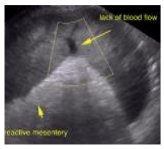

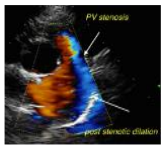

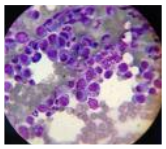
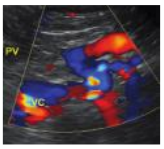

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1-800-838-4268 info@sonopath.com

PATIENT

Rylley Long

SPECIES

Canine

BREED

Yorkshire Terrier

SEX

Intact Female

AGE

4 Months

WEIGHT

3.0 Pounds

INTERPRETED BY

Eric Lindquist, DMV

DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Amanda Lacey-Crook
SDEP Certified

HOSPITAL NAME

Rivers Edge PMC

REFERRING VET

Dr. Sanders

INVOICE

37395

DATE

5/5/22

PRESENTING CLINICAL SIGNS

Came in for booster vaccines and had not gained any weight in three weeks. Ran baseline blood work and ALT very elevated. Recommended bile acids to further evaluate for liver enzymes. Bile acids extremely elevated. Recommended ultrasound to try and find shunt. Did tell owner that due to size of patient even a decent sized extra-hepatic shunt could be missed but that if found it could make her a surgical candidate. Current Medications: Lactulose, Neomycin, Cerenia
Abnormal PE/Chem/CBC/UA Results: Biles Acids: Pre 328.7, Post 333.0 Chem: ALT 429, AST 217, ALKP 375, BUN 5, Crea <0.1

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** presented a small concretion at 0.51 cm.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 3.04 cm. Mineralization noted in both kidneys, non-obstructive. The right kidney measured 3.04 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 1.04 cm x 0.71 cm at the cranial pole and 0.44 cm at the caudal pole. The left adrenal gland measured 1.07 cm x 0.36 cm at the cranial pole and 0.39 cm at the caudal 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** was subnormal in size. The gallbladder and common bile duct were unremarkable.

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.

Other

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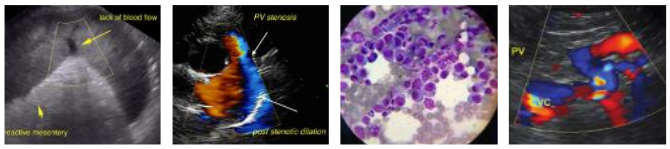

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A large, 7.0 mm wide, tortuous shunt was noted decoursing ventrally, just caudal to the pylorus, and then dorsally. The dorsal termination was either in the vena cava or azygos. Double aorta sign was not evident. However, the vena cava/aortic ratio appeared to be 1:1, which would suggest an azygos termination. Regardless, surgical intervention is necessary.

ULTRASONOGRAPHIC FINDINGS

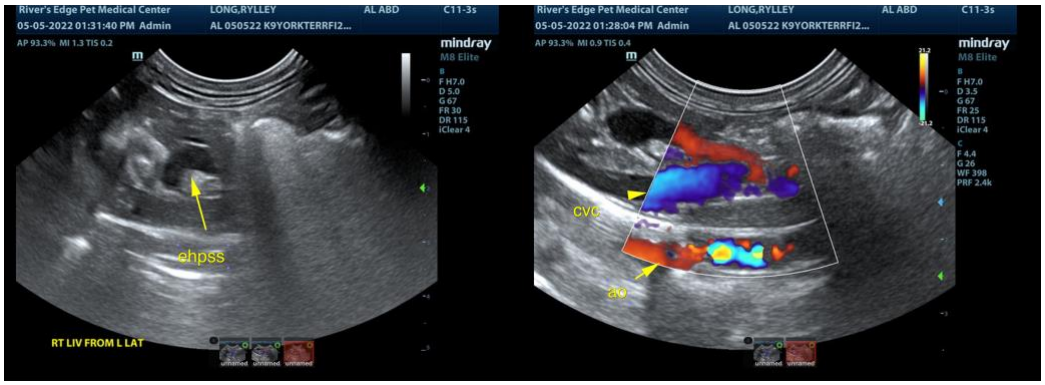
- Bladder and renal calculi, non-obstructive
- Severe microhepatica
- Gastrocaval or gastroazygos shunt, extrahepatic

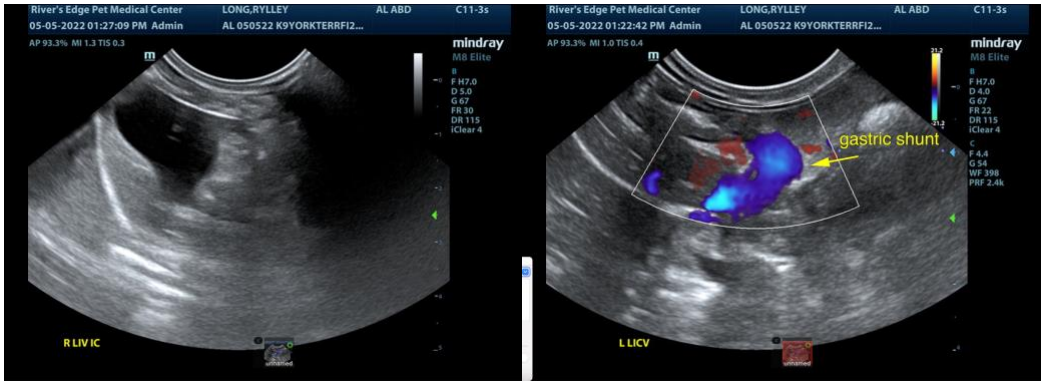
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Surgical intervention is necessasry. Ameroid constrictor placement, liver biopsy, and bladder calculi removal all indicated once the patient has been stabilized. Guarded prognosis, given the large shunt fraction associated with this extrahepatic shunt. CT evaluation could be considered for further definition of termination of the shunt. However, surgical intervention is necessary.

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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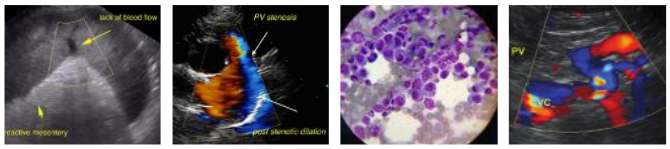

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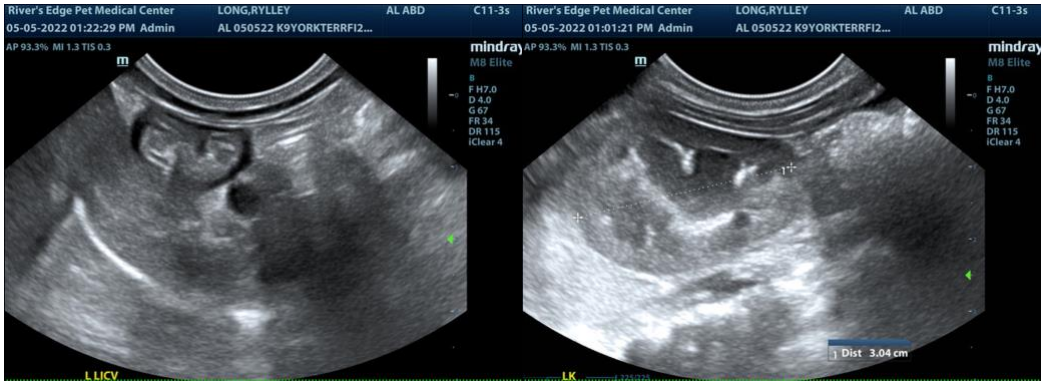

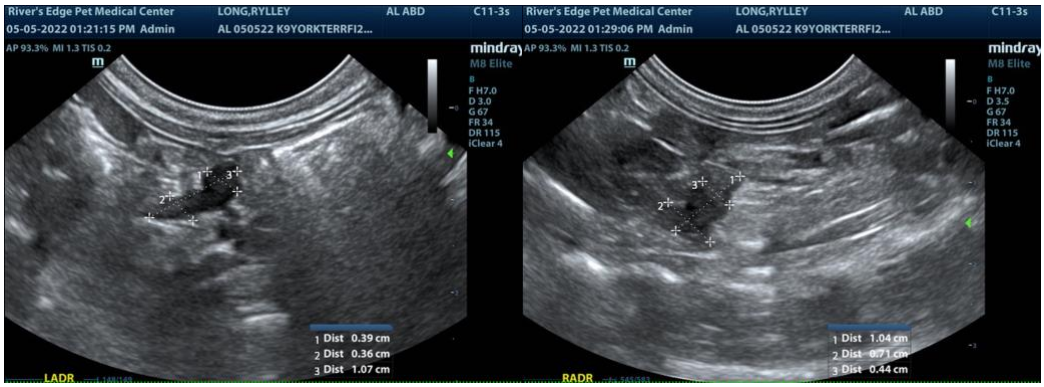

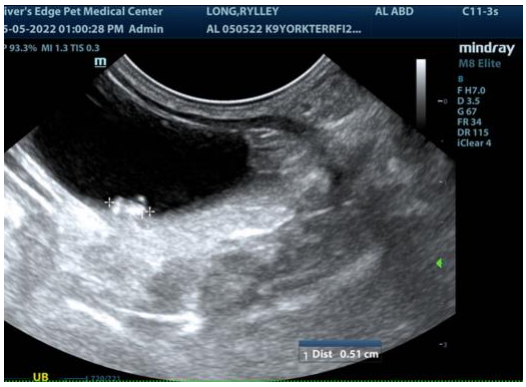

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

info@SonoPath.com