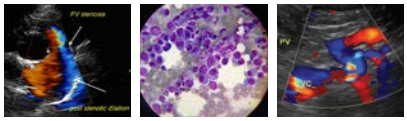
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE

5/2/23

PATIENT

Willow Carpenter

SPECIES

Canine

BREED

Bichon Frise X

SEX

Spayed Female

AGE

2022

WEIGHT

10.3 Pounds

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

HOSPITAL NAME

Greenbrier VC

REFERRING VET

Dr. Whitfield

INVOICE

47048

PRESENTING CLINICAL SIGNS

Persistent, non-clinical elevated ALT. Elevated ALT (198) originally found on bloodwork for spay on Nov 25, 2022. Bile acids were performed which were abnormal (preprandial elevated at 32.2umol/L; post prandial normal at 4.6umol/L). She was started on Denamarin and the ALT returned to normal. Her spay was completed and she continued Denamarin through early April 2023. ALT was rechecked 5/1/23 and found to be elevated again at 306.

Current Medications: Denamarin

Lab Results: Attached: 5/1/2023: AlkP 101, ALT 306
2/27/2023: AlkP 99, ALT 189
1/31/2023: ALT 112
12/6/2022: ALT 186
11/25/2022: Bile Acids preprandial elevated at 32.2umol/L; post prandial normal at 4.6umol/L 11/25/2022: ALT 196, ALkP 144

Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** presented a minor amount of sand, up to 4.0 mm.

The **kidneys** were bilaterally swollen and mildly enlarged. The left kidney measured 5.18 cm. Slight pinpoint mineralizations noted. The right kidney measured 5.37 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 1.92 cm x 0.52 cm at the caudal pole and 0.47 cm at the cranial pole. The right adrenal gland measured 1.67 cm x 0.52 cm at the caudal pole and 0.41 cm at the cranial pole.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.

Liver

The **liver** presented severe microhepatica. Liver in short axis measured 1.85 cm. The gallbladder and common bile duct were unremarkable. The portal vein was subnormal in size at 0.37 cm. Vena cava measured 0.49 cm. Aorta measured 0.65 cm. An extra vessel measured 0.46 cm, suggestive for azygos shunt between the vena cava and aorta.

Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

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

ULTRASONOGRAPHIC FINDINGS

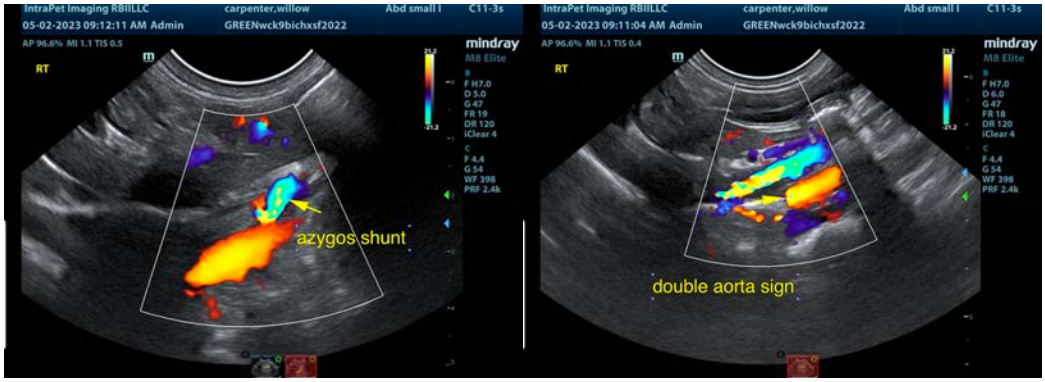
- Extrahepatic portosystemic shunting – consistent with azygos shunt, suspect splenoazygos shunt
- Severe microhepatica

