



PATIENT

Hope Vitorio

SPECIES

Canine

BREED

Mix

SEX

Female

AGE

5 Months

WEIGHT

5 Pounds

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

**IMAGING
PERFORMED BY**

Shari Reffi, CVT

HOSPITAL NAME

All Creatures Great &
Small, Denville

REFERRING VET

Dr. Mitrovic

INVOICE

21151

DATE

2/17/23

PRESENTING CLINICAL SIGNS

History: Vomiting, anorexia, neurological, circling. Elevated liver enzymes. No current meds. R/O extrahepatic shunt vs other

Abnormal PE/Chem/CBC/UA Results: rDVM bw-Hct 36.5 (38.3 L); Hgb 12.3 (13.4 L); mcv 57 (59L); mch 19.3 (21.9 L); Retics 121 (110 H); Retic Hgb 19.8 (24.5 L); WBC 18.3 (17.6 H); Bun 7 (9 L); Crea 0.4 (0.5 L); Phos 7.7 (6.1 H); Pot 3.8 (4.0 L); TP 4.6 (5.5 L); ALB 2.6 (2.7 L); Glob 1.3 (2.4 L); ALT 321 (121 H); AST 172 (55 H); Chol 70 (131 L); Bile Acids Preprandial 290.7 (14.9 H)

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal.

The **kidneys** were bilaterally swollen with slight pinpoint mineralizations. The left kidney measured 4.0 cm. The right kidney measured 4.0 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 right adrenal gland measured 0.4 cm. The left adrenal gland measured 1.29 cm x 0.42 cm at the cranial pole and 0.37 cm at the caudal pole.

Spleen

The **spleen** in this patient was uniform, yet volume contracted. Hydration status should be assessed.

Liver

The **liver** was significantly subnormal in size. The hepatic vein was subnormal in size owing to poor vascular volume in the liver. The residual portal vein was subnormal in size, measuring 0.3 cm. The vena cava measured 0.5 cm and the aorta measured 0.6 cm. Dorsally directed extrahepatic portosystemic shunt was noted in the position of splenoazygos shunt, as the vena cava/aortic ratio was 1:1. The maximum width of the shunt measured 0.57 cm and was approximately 2.0 cm caudal to the pyloric outflow, just dorsal caudal to the gastroesophageal inlet. This appears to enter into the aortic hiatus. Double aorta sign was noted cranial dorsal to the diaphragm, consistent with splenoazygos shunt. The gallbladder and common bile duct were unremarkable.

Gastrointestinal

The **gastric** wall was mildly thickened. The small intestine was hyperperistaltic. Soft stool was noted in the colon.

Pancreas



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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.

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ULTRASONOGRAPHIC FINDINGS

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- Extrahepatic portosystemic shunt, consistent with splenoasygos shunt given the position
- Significant microhepatica
- Swollen hypervascular kidneys and minor renal mineralization
- Volume contracted spleen
- Gastroenteritis/colitis pattern

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CT evaluation with contrast could be considered for further surgical planning. Significant microhepatica is present, however, direct surgical intervention with shunt attenuation surgery would be appropriate. Medical management with the following should prove effective.

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Hepatic Support for Bile Acid Elevation +/- Hepatic Encephalopathy

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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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GI protectant protocol is warranted.

