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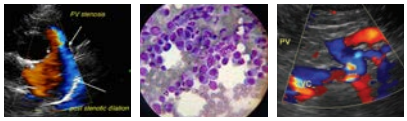


SonoPath

Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™

1-800-838-4268 info@sonopath.com SonoPath.com

DATE

7/22/22

PATIENT

Ryan Butler

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

1/1/12

WEIGHT

13 lb 9 oz

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Stephanie Pearce RDCS, RVT

HOSPITAL NAME

Chadwell AH

REFERRING VET

Dr. Jones

INVOICE

39771

PRESENTING CLINICAL SIGNS

1lb weight loss past 4 months. Vomiting, decreased appetite, lethargic.

Current Medications: Mirtaz started 7/18. Chronic: Clopidogrel, Fluoxetine, Spironolactone, Benazapril.
Lab Results: Monos 899, CK 570 from BW 7/16/22.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** is well distended. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra. A moderate amount of free floating and aggregated sediment is present, however, there is no evidence of cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 3.77 cm (3.80-4.40 cm). The capsule is smooth. The cortex is hyperechoic, i.e., it is isoechoic to the spleen. Its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. Blood flow is within normal limits. The surrounding mesentery is moderately to severely hyperechoic in a haphazard fashion, which appears to be associated with the pancreas.

The **right** kidney measures 3.90 cm (3.80-4.40 cm). The capsule is smooth. The cortex is hyperechoic, however, its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. Blood flow is within normal limits. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.49 cm. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.59 cm. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size 7.7 mm (normal = 10 mm), echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

Although overt hepatomegaly is not present, the liver appears "generous" and "swollen". Its borders are smooth, but mildly rounded. The liver's echotexture is homogeneous, but mildly hyperechoic, i.e., it is isoechoic to the falciform fat. Focal lesions are not observed and no abnormalities are observed with the hepatic vessels.

The **gallbladder** (GB) wall is within normal limits in thickness and echogenicity. A very small amount of echogenic material is present within the GB. The cystic and common bile ducts cannot be followed in their entirety due to the large amount of ingesta and gas in the GI tract, however, the portions observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The stomach is filled with a large amount of ingesta and fluid, despite having been fasted since 7:30 pm last night. An in-depth evaluation is difficult due to the ingesta, however, no overt abnormalities are observed. The gastric wall is within normal limits in thickness and the wall layers are well defined, however, the submucosa is more prominent than usual.

Duodenum: Wall thickness is at the high end of the normal reference range (0.27 cm). The definition of the wall layers is preserved. A large amount of ingesta and fluid are present within the lumen. Ineffective peristalsis is present, i.e. a "to and fro" motion is observed.

Jejunum: A significant amount of ingesta is present within the lumen. Wall thickness is increased (0.30 cm, 0.32 cm). Fogging of the mucosa is noted, in addition to prominent wall layers, i.e. mucosa, muscularis and submucosa. Decreased peristalsis is also present in the small intestinal tract. The mesentery surrounding a number of segments of jejuni is hyperechoic. No major abnormalities are noted with the ileo-cecal colic junction other than fogging of the mucosa.

The transverse colon shows a prominent submucosa.

The colonic wall is not thickened and mural detail is considered normal.

Pancreas

The **left limb** is moderately enlarged and hypoechoic. Its contours are slightly irregular. It has a mildly coarse echotexture, which consists of hypoechoic nodules of variable size and pinpoint to punctate hyperechoic foci scattered throughout the parenchyma. The former abnormalities are suggestive of active pancreatitis, while the latter are most likely due to age-related changes, such as nodular hyperplasia and fibrosis, respectively. Fibrosis may occur secondary to age, previous episodes of pancreatitis, mineralization, as well as amyloid deposition. The surrounding mesenteric fat is severely hyperechoic. Blood flow is within normal limits. Similar findings are observed with the **right limb**, but they are not as severe.

Other

Lymph nodes

Left pancreatic region: An enlarged, elliptical, hypoechoic LN with smooth borders is noted (0.39 cm in diameter x 0.62 cm in length). The surrounding mesentery is hyperechoic.

A couple of lymph nodes in the ileo-cecal-colic junction are "plump", slightly prominent and hypoechoic.
Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Pancreas**: Active pancreatitis is suspected, in addition to age-related changes and fibrosis associated with previous episodes of pancreatitis, and possibly, amyloid deposition.

- **Gastrointestinal (GI) tract**: Delayed gastric emptying is present as Ryan was fasted for greater than 12 hours. Signs of diffuse gastrointestinal inflammation are observed. Differential diagnoses include a chronic enteropathy, e.g., inflammatory bowel disease, food intolerance, dysbiosis, etc. Although the definition of the wall layers is preserved, one cannot exclude infiltrative disease, such as lymphoma or other round cell tumour, definitively without performing tissue biopsies and possibly

immunohistochemistry and PARR. Furthermore, both diseases may be present concurrently.

- **Liver:** Hepatic lipidosis is likely present, however, cholangitis/cholangiohepatitis and cholestasis cannot be excluded. A secondary bacterial infection from the GI tract may be another complication.

- **Gallbladder (GB):** Gallbladder sludge; cholecystitis, with or without a suppurative component, cannot be ruled out despite the absence of sonographic signs. Obtaining a history regarding signs of gastroesophageal reflux disease (GERD), from the client is suggested.

- **Lymph nodes:** The very mild lymphadenomegaly is more consistent with reactive hyperplasia, rather than infiltrative disease.

- *"Triaditis"* should be considered as a cause of Ryan's clinical signs, however, as mentioned above, it is difficult to differentiate a chronic enteropathy from GI lymphoma without performing biopsies.

- **Kidneys**: Mild hyperechogenicity of both cortices, which may be due to age-related changes, however, subclinical pyelonephritis cannot be ruled out, particularly in an older cat suffering from generalized malaise.

- **Urinary bladder**: Although the free floating sediment is most likely clinically significant, it should not be disregarded due to the renal changes noted.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Arterial blood pressure, in the presence of client

Adjustment dosages of cardiac medications based on Ryan's current body weight (i.e., weight loss) may help decrease nausea.

Urinalysis and urine culture and sensitivity to exclude pyelonephritis.
Urine protein creatinine ratio, if the culture is negative (i.e., +/- dose adjustment of benazepril vs. telmisartan)