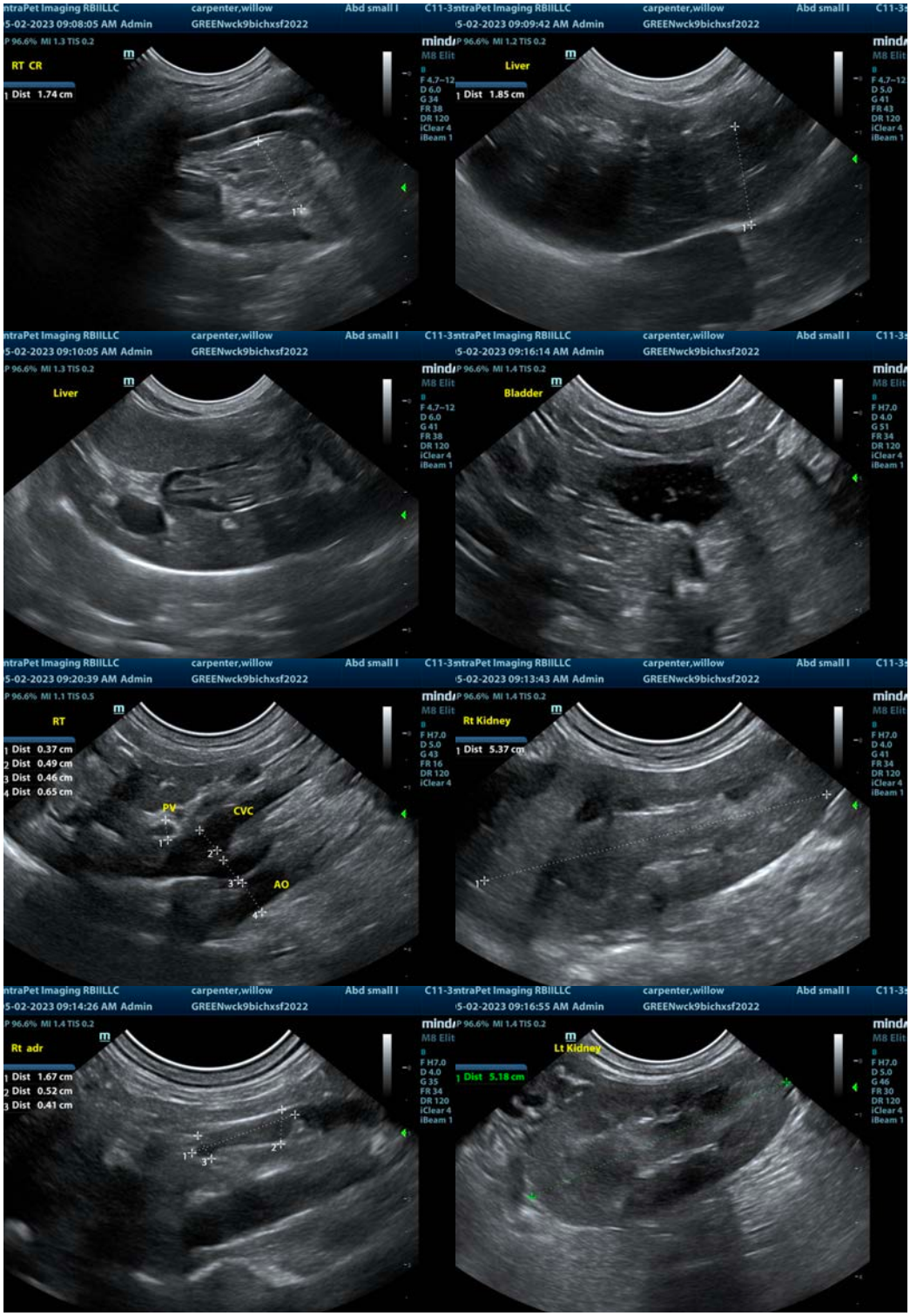
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The shunt position and contour would be most consistent with a splenoazygos shunt yet should be confirmed by CT for surgical planning. Bile acid profile warranted. It is odd that the bile acids are not more significantly elevated in this patient, likely owing to azygos shunt, which is typically a late phase shunt. Medical management could be considered in this patient, such as the following. However, I would expect bile acids to elevate over time. This patient is in a highly precarious scenario for acute phase disease, such as concurrent pancreatitis/gastroenteritis, which will challenge the metabolic capacity of the liver.

Hepatic Support for Bile Acid Elevation +/- Hepatic Encephalopathy

Royal Canin Hepatic Support diet or Hills L/D, **Metronidazole** (7.5 mg/kg PO bid) over the next 14 days, **Lactulose** (Oral: 3.1-3.7 g/5 ml lactulose in a syrup base) long term to target 2-3 soft stools/day, with a **high-quality protein supplement** of minor amount of **yogurt** or **cheddar cheese**. Monitor bile acids, with attention paid to dropping albumin, BUN or cholesterol. SAMe and nutraceuticals as needed. **Ursodiol (**10-15 mg/kg p.o. q24h) can be considered as hepatoprotectant and to enhance bile flow. **Zinc** serum level keep between 200—500 ug/dl. If deficient then Tx zinc acetate 1-3 mg/kg/day. Gastrointestinal protectants are recommended if the patient is anorexic.

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carpenter,willow
Abd small I
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GREENwck9bichxsf2022
RT CR
Dist 1.74 cm
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Dist 0.46 cm
Dist 0.65 cm
PV
CVC
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Rt Kidney
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Abd small I
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GREENwck9bichxsf2022
Rt adr
Dist 1.67 cm
Dist 0.52 cm
Dist 0.41 cm
ntraPet Imaging RBIILLC
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Abd small I
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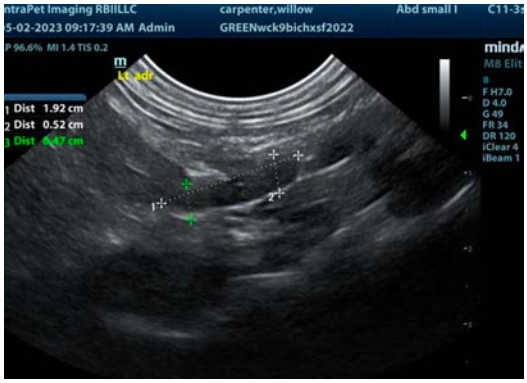
Lt Kidney
Dist 5.18 cm



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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com
info@SonoPath.com