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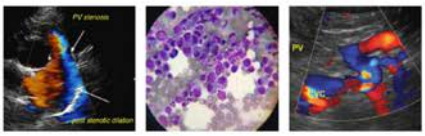

SonoPath
Clinical Sonography & Telecytology
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PATIENT

Marley Hillen 82025

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

15 Years 11 Months

WEIGHT

3.2 kg

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Tom McNeill

HOSPITAL NAME

SVS Imaging CT

REFERRING VET

WVRC – Dr. Bianco

INVOICE

38607

DATE

6/10/22

PRESENTING CLINICAL SIGNS

Presented to WVRC on 6/9/2022 for hyporexia for the last 8 months and hematuria. Marley has been healthy his whole life but for the last 6-8 months Marley has been eating very little. Today Marley had hematuria for the first time and was urinating outside of the litterbox. Marley has two litterboxes and they seem to be taking longer to fill up compared to normal. No recent coughing, vomiting, or diarrhea noted. Will occasionally sneeze and get ocular discharge but that waxes and wanes. He has an otherwise benign medical history. No medications. Vacc status: UTD on rabies, unsure about other vaccines. Indoor only cat. Will go outside on his enclosed catio.
Abnormal PE/Chem/CBC/UA Results: 1) CBC - RBC 4.8 (L), HGB 7 (L), HCT 22 (L), MON 619 (H), Reticulocytes 16730 --> Anemia (r/o hemorrhage, CKD, neoplasia, clotting disorder, immune mediated disease, toxin, inflammatory, infection, endocrine disease, bone marrow disease, iron deficiency) 2) Chem w/ lytes - Glu 111 (N), Phos 5.2 (N), Cre 3.8 (H), BUN 58 (H), Cl 126 (H), OSM 345 (H) --> Azotemia (r/o pre-renal vs renal) 3) UA (free catch, ZRL) - Red colored, turbid, USG 1.028, rare wBC (1-5), TNTC RBCs, few uroepithelial cells, no bacteria/crystals/casts ***Pigmenturia did not clear follow centrifugation therefore chemical analysis of urine could not be performed. --> Hematuria (r/o Urinary tract disease - inflammation or FLUTD, bacterial UTI, urolithiasis, neoplasia, parasitic UTI, renal infarct, trauma, Genital tract contamination/disease - r/o prostatitis, inflammation, neoplasia, abscess, Coagulopathy) 4) FeLV/FIV- negative x 2 5) Total T4 - 0.8 (N) 6) Free T4 - 0.6 (L) 7) R Lat AXR - Mineral opaque round structure ventral to L5, suspect possible Bate's Body vs uretolith. 2 small mineral opaque dots in urinary bladder. Fecal material in colon.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is not thicker than usual and is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of cystoliths. A trivial amount of free-floating echogenic sediment is noted in one view.

A round, echogenic structure with smooth borders, measuring 0.84 cm in diameter x 1.14 cm in length, is observed along the ventral wall. The structure is of mixed echogenicity, the majority is hypoechoic, with a portion of it being markedly hyperechoic. The hyperechoic portion has mildly irregular contours. The structure is mobile, i.e. it moves to the gravity dependent portion of the bladder (ventral wall) when Marley is standing. It is avascular when evaluated with Doppler. The structure is not suggestive of a polyp or a mass. A blood clot adhered to an organized hematoma is suspected.

Kidneys

The **left** kidney measures 3.35 cm (3.80-4.40 cm). it is decreased in size and has lost its "kidney bean shape", however, the capsule is smooth. The cortex is severely hyperechoic. A moderate loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without pyelectasia. In the transverse view, hyperechoic linear structures are noted along the diverticulae and within the pelvis. Subtle acoustic shadowing is associated with some of these structures; consistent with nephrolithiasis. There is no evidence of hydroureter. The surrounding mesentery is not hyperechoic. A trivial amount of anechoic fluid is present adjacent to the kidney.

