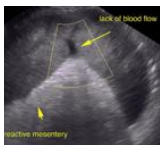
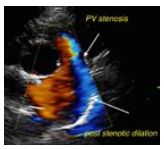
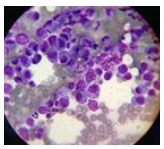
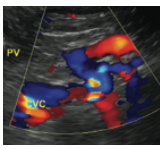

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1-800-838-4268 info@sonopath.com

PATIENT

Samson Labert

SPECIES

Canine

BREED

Terrier

SEX

Neutered male

AGE

1 year

WEIGHT

14 lbs

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Carpenter

HOSPITAL NAME

Pennridge AH

REFERRING VET

Dr. DePew

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PRESENTING CLINICAL SIGNS

History: Samson is a 1.10 yo MN Terrier. Sedated with Butorphanol IV Hx of mild ALT elevation as a puppy (highest ALT on serial checks was 396) - was aclinical at that time. Bile Acids mildly elevated (pre 4.0 and post 81.8 (normal up to 30 for post)). Discussed MVD/PVH > shunt. Discussed protein C levels to Cornell but since patient aclinical, proceeded with neuter and patient had no issues with anesthesia. Recent 1 month hx of off/on hyporexia, excessive grass consumption, "constipation" with firm stool filled with grass, intermittent vomiting. Recheck b/w normal except ALT mildly elevated at 156, Fecal NOS.CPL Normal. Radiographs NSF except large volume of fecal matter in colon and some granular material in stomach (rads were not fasted). O was given pepcid, cerenia, and miralax dosing to help with fecal grass impaction. This morning prior to US, patient had a large BM filled with grass and a small cloth foreign body with mucous and a small amount of hematochezia. AUS performed after patient passed cloth foreign material.

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 was noted. Ureteral papillae were normal.

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. Slight pinpoint mineralization was noted in the kidneys. The right kidney measured 4.3 cm. The left kidney measured 3.8 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 1.13 x 0.3 cm at the caudal pole and 0.27 cm at the cranial pole. The left adrenal gland measured 0.9 x 0.36 cm at the caudal pole and 0.37 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 was noted.

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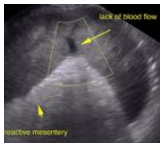
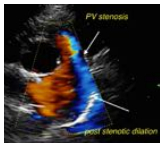
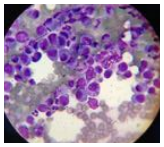
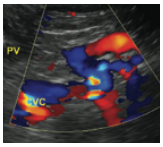

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Liver

The **liver** images submitted revealed subjectively subnormal liver size with normal contour and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Increased portal markings were noted. The portal vein had adequate volume and measured 0.75 cm and the aorta measured 0.77 cm. The portal vein to aortic ratio was 1:1. The vena cava was not clearly evident. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.

Gastrointestinal

The **stomach** was empty in this patient with minor hypertrophy. There was a minor amount of luminal fluid. The small intestine and colon were unremarkable. Soft stool was noted in the colon.

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

Normal portal vein.

Increased portal markings, suggestive for inflammatory hepatopathy.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There was no obvious extrahepatic portosystemic shunting. There was no evidence of intrahepatic shunting. I cannot completely rule out extrahepatic shunting, yet the portal vein to aortic ratio largely eliminates the potential of extrahepatic shunting. Portal hypoplasia/microvascular dysplasia along with inflammatory component is likely. Leptospirosis titers are warranted. Core liver biopsy or surgical biopsy would be indicated for further definition. A clinical trial of the following may prove effective.

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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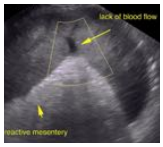
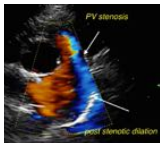
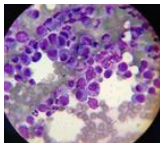
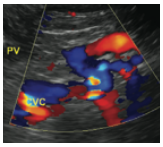

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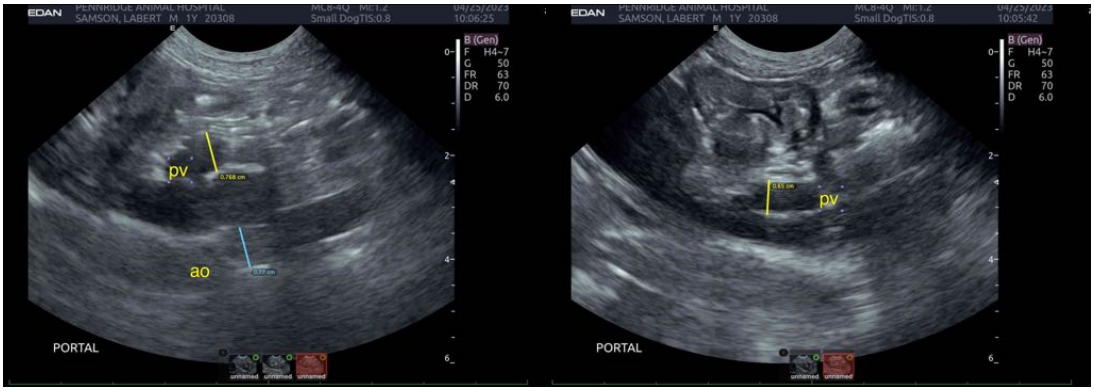

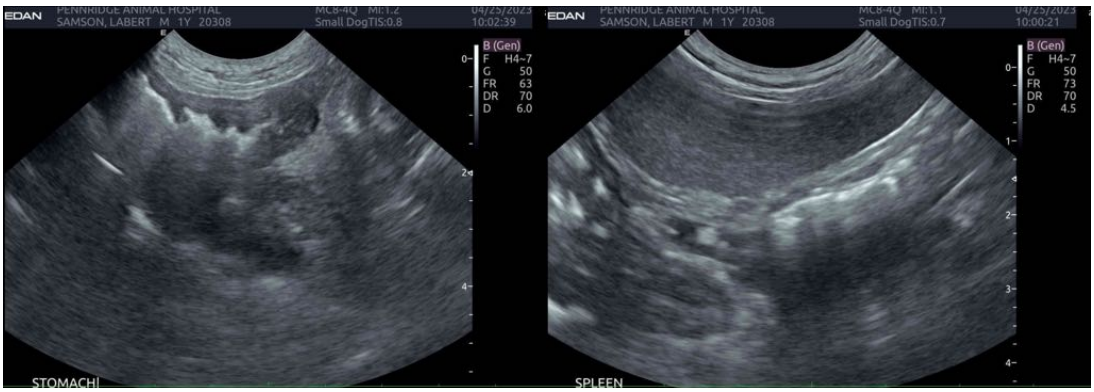

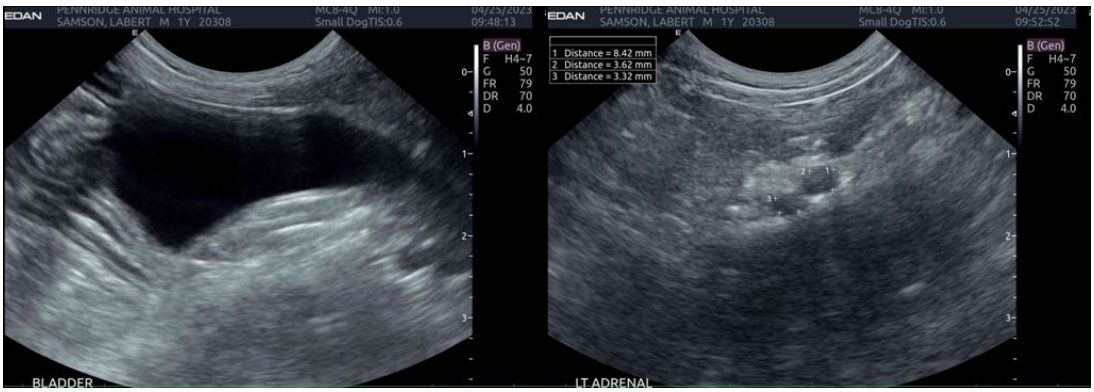

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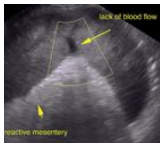
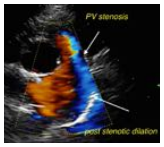
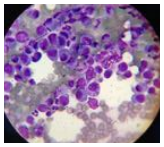
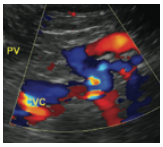

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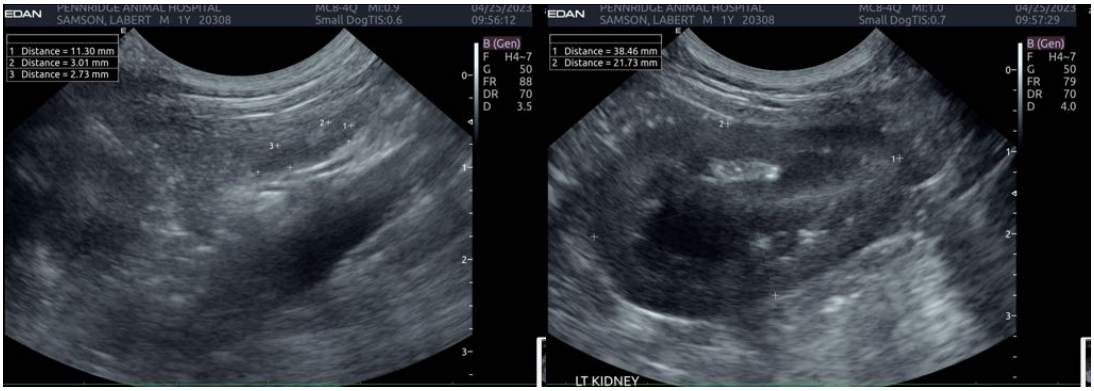

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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