



PATIENT

Noah Nelson

SPECIES

Canine

BREED

Golden Retriever X

SEX

Neutered Male

AGE

9 Years

WEIGHT

19.8 kg

INTERPRETED BY

Kathleen Sennello DVM,
MS, Diplomate ACVIM
(Small Animal Internal
Medicine)

**IMAGING
PERFORMED BY**

Dr. Trudeau

HOSPITAL NAME

Pet Works VH

REFERRING VET

Dr. Trudeau

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DATE

8/9/22

PRESENTING CLINICAL SIGNS

Beginning in May had episode of vomiting and diarrhea, initially responded well to empirical treatment with cerenia, metronidazole, biome diet and foriflora. Had elevated ALT in July blood panel, we then performed a GI panel and bile acids which noted a deficiency in cobalamin and high pre & post bile acids. Abnormal PE/Chem/CBC/UA Results: Chem - ALT 569 IU/L H 18 - 121 otherwise NSF CBC - WNL BILE ACIDS (PRE) 30.0 umol/L 0.0 - 14.9 BILE ACIDS (POST) 42.0 umol/L 0.0 - 29.9 TLI 33.9 ng/mL 5.0 - 35.0 COBALAMIN <111 pmol/L 209 - 617 Spec CPL <30 ug/L 0 - 200 FOLATE 38 nmol/L 7 - 39 U PRO/CREA 0.1 0.0 - 0.2 T4 24.5 nmol/L 13.0 - 53.0 4Dx - negative

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

The prostate is normal in size (1.08 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

The left kidney has a normal shape and size (4.88 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.48 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.51 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

The region of the right adrenal (between right cranial kidney and vena cava) is unremarkable, but the adrenal is not distinctly visualized. No evidence of a mass effect.

Spleen

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

Liver

The liver is large in size, and normal in echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The cystic and common bile ducts are normal/not visible.



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Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

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The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Jejunum wall measured 0.42 cm.

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Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

SEX

Neutered Male

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

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Pancreas

The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

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Free Abdomen

Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

ULTRASONOGRAPHIC FINDINGS

- Large, heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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The liver appears large and heterogeneous with no focal lesions. These are non-specific findings. Unfortunately, the sonographic changes do not always reflect the severity or cause of the hepatopathy. The scan today supports a primary hepatopathy, as no severe biliary changes are observed.

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- Consider close evaluation of history for possible toxic changes examine medications, diet, dietary indiscretion etc...
- Consider PCR on urine/serum for leptospirosis (if not on antibiotics)/serology if recent antibiotic history

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- If not already done, consider pre and post prandial bile acids to evaluate liver function (This has already been done)
- Consider Fine needle aspirate if round cell neoplasia is on your differentia list (25 g needle, normal coags)

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- If no response to medical care (denamarin, antibiotics,+/- ursodiol etc...) Consider liver biopsy with samples obtained for histopathology, culture, and copper levels.

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The bile acids reported were mildly elevated. Occasionally, you can get bile acid abnormalities with GI disease due to poor motility, GI transit, etc. Based on the history, there is also the possibility of concurrent GI disease with B12 deficiency, etc. If these labs were taken back during the acute GI episode, consider rechecking current lab results. Further evaluation for liver disease and underlying GI disease seems appropriate if symptoms and liver enzyme elevations persist.

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- Consider a novel protein/hydrolyzed protein prescription diet.
- Consider chronic probiotic therapy.
- If symptoms persist and cytology of the liver is not helpful, consider obtaining biopsies of the GI tract and liver.

