

**PATIENT**

Miah Stout

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed Female

AGE

12 Years

WEIGHT

10 Pounds

INTERPRETED BYLisa Carioto, DVM,
DVSc, Diplomate
ACVIM**IMAGING PERFORMED BY**

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Briarwood Vet Hospital

INVOICE

39960

DATE

7/28/22

PRESENTING CLINICAL SIGNS

Not eating well.

Abnormal PE/Chem/CBC/UA Results: increase of all liver values (alp,alt,gg,t,bilirubin) **Please see attached labs

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System**

The **urinary bladder** is not fully distended, but its contents are anechoic. The wall is mildly irregular. 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 3.59 cm. The capsule is smooth. a very mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, with very small nephroliths. There are no signs of pyelectasia. A very small anechoic structure located in the cortex at the cranial pole is noted. It is consistent with a benign cyst. The surrounding mesentery is not hyperechoic.

The **right kidney** measures 4.40 cm. The capsule is smooth. a very mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, with very small nephroliths. There are no signs of pyelectasia. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation No abnormalities observed.

Adrenal Glands

The **left adrenal gland** measures 0.38 cm at the cranial pole, 0.28 cm at the caudal pole. 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 0.31 cm at the cranial pole, 0.31 cm at the caudal pole. 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, architecture, echotexture, and echogenicity. The capsule is smooth. Mild perivascular cuffing, consistent with myelolipomas is observed; these are not considered clinically significant. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

Hepatomegaly is present. The liver is diffusely hyperechoic, i.e., it is isoechoic to the spleen. Its echotexture is homogeneous, however, it has a cobblestone like appearance. Focal lesions are not visualized. The liver has rounded and scalloped borders, with some regions appearing expansile. The mesentery surrounding it is markedly hyperechoic. No abnormalities are observed with the hepatic vessels.

The **gallbladder (GB)** is moderately distended with a small to moderate amount of free floating, gravity-dependent and inspissated echogenic material (sludge). The GB wall is within normal limits in thickness

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and echogenicity. The cystic and common bile ducts cannot be followed due to the large amount of gas in the surrounding gastrointestinal tract.

Gastrointestinal**SPECIES**

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Gas is present in 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.

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Duodenum: wall thickness is mildly increased at 0.54 cm. Both stippling and fogging of the mucosa are present. A moderate to large amount of gas and fluid are present in the lumen and the surrounding mesentery is hyperechoic.

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A large amount of gas and formed stools are present in the transverse and descending colon, respectively. The colonic wall is not thickened and mural detail is considered normal. Formed stools and gas are present within the colon.

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Pancreas

No overt abnormalities are observed with the architecture, contours, echogenicity or echotexture of the pancreas. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., signs of active pancreatitis are not present.

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Other

Lymph nodes Mesenteric lymph nodes are slightly plump, but within normal limits in size and echogenicity.

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Abdominal effusion is not visualized.

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ULTRASONOGRAPHIC FINDINGS

- **Liver:** Neoplasia, such as a round cell tumour, must be considered. *However*, one should not discount the possibility of hepatitis depending on Miah's history and risk of exposure to leptospirosis, particularly with the renal changes noted, vector borne diseases, toxin ingestion, certain mushrooms, medications, including NSAIDS and natural supplements, etc.
- **Gallbladder:** Gallbladder sludge without signs of obstructive disease. Cholecystitis, including a suppurative component, cannot be excluded despite the absence of sonographic abnormalities.
- **Kidneys:** Mild, early age-related changes are likely, in addition to occasional mineralizations and very small nephroliths without obvious signs of obstructive disease. Classical sonographic signs of pyelonephritis are not visualized, however, it should always be considered in an older individual with increased renal parameters, malaise, and nonspecific sonographic changes with mineralization and nephrolithiasis.
- **Urinary bladder:** Wall thickness and smoothness are difficult to interpret due to inadequate distention, however, a urinary tract infection is suspected based on the urinalysis results. Furthermore, pyelonephritis cannot be excluded (serum biochemical profile).
- **Gastrointestinal (GI) tract:** Very subtle, and somewhat subjective, inflammatory changes of the small intestines are present, in addition to a mild decrease in peristalsis. Constipation is suspected.