The **right** kidney measures 3.35 cm (3.80-4.40 cm). Findings are similar to the left kidney. Hyperechoic structure present in pelvis, 0.65 cm.

Aortic bifurcation/trifurcation

No abnormalities observed.

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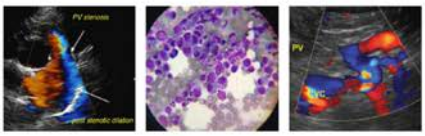

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Adrenal Glands

The **left** adrenal gland measures 0.41 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 0.38 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 echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. Size: 6.23 mm (normal = 10 mm), but normal in length.

Liver

There are no obvious signs of hepatomegaly. The liver's echotexture is homogeneous. It is diffusely hyperechoic, i.e. it is iso to hyperechoic to the falciform fat. Focal lesions are not observed and no abnormalities are observed with the hepatic vessels.

The gallbladder wall is within normal limits in thickness and echogenicity. There is no evidence of echogenic material within the GB or edema surrounding it. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. However, mild stippling of the mucosa and a mildly prominent muscularis are noted in some jejunal segments. Abnormally dilated loops of bowel are not observed. No abnormalities are observed with the ileocecal colic junction.

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

Pancreas

The pancreas has a mildly coarse echotexture, which is considered secondary to age related changes, however, previous episodes of pancreatitis cannot be excluded. Despite the mildly coarse echotexture, both limbs are, subjectively, hypoechoic. The left limb appears edematous and its contours are slightly more irregular. The pancreatic duct may be dilated in older cats, however Marley's is more dilated than usual (3.2 mm). Focal areas of the surrounding mesentery are moderately to markedly hyperechoic, i.e., active pancreatitis is suspected. Signs of neoplasia are not appreciated.

Other

Lymph nodes

A mesenteric lymph node in the region of the ileocecal colic junction is very mildly increased in diameter at 0.6 cm. It is more "plump", but maintains its smooth borders, normal echotexture and echogenicity. A few other mesenteric lymph nodes are slightly more prominent than usual.

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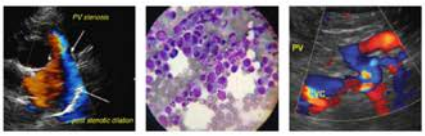

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Abdominal effusion

A trivial amount of anechoic fluid is present surrounding the left kidney in between a few of the intestines.

ULTRASONOGRAPHIC FINDINGS

- **Urinary bladder**: A *blood clot adhered to an organized hematoma* is highly suspected. There is no evidence of neoplasia.
- **Kidneys:** *Age related degeneration* is suspected as a component of the renal changes observed. *Chronic renal disease* must also be considered based on the blood work results, however, dehydration may be falsely increasing the renal parameters. *Nephrolithiasis and mineralizations* are present, *without signs of an obstruction*. The friction of the nephroliths or mineralizations with the renal parenchyma can cause intermittent hematuria and blood clots in the urinary bladder. Abdominal pain is also possible. Glomerulosclerosis and interstitial nephritis may also be contributing to the changes observed. **Pyelonephritis** cannot be excluded despite the absence of classical sonographic findings and should still be considered.
- **Pancreas**: *Active pancreatitis* is suspected. Signs of neoplasia are not appreciated.
- **Gastro intestinal tract**: The small intestinal changes are mild and somewhat subjective. Although these findings may not be clinically significant, they have been associated with GI inflammation. A *chronic enteropathy*, e.g. Inflammatory bowel disease, dysbiosis, EPI, etc. is suspected Obvious signs of neoplasia are not observed, however, biopsies are required to exclude neoplasia with certainty.
- **Lymph nodes**: very mild lymphadenomegaly of a mesenteric lymph node and increased prominence of others; suggestive of *reactive hyperplasia*.
- **Liver:** Subclinical *hepatic lipidosis* due to hyporexia may be present.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested/recommended

Arterial blood pressure

A urine culture and sensitivity. Treatment with enrofloxacin pending the culture results is recommended, (although not ideal if anorexic).

Intravenous fluids for 48-72 hours; if not possible, subcutaneous fluids at home, including multiple times/week

Treatment for pancreatitis, most importantly, analgesia, such as *buprenorphine* (0.005-0.01 mg/kg, sublingually, every 8-12 hours) with or without gabapentin. Continue for 3-4 weeks, or longer, and then as needed, i.e. recurrent episodes are possible.

Other supportive care: Anti-emetics (maropitant), famotidine SQ or IV or pantoprazole IV to treat uremic gastritis, etc.

TLI, serum cobalamin, and folate to exclude cobalamin deficiencies and exocrine pancreatic insufficiency (EPI) and secondary dysbiosis.

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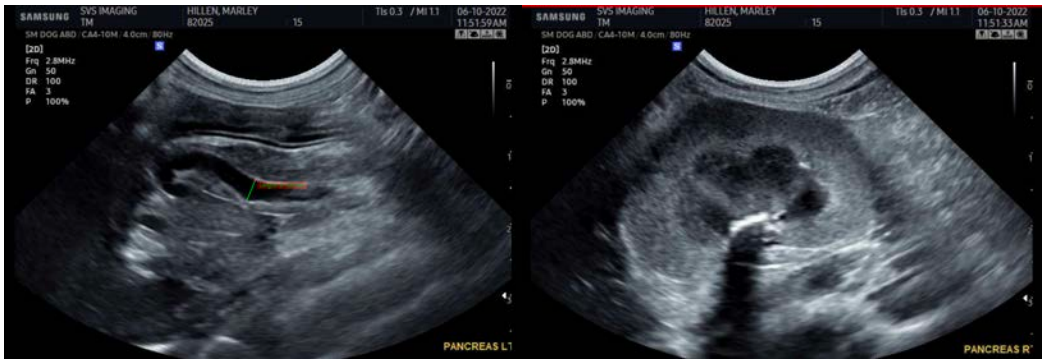
Supplementation with cobalamin for 1-2 doses (anemia).

Evaluation of Marley's diet, i.e. predisposing factor for the development of mineralization and nephroliths in some patients.

Gradual introduction of a renal diet or a senior diet that is restricted in phosphorus, and ideally, one that is hypoallergenic or hydrolyzed. For example, Royal Canin Renal Support / HP

Stimulate water consumption as much as possible.



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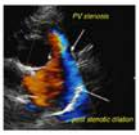
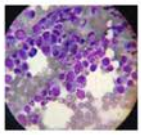
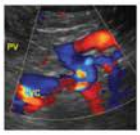

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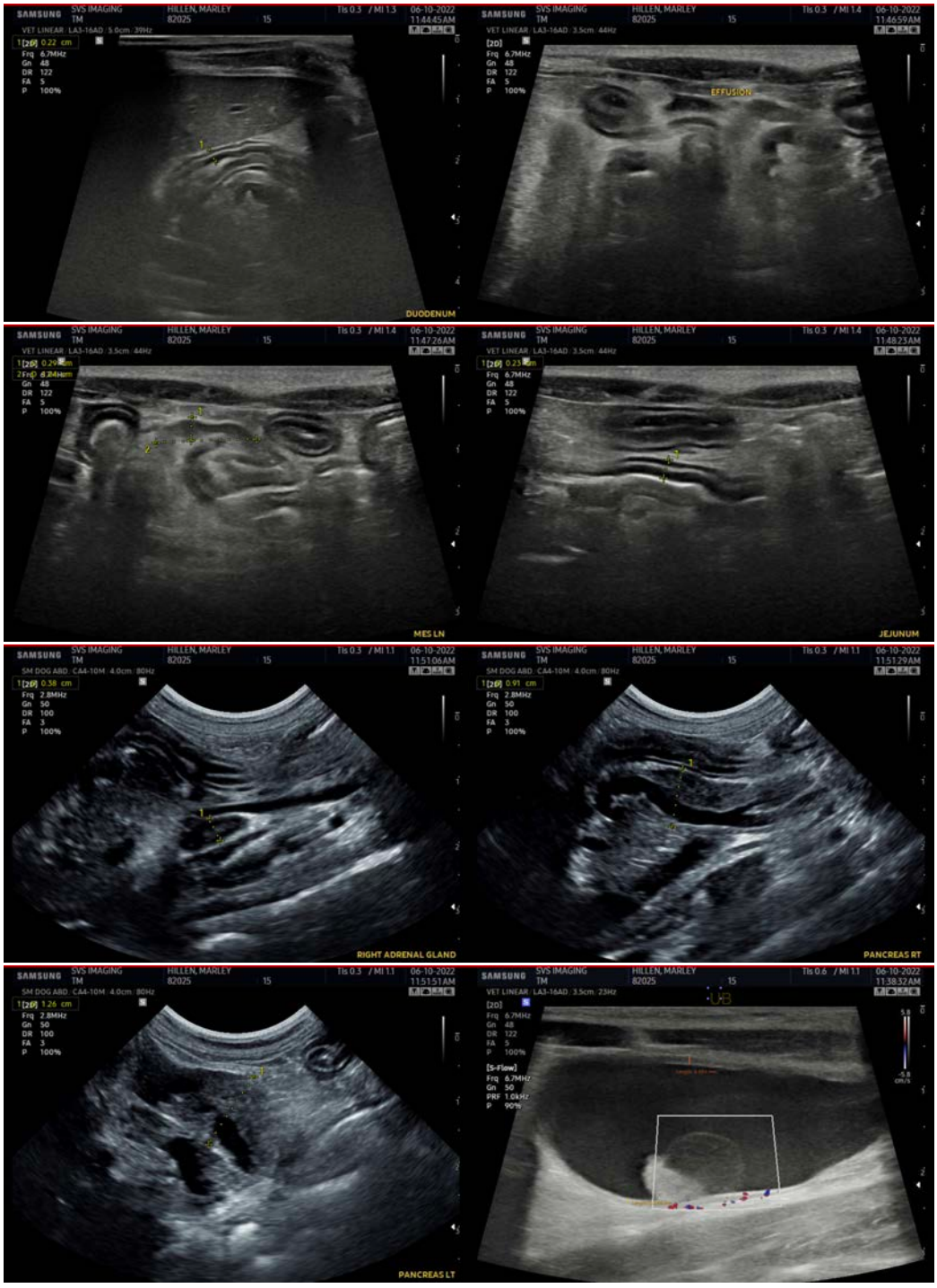

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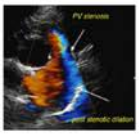
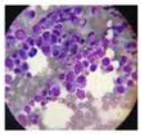
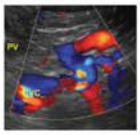

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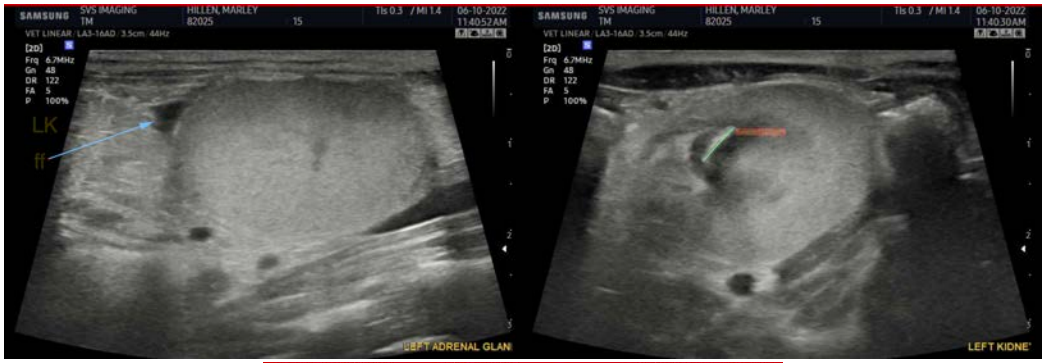

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM Lisa.Carioto@sonopath.com