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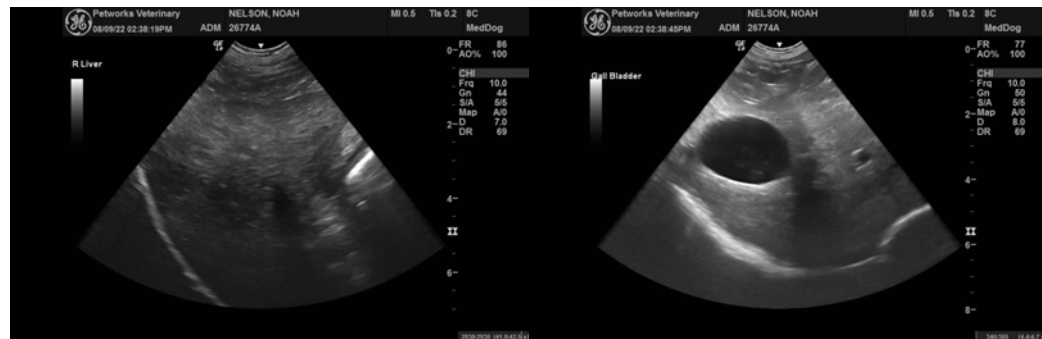
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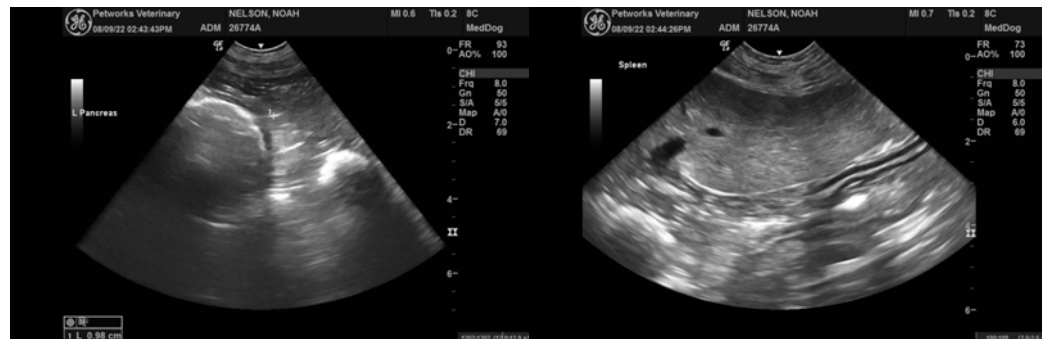
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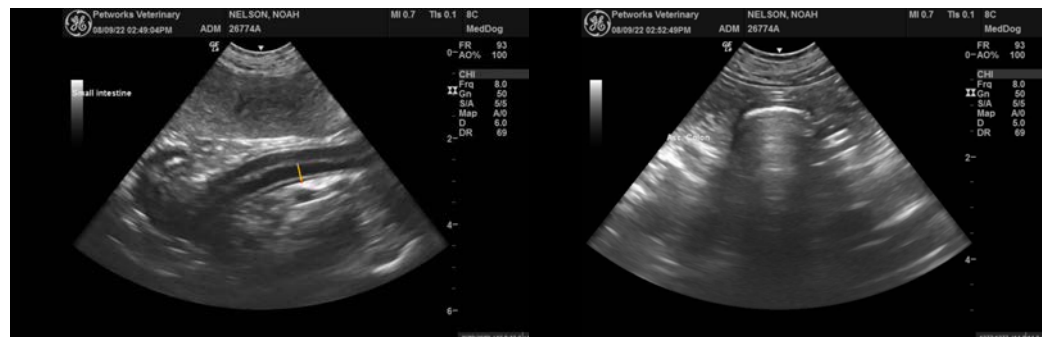
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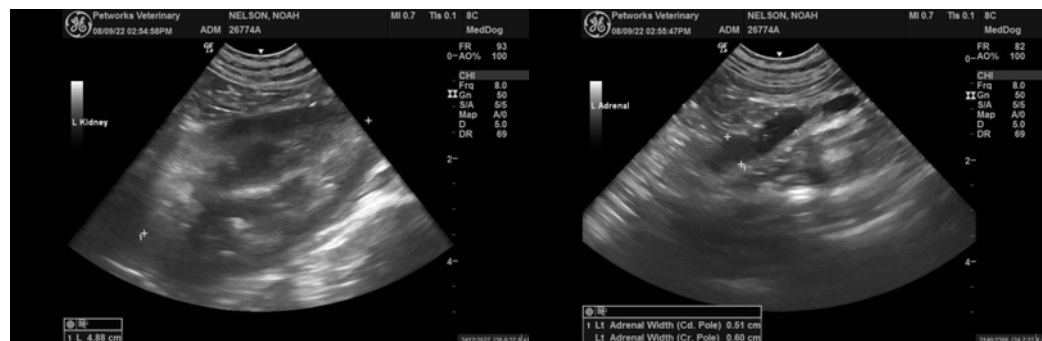
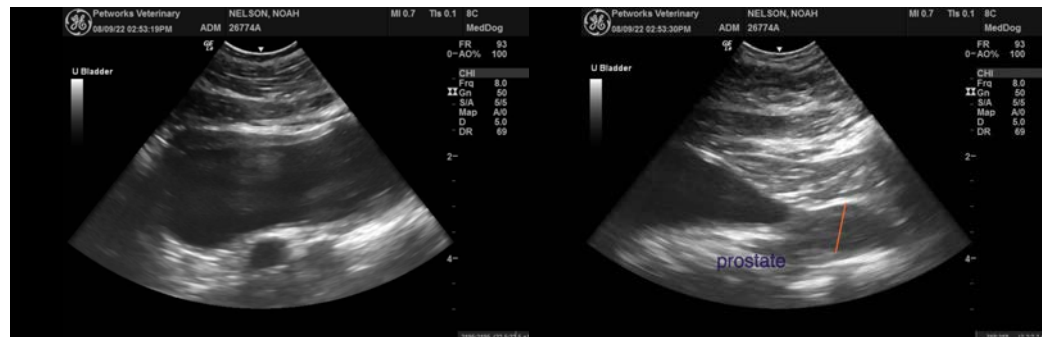
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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