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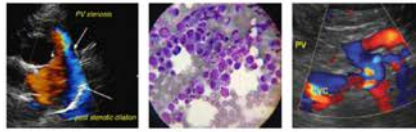
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Although liver biopsies are usually recommended and prioritized over fine needle aspirates, fine needle aspirates could be performed as lymphoma or other round cell tumour should exfoliate readily. If cytology results are negative, a hepatic biopsy is suggested. The FNA or tissue biopsy depends on results of a coagulation profile.

Vitamin K (0.5 mg/kg SQ q8-12h for 1-3 doses) is suggested, even if PT/PTT within normal limits.

A urinalysis and urine culture and sensitivity to exclude pyelonephritis

SNAP 4Dx, +/- PCR testing for other vector borne diseases depending on risk of exposure

Exclude *Leptospira* spp. (PCR urine and serum, if no history or recent antibiotics, vs. serology)

Evaluate diet, including treats (may need to call manufacturer to inquire about copper concentrations)

Arterial blood pressure

IV fluids and other supportive care for nausea and vomiting

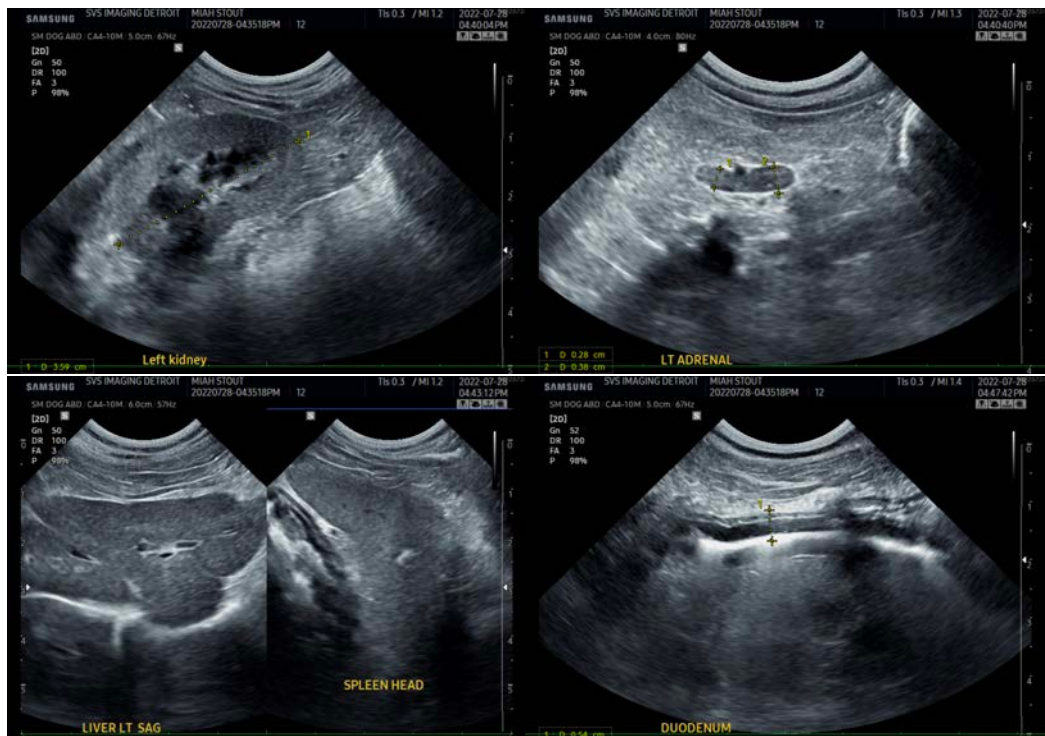
Analgesics, even if does not appear painful (hepatomegaly is uncomfortable)

Easily digestible, low fat diet; small meals fed multiple times a day

Deworm with fenbendazole, even if receiving monthly heartworm prevention.

Note, if liver biopsy performed, copper quantification of tissue to diagnose copper hepatopathy

Although not ideal, if hepatic biopsies cannot be performed or are not pursued, a veterinary hepatic diet may be administered, in addition to ursodeoxycholic acid (Ursodiol) with reassessment of liver enzymes, including GGT, 4 to 6 weeks after introduction of diet and medication. Do not introduce both at the same time (i.e. 2-3 week interval and gradually introduce Ursodiol to decrease GI side effects).



