



PATIENT

Murphy Williams

SPECIES

Canine

BREED

Yorkie Mix

SEX

Neutered male

AGE

12 years

WEIGHT

7.2 lbs

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

IMAGING PERFORMED BY

Dr. Bush

HOSPITAL NAME

Great Miami VC

REFERRING VET

Dr. Bush

INVOICE

30804

DATE

5/31/22

PRESENTING CLINICAL SIGNS

Murphy presents for follow up ultrasound and urinalysis after regular screening blood work revealed uremia and increased liver values. He previously had some mild liver elevations (ALP 240) in May of last year that returned to normal by June. He is doing well at home. Murphy has been clinically normal, no pU/pD, eating normally. The only sickness he has otherwise had in the last year are episodes in October and January where his eyes were more prominent and sclera injected. Was treated with pred for suspected myositis and followed up with an ophthalmologist where the eyes were found to be normal. Abnormal PE/Chem/CBC/UA Results: Weight stable (has gained 0.5 lb since January) Mild tartar, PE otherwise unremarkable. CBC: HCT 44% but 10% decrease from previous 2 years HCTs, MCV 53, MCH 18.9, Reticulocyte hemoglobin 20.5 Chem: SDMA 15, Creat 2.0, BUN 50, Globulin 4.5, ALT 197, ALP 629, GGT 17 UA: usg 1.033, trace protein otherwise unremarkable

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 6.75 cm. The capsule is smooth. The cortex is very mildly hyperechoic (isoechoic to spleen) and a very mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulæ and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 6.13 cm. Findings are similar to the left kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.49 cm at the cranial pole, 0.42 cm at the caudal pole and 1.18 cm in length. 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 0.55 cm at the cranial pole, 0.50 cm at the caudal pole and 1.39 cm in length. Both poles are within the normal reference range, however, the cranial pole has a round shape. No abnormalities are noted with the gland's overall echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen



PATIENT	The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.
Murphy Williams	
SPECIES	Liver
Canine	Hepatomegaly is suspected, however, this is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth and vary between sharp to very mildly rounded. It is mildly, but diffusely hyperechoic, with a coarse, granular echotexture. Other areas of the liver are moderately heterogeneous with multiple hypoechoic nodules of variable size dispersed throughout the parenchyma, in addition to a few larger hypoechoic nodules (e.g. 1.08 cm in diameter x 1.13 cm in length). A larger, hypo to almost anechoic nodule, is noted subcapsularly. It does not disrupt the integrity of the capsule (2.27 cm in diameter x 1.71 cm in length). Another subcapsular, hypoechoic nodule is observed dorsally (1.45 cm in diameter x 2.83 cm in length). No abnormalities are observed with the hepatic vessels visualized.
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AGE	The gallbladder (GB) is mildly distended with a mild amount of free floating and inspissated echogenic material. The GB wall is within normal limits in thickness and echogenicity. No obvious abnormalities are observed with the portion of the cystic duct visualized. The common bile duct is not visualized. There are no signs of an obstruction.
12 years	
WEIGHT	Gastrointestinal
7.2 lbs	Gas is present within the lumen of the stomach. The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.
INTERPRETED BY	The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. Abnormally dilated loops of bowel are not observed.
Lisa Carioto, DVM, DVSc, Diplomate ACVIM	The colonic wall is not thickened and mural detail is considered normal.
IMAGING PERFORMED BY	Pancreas
Dr. Bush	The left limb is diffusely hypoechoic, with irregular contours. Pinpoint to punctate hyperechoic foci are scattered throughout the parenchyma, which are considered secondary to age related changes, however, previous episodes of pancreatitis and amyloid deposition cannot be excluded. The mesentery surrounding the pancreas is mildly hyperechoic. Signs of active pancreatitis are present. No overt abnormalities are observed with the echogenicity or echotexture of the right limb .
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REFERRING VET	Other
Dr. Bush	Lymph nodes
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5/31/22	



PATIENT **ULTRASONOGRAPHIC FINDINGS**

Murphy Williams

- **Pancreas:** A smoldering pancreatitis is suspected, in addition to age related changes.

SPECIES

Canine

- **Liver:** Hepatitis cannot be excluded, for example, primary (immune-mediated) or secondary (toxins, including medications and natural supplements, infectious agents (parasites, viruses, or bacteria). Benign, age-related nodular hyperplasia is also suspected. Cholestasis, cholangitis/cholangiohepatitis and cholecystitis cannot be excluded.

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- **Gallbladder:** Gallbladder sludge is often clinically insignificant, however, gastroesophageal reflux disease (GERD), can occur in some patients. Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required. The latter may also help decrease hepatic inflammation.

