

**DATE PRESENTING CLINICAL SIGNS**

12/28/22

Pet presented on 12/12/22 for a history of PU/PD for one week duration. Owner reported urinary accidents and drinking a lot. Pet also requesting to go outside often. Owner thought at the time that pet's gums looked a little pale and pet was lethargic and had a decreased appetite. On exam pet was QAR, apparently adequately hydrated, mm were pink and moist. Remaining exam unremarkable. Bloodwork was completed. Discