include feeding a hypoallergenic diet, giving daily probiotics and adding fiber with added psyllium or Metamucil powder to each meal. If there still no good improvement, then a prednisolone trial can be considered.



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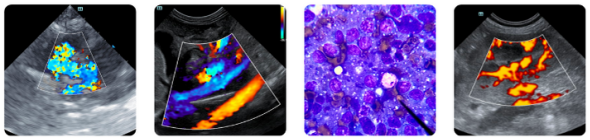

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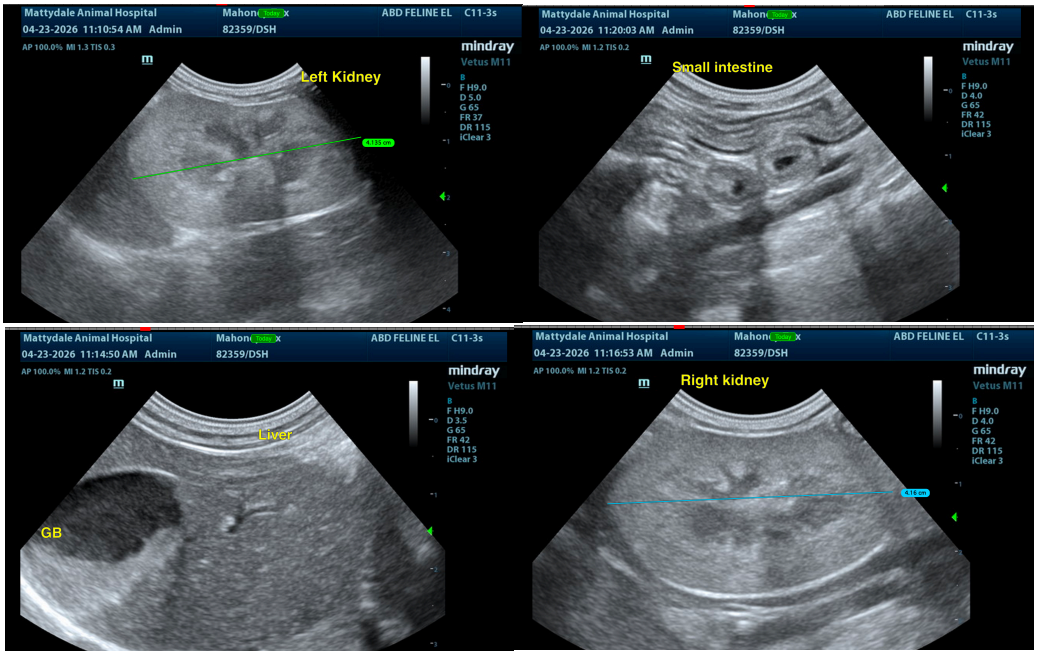

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Kim Radway, DVM, DABVP (Canine/ Feline)

The following is an applicable excerpt from the *Curbside Guide to Diagnosis & Treatment of Sonographic Disease* offered by SonoPath.com Lindquist, Frank, Lobetti, and Modler.

An essential quick guide for every general practitioner and sonographer.

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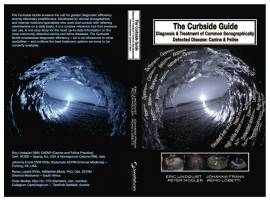

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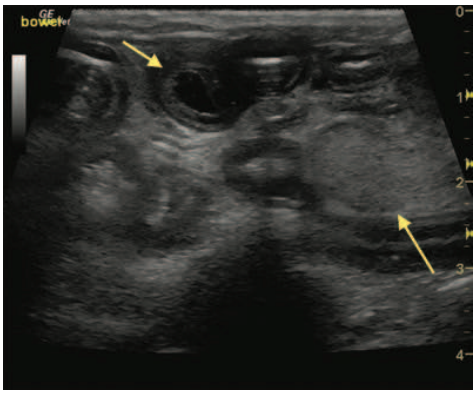
Feline Inflammatory Bowel Disease (IBD) (Lymphoplasmacytic Enteritis)

http://www.sonopath.com/FelineIBD



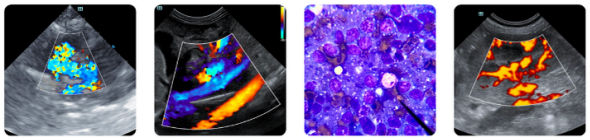
Short axis of jejunal loops in a cat with inflammatory bowel disease. Note the submucosal thickening and hyperechoic mucosal surface. Also note the mild dilation

(small arrow) and relatively rigid appearance of some loops. One enlarged jejunal lymph node is seen within the hyperechoic mesentery (large arrow).