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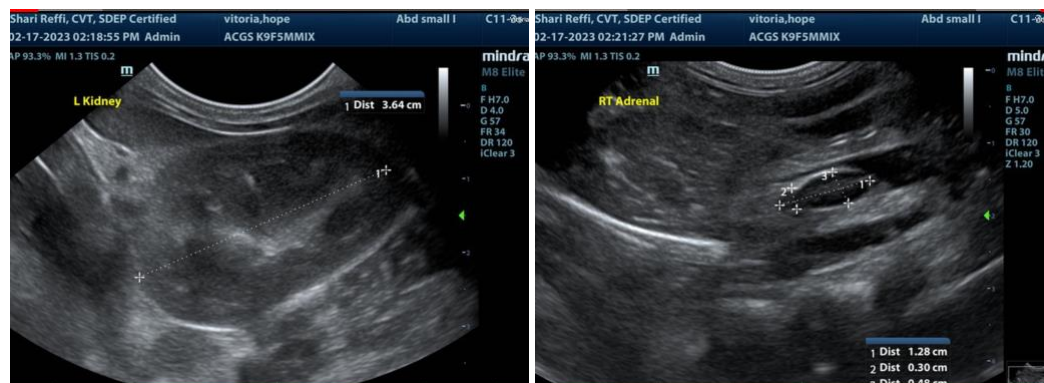
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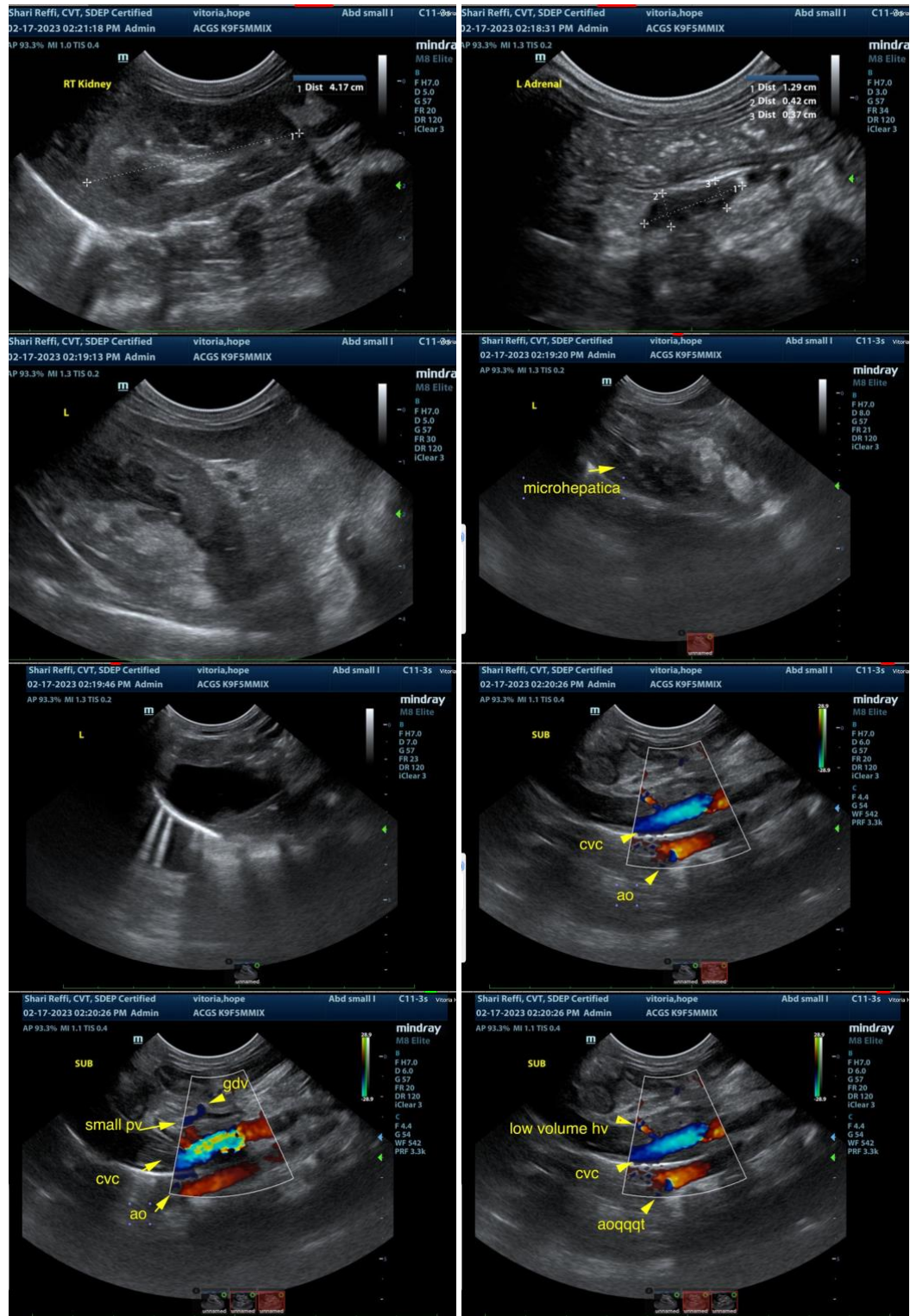