SEX

Neutered male

- **Adrenal glands:** The cranial pole of the **right** gland is round. Differential diagnoses include benign adenoma or a myelolipoma. An obvious mass is not evident and the surrounding vasculature does not show any abnormalities to suggest neoplasia.

AGE

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- **Kidneys:** Mild age-related degeneration, however, pyelonephritis cannot be excluded, despite the absence of overt sonographic signs.

WEIGHT

7.2 lbs

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested suggested/recommended

- Low grade, intermittent GI bleeding could cause microcytosis, decreased reticulocyte-Hb, thrombocytosis and elevated urea (and decreased hematocrit since last year)
- Spec cPL, cobalamin and folate (dogs with pancreatitis can develop hypocobalaminemia)
- A urinalysis and urine culture and sensitivity to exclude pyelonephritis
- If negative, a urine protein: creatinine ratio
- An arterial blood pressure are recommended to rule out hypertension
- Exclude *Leptospira* spp., medications and natural supplements (SNAP 4Dx was negative)
- Treatment for pancreatitis pending results, including analgesics
- Easily digestible, low fat, AND low protein and low phosphorus diet
- Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor may be required depending on the history.
- Ursodeoxycholic acid (Ursodiol) may also be beneficial for the GB sludge and hepatic changes
- Differential diagnoses include cholecystitis, cholangitis/cholangiohepatitis, and secondary ascending bacterial infections. Although indiscriminate use of antibiotics is not recommended, consider broad-spectrum antibiotic with reassessment of liver enzymes, including GGT, in a few weeks, while *still receiving* the antibiotics. If an improvement is observed, continue antibiotic for an additional two weeks.
- If no improvement, fine needle aspirate or biopsy of the liver pending coagulation profile.
- Further diagnostics for hyperadrenocorticism are suggested if Murphy develops clinical signs.

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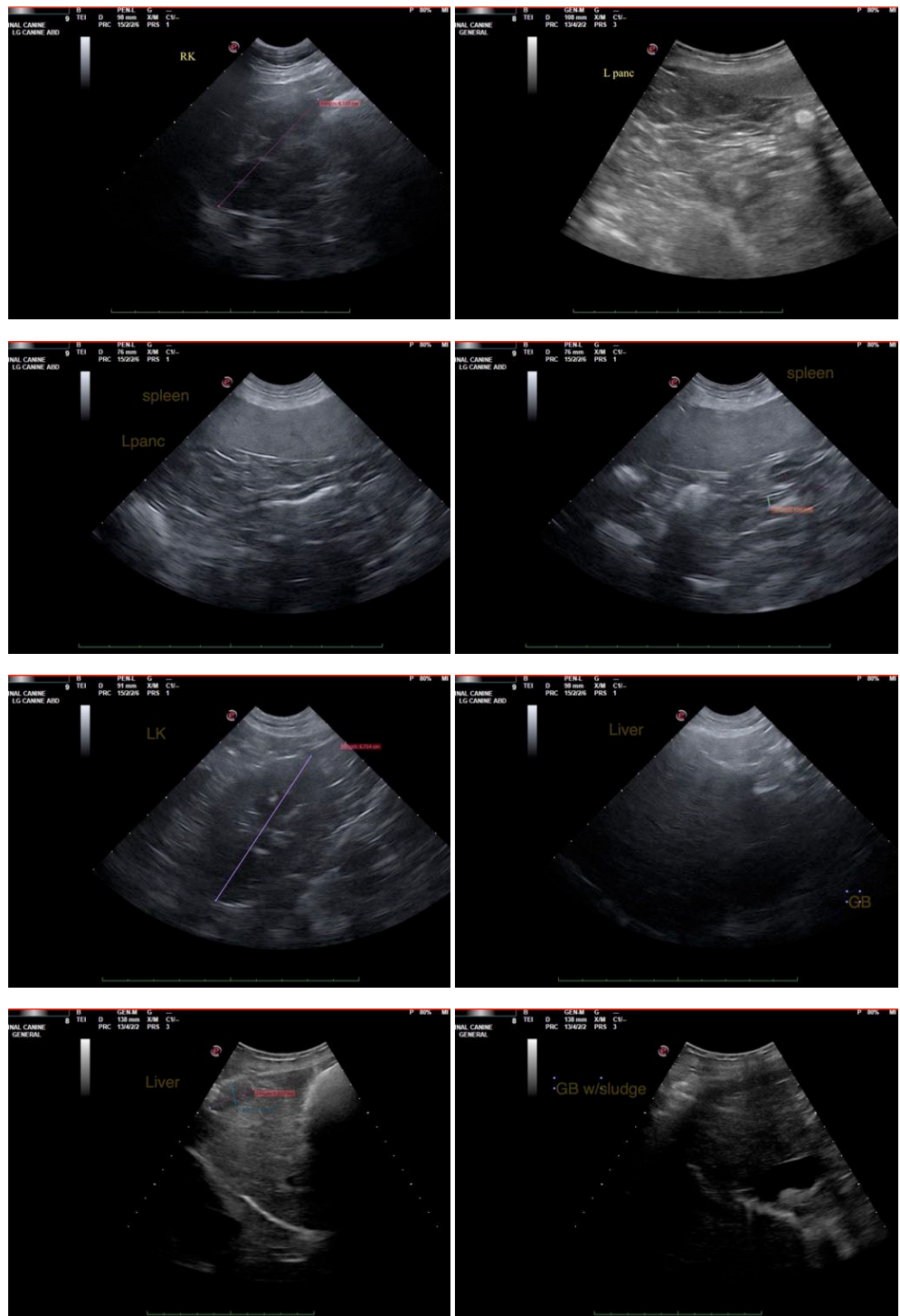
Dr. Bush