Description: Feline inflammatory bowel disease (IBD) is an exclusionary diagnosis that is based on the following: the presence of chronic gastrointestinal signs; failed food trials, deworming trials, or empirical treatment; a lack of identifiable infectious or parasitic causes; histologic confirmation of inflammation; and a positive response to appropriate therapy. Histologically, inflammation can be described as mild, moderate, or severe. Mild forms entail inflammatory infiltrates (lymphocytes/plasma cells) without architectural distortion. Moderate forms exhibit infiltrates with a separation and distortion of glands or crypts, and mild villous blunting. Severe forms feature increased inflammatory infiltrates with multifocal necrosis, marked crypt/gland separation, fibrosis, and marked villous blunting. Note: Different tissue samples may display different stages of inflammation. Importantly, the extent of clinical signs does not always correlate with the severity of inflammation.

There is evidence in both human and veterinary medicine that severe IBD may progress and become lymphoma. (This is suggested by the presence of monomorphic lymphocytic infiltrates, especially when these cells extend from the mucosa transmurally through to the muscularis layer.) Lymphoma or severe IBD is suspected sonographically when there is a disproportionate thickening of the muscularis layer when compared with the mucosal layer; however, biopsy is required for a definitive diagnosis. Our research has demonstrated that inflammatory bowel and lymphoma can be concurrent in the same patient. We have also confirmed the utility of intraoperative ultrasound in order to identify, sample, and resect affected portions of transmural intestinal disease that meets neoplastic criteria. These regions may be easily missed if the serosa is not affected; one needs to bring a discerning surgical eye to these cases. For more information on intraoperative ultrasound techniques, the reader can refer to www.sonopath.com/resources.

There are two forms of alimentary lymphoma noted in cats: small cell lymphoma and large cell lymphoblastic lymphoma. Depending on cell morphology, it can sometimes be difficult to differentiate between the two



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diseases. Additional testing can include immunophenotyping using immunohistochemistry and PCR for antigen receptor rearrangement (PARR).

IBD is often a misdiagnosis of a simple food sensitivity. Thus, a highly digestible novel protein or a hydrolyzed therapeutic diet should be initiated; it may be the sole necessary therapy in mild cases. A recent study revealed a 29% resolution of the clinical signs associated with “IBD” due to changes in dietary regimens alone.

Other factors, like undiagnosed chronic protozoal disease, may also complicate matters. Recent studies show that unresponsive or recurrent diarrhea in cats frequently correlates with underlying protozoal organisms such as G*iardia, Cryptosporidium*, and *Tritrichomonas*. One must identify these organisms independently of one another, as treatment protocols vary depending on different protozoal species.

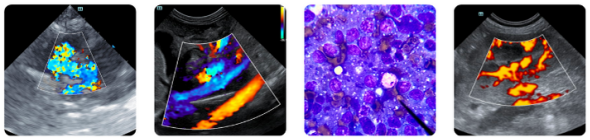
Giardia often leads to a malodorous upper GI type of diarrhea and sometimes involves the colon. Immunofluorescence antibody (IFA) testing is currently thought to have the best sensitivity and specificity, but should be performed on at least 3 fecal samples collected over a period of 5 days, especially if the initial results are negative and suspicion is high. Therapy with fenbendazole 50 mg/kg PO once daily for 10 days is effective, along with environmental decontamination using a chlorine bleach product. Note: Approximately 25% of *Giardia* cases display resistance to metronidazole.

One study indicated a high rate of coinfection with *Cryptosporidium* in *Giardia* positive cats (80%). *Cryptosporidium* is usually self-limiting over a period of 2 weeks, causing upper GI signs that include vomiting and diarrhea; however, it can result in chronic, multi-organ disease in immunocompromised individuals and is of zoonotic risk. Unfortunately, current treatment modalities have shown little efficacy. Tylosin at 10 mg/kg PO BID long-term (2-4 weeks) may be beneficial in alleviating signs of diarrhea.