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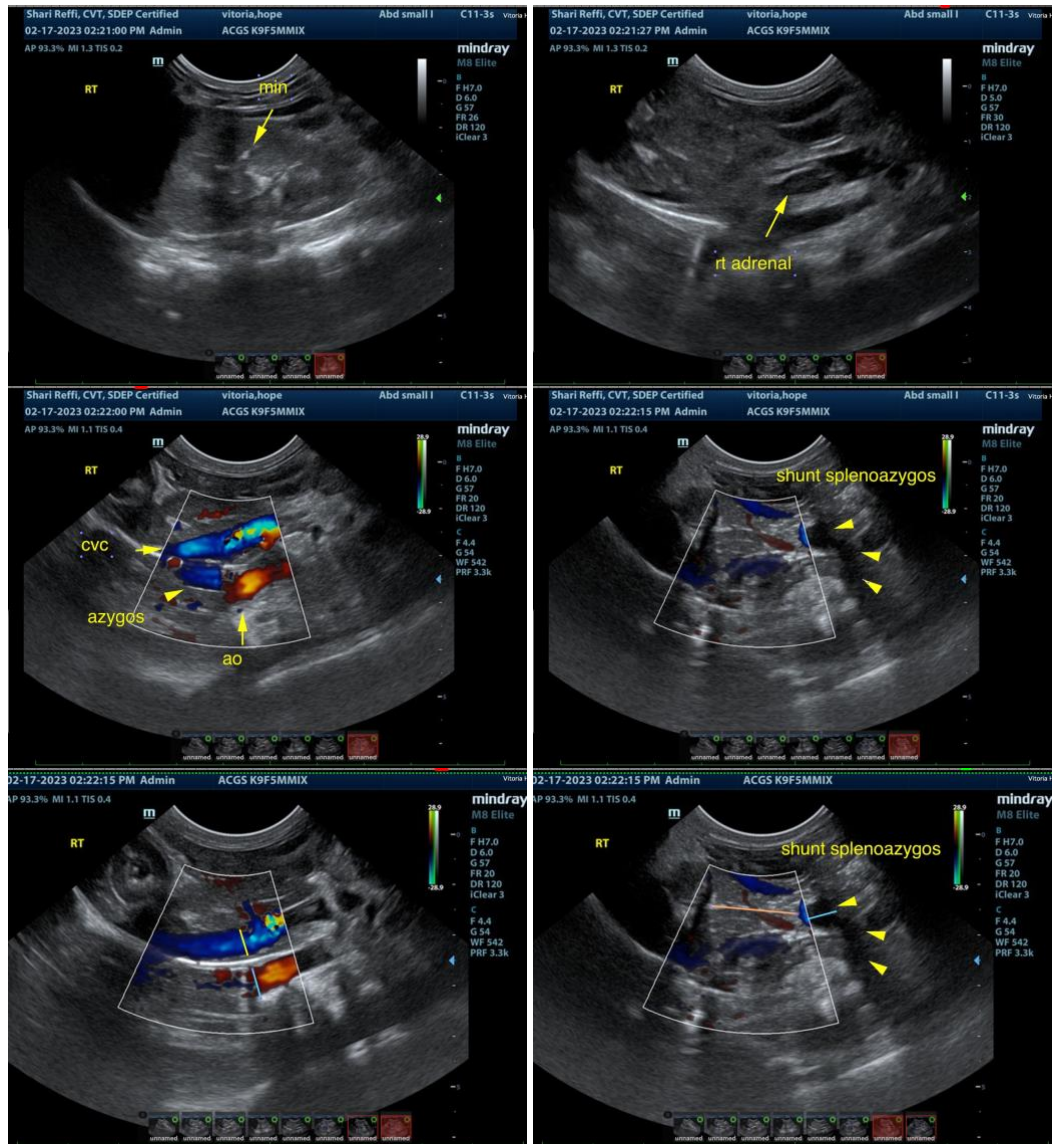
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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