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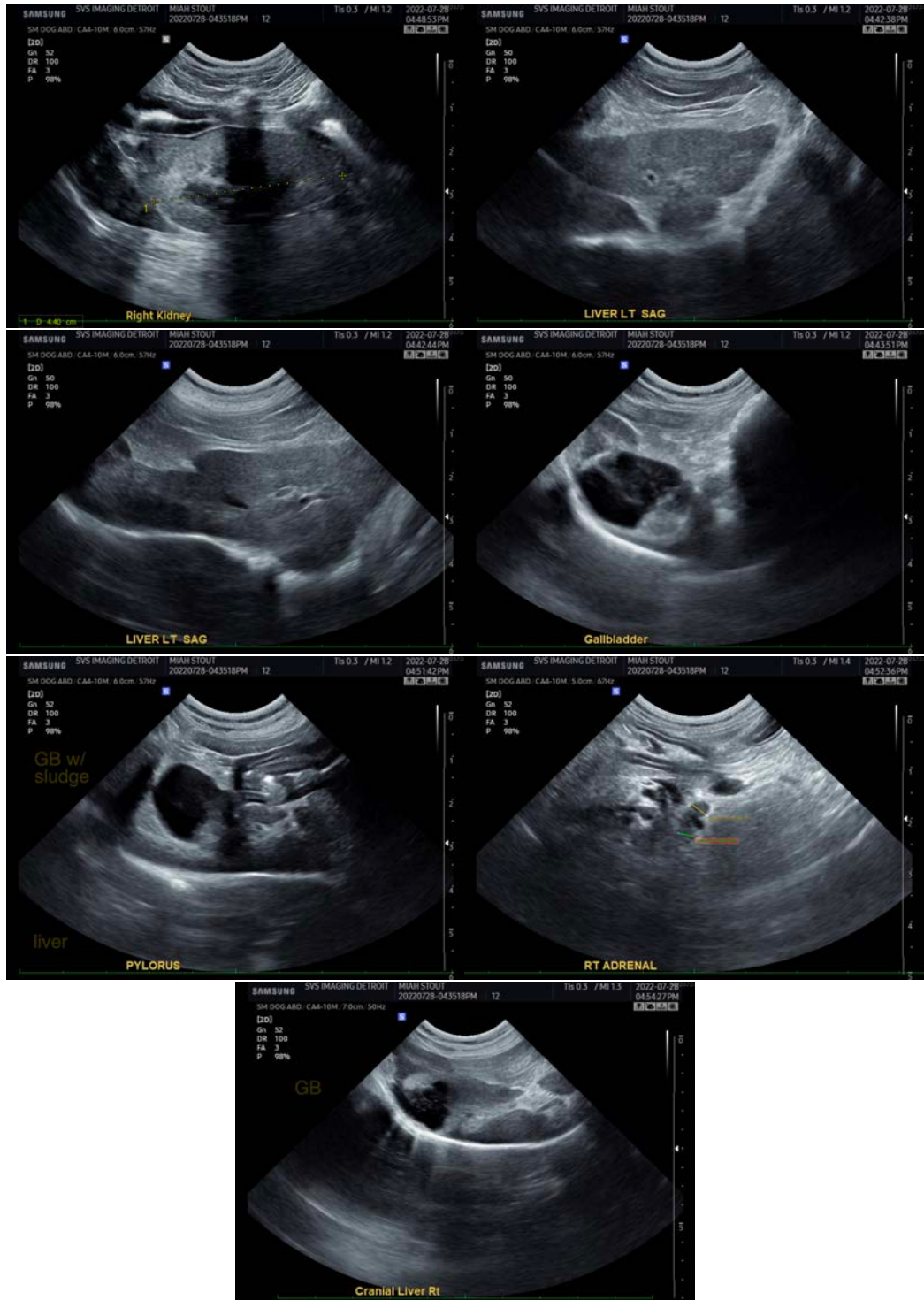
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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.

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