Tritrichomonas causes an intermittent large bowel diarrhea and is often seen in young cats. A PCR test is available for this organism. Although this disease may be self-limiting over 6 to 24 months, patients are still at risk of developing intermittent relapses, as they remain clinically infected. Treatment with ronidazole at 30-50 mg/kg PO BID for 2 weeks is efficacious, and animals retested with the PCR test are usually negative following therapy. Other medications, such as metronidazole and fenbendazole, may diminish the signs but do not eradicate the organism entirely.

Recent evidence has shown that lymphocytic-plasmacytic infiltrates (i.e., IBD, gingivitis, stomatitis) may be linked to chronic *Toxoplasma*, *Bartonella*, or other infectious agents. Testing for *Bartonella henselae* (“Cat Scratch Disease,” which is transmitted by flea fecal matter) and toxoplasmosis is also indicated in some cases, as appropriate antibiotic therapy may be warranted.

Clinical signs: IBD is commonly characterized by persistent clinical signs consistent with GI disease (i.e., vomiting, anorexia, weight loss, and/or diarrhea). The median age for cats presenting with IBD is around 7 years, and most cats present with a history of intermittent signs for weeks to years. Purebred cats, such as Siamese and Abyssinian cats, may be more vulnerable, but definitive breed predilections have not been reported, nor have definitive predilections based on sex. Since these clinical signs can be associated with both primary GI and extra-GI diseases, further diagnostics are required.



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Diagnostics: Samples can be obtained through biopsy either via laparotomy, laparoscopy, or endoscopy (upper GI or lower GI, depending on the clinical signs). IBD may be suspected using ultrasound; the liver, pancreas, and lymph nodes can be assessed concurrently. Given the overall advantages and common usage of endoscopically obtained biopsies, the World Small Animal Veterinary Association (WSAVA) International Gastrointestinal (GI) Standardization Group has proposed specific guidelines for obtaining endoscopic biopsies in dogs and cats. General recommendations suggest that samples be obtained via larger biopsy forceps (2.8 mm) as opposed to smaller ones (2.2 mm). Multiple endoscopic biopsies (6 or more) from various regions of the GI tract are recommended to optimize the chances of obtaining a proper diagnosis. The number of biopsies needed depends upon the quality of the biopsy, which is generally dictated by the aptitude of the endoscopist. Samples from the duodenum and ileum should be oriented onto a sponge or cellulose acetate paper with the submucosa side upwards. Lesions are often focal. Endoscopy allows for the visualization of mucosal abnormalities. In order to fully evaluate and categorize the findings, one must procure a biopsy that includes the entire villus structure, all the way through to the muscularis. Recent reports suggest that disease primarily affecting the ileum is either becoming more prevalent or being reported more frequently. Biopsies from the ileum are recommended; however, skill is required to drive the scope through the small ileocecocolic valve in cats. Alternatively, the forceps can be passed blindly through the ileocecocolic valve into the ileum. A general practitioner may wish to refer this procedure to a specialist who routinely performs endoscopy.

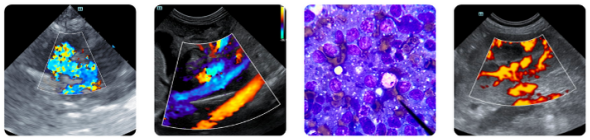
Treatment:

Diet: Hydrolyzed diets should be considered first before initiating a therapeutic novel protein diet, especially when the dietary history is incomplete. Provided there is an improvement in clinical signs, a dietary challenge test can be performed after 12 weeks to evaluate for recurrence upon the reintroduction of the offending antigens. This kind of test helps confirm a diagnosis of dietary allergy or intolerance.

Immunosuppressive agents: Prednisolone 1-2 mg/kg/day PO for 2-4 weeks. Taper after clinical signs resolve; however, one may need to continue the patient on the lowest possible dose to maintain a remission of signs. Methylprednisolone acetate (10 mg/kg SC every 2-4 weeks) for patients who are difficult to pill can be considered in cases in which the diagnosis has been confirmed; however, the cost-benefit of administering a long-acting steroid should be assessed. Budesonide (1 mg/cat PO once to twice daily) can also be used in patients who may not tolerate steroid side effects (e.g. diabetics).