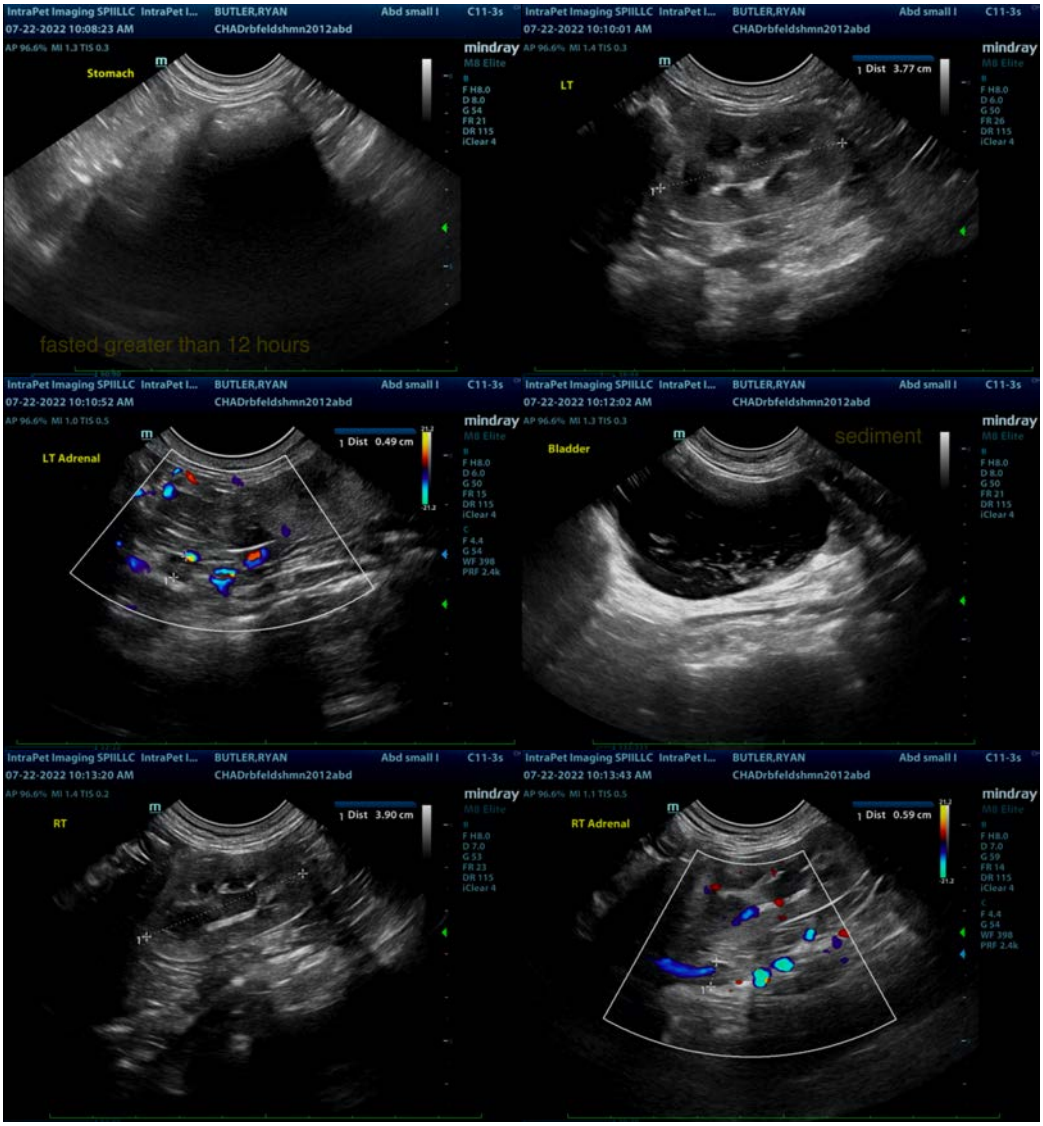
+/- spec fPL, cobalamin, and folate

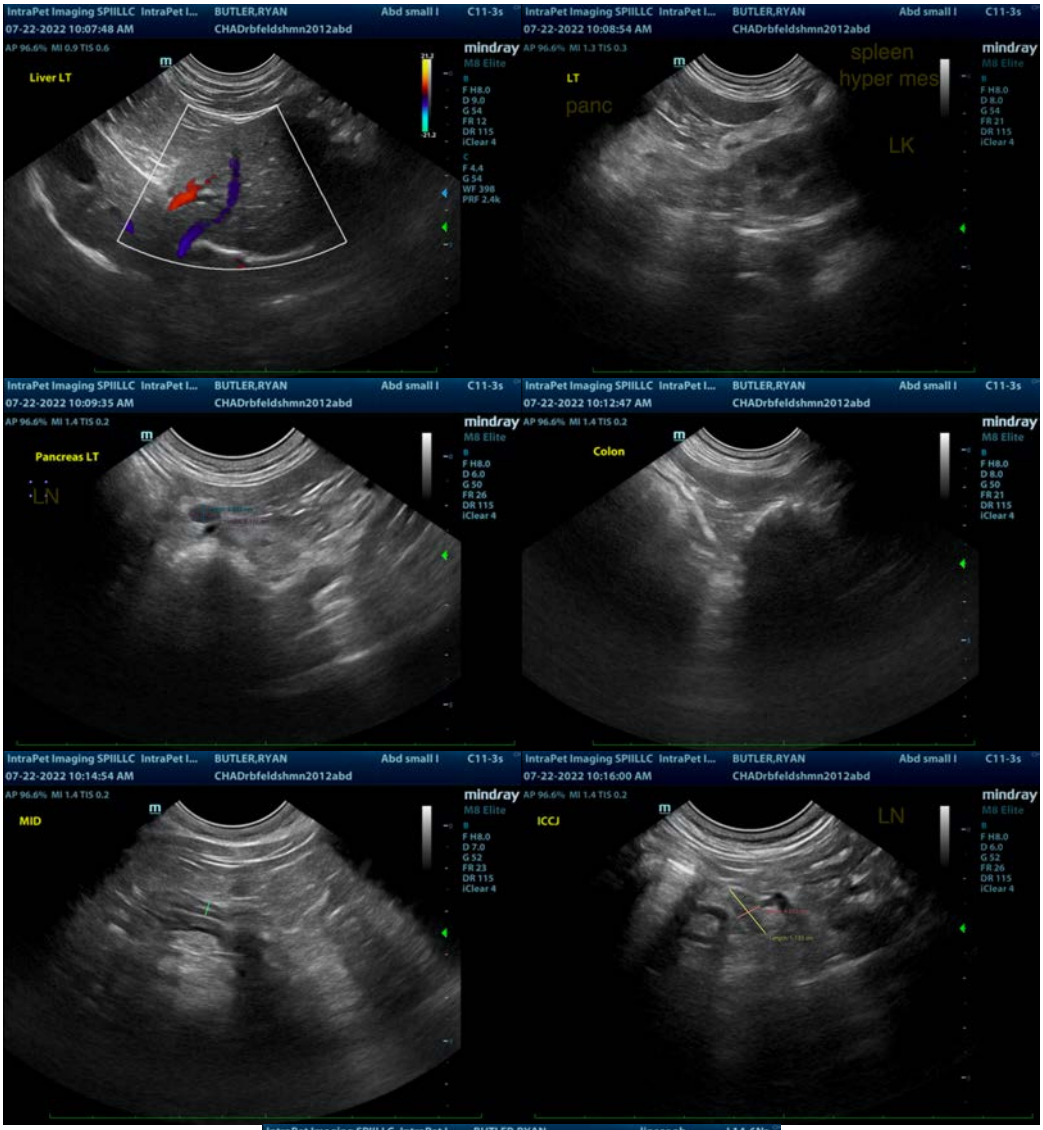
Analgesia for visceral pain, such as buprenorphine (0.005-0.01 mg/kg sublingually every 8-12 hours) for a minimum of 7-10 days. Continue for 3-4 weeks if an improvement is noted; the dose and frequency may be weaned to the minimum effective dose during that time.
+/- gabapentin
Supportive care (IV fluids vs. SQ fluids, maropitant, mirtazapine, etc.)
Obtaining a history regarding signs of gastroesophageal reflux disease (GERD), from the client is suggested.
If signs of GERD present, 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO q12h)

Diet trial (veterinary prescription brand hypoallergenic, i.e., novel protein, or ideally, a hydrolyzed diet); ensure appetizing to prevent hepatic lipidosis, sarcopenia and cachexia.
Differential diagnoses include cholecystitis, cholangitis/cholangiohepatitis, and secondary ascending bacterial infections. Although indiscriminate use of antibiotics is not recommended, one could consider broad-spectrum antibiotic for a minimum of 4 weeks, and possibly up to 6-8 weeks

Ultimately, gastrointestinal biopsies of the upper and lower GI tract are required to obtain a definitive diagnosis of inflammatory bowel disease vs. neoplasia. If little to no improvement is observed with the above

treatment suggestions, and further diagnostic tests are not pursued, although not ideal, empirical treatment for severe inflammatory bowel disease or lymphoma may be considered.
* Note, dexamethasone is preferable to prednisolone due to heart disease (less mineralocorticoid effects). Dexamethasone (0.03-0.05 mg/kg) PO once a day for 14 days, then tapered. Although dose may be increased to 0.10 mg/kg/day, if necessary.

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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.

Lisa Carioto, DVM, DVSc, Diplomate AVIM

Lisa.Carioto@sonopath.com