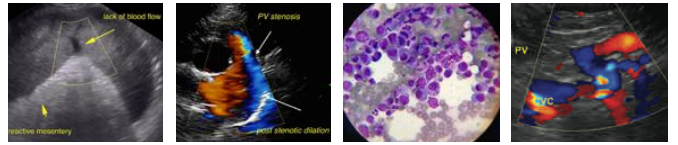
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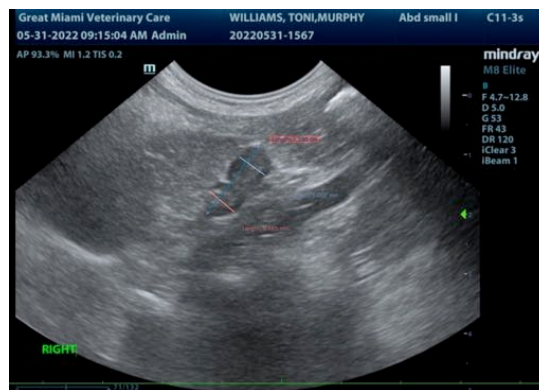
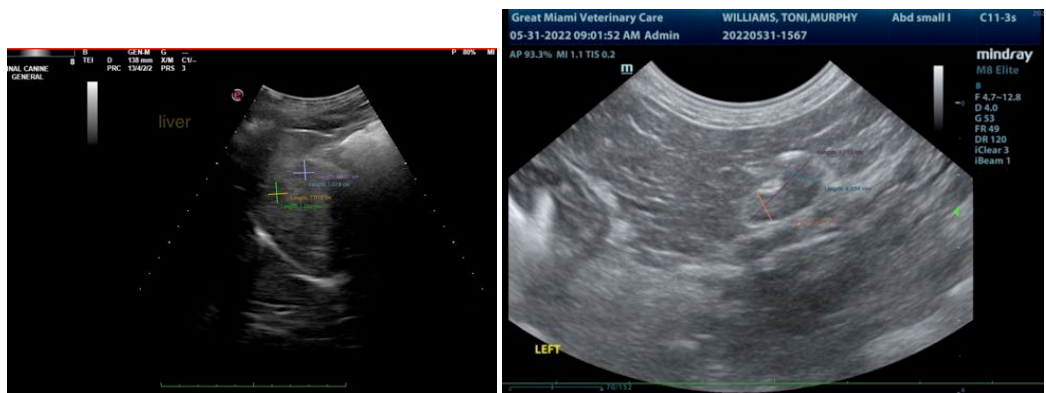
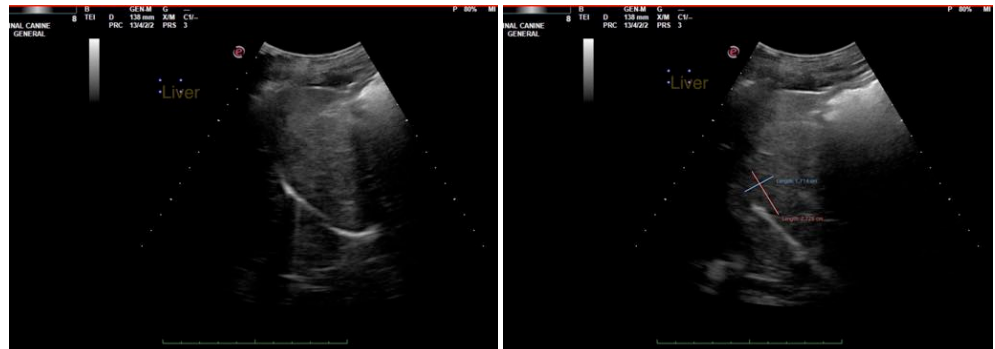
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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