Administer chlorambucil 2 mg (total dose) PO every 48 hours initially for 2-4 weeks. Subsequently taper to the lowest dose and give every 3-4 days. This is to be used in severe cases of IBD. Note: Azathioprine must NOT be given to cats due to toxicity issues. The prednisolone/chlorambucil combination can be an effective long-term, low maintenance, orally administered treatment for lymphocytic (small cell) lymphoma.

Antibiotics: Metronidazole is an immune modulator and should be administered at 10-20 mg/kg PO BID. Antiprotozoal and antibacterial medication can be formulated as gelatin capsules or a flavored elixir for



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improved palatability as necessary. It should be dosed at 15-25 mg/kg PO BID for *Giardia*. Specific antiprotozoal and antibacterial drugs listed in the text above should be utilized for specific infectious diseases.

Tylosin for colonic IBD should be administered at 40-80 mg/kg/day (10 mg/kg PO TID or 40 mg/kg PO BID).

GI support: Cyanocobalamin (B_{12}) is an inexpensive pure form of vitamin B_{12}. Administer 125-250 ug SC or IM weekly for 6 weeks, taper to every 2 weeks for 6 weeks, and then give monthly if serum levels are low and especially if concurrent exocrine pancreatic insufficiency (EPI) is suspected. Recent research indicates the veterinary reference range for B_{12} is inaccurate and that more cats than indicated are actually deficient in this vitamin. Some patients respond very well to continued B_{12} supplementation and dietary therapy even once they have been weaned off prednisolone.

Probiotic supplementation with products such as Purina Veterinary Diets® FortiFlora® will help reestablish a more normal GI flora.

Pancreatic enzyme supplementation should be pursued if a serum feline trypsin-like immunoreactivity test (fTLI) indicates concurrent EPI.

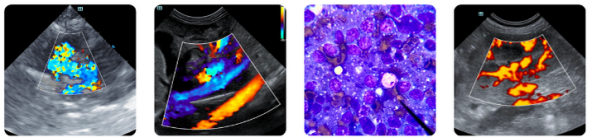
Conclusion: Cases of Feline IBD are challenging but can be very rewarding to treat. Owners should be encouraged to obtain biopsies so that an accurate treatment plan and prognosis can be determined.

References:

Al-Ghazlat S, Eriksson de Rezende C, and Ferreri J. Feline small cell lymphosarcoma versus inflammatory bowel disease: diagnostic challenges. *Compend Contin Educ Vet* 2013;35(6):E1-6.

Buffington, C. A. Dry foods and risk of disease in cats. *Can Vet J* 2008;49(6):561-63.

Day MJ, Bilzer T, Mansell J, et al. Histopathological standards for the diagnosis of gastrointestinal inflammation in endoscopic biopsy samples from the dog and cat: a report from the World Small Animal Veterinary Association Gastrointestinal Standardization Group. *J Comp Pathol* 2008;138 Suppl 1:S1-43.



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Jergens AE. Feline idiopathic inflammatory bowel disease: what we know and what remains to be uraveled. *J Feline Med Surg* 2012;14(7):445-58.

Jergens AE, Bilzer T, Day M, et al. Report from the WSAVA GI Standardization Group on inflammatory bowel disease. Proceedings from the American College of Veterinary Internal Medicine, Baltimore, MD, June 1-4, 2005.

Jergens AE, Simpson KW. **Inflammatory bowel disease** in veterinary medicine. *J Front Biosci* (Elite Ed) 2012;4:1404-19.

Ugarte C, Guilford WG, Markwell P, et al. Carbohydrate malabsorption is a feature of feline inflammatory bowel disease but does not increase clinical gastrointestinal signs. *J Nutr* 2004;134(8 Suppl):2068S-71S.

Washabau RJ, Day MJ, Willard MD, et al. Endoscopic, biopsy, and histopathologic guidelines for the evaluation of gastrointestinal inflammation in companion animals. *J Vet Intern Med* 2010;24:10-26

Zwingenberger AL, Marks SL, Baker TW, Moore PF. Ultrasonographic evaluation of the muscularis propria in cats with diffuse small intestinal lymphoma or inflammatory bowel disease. *J Vet Intern Med* 2010;24(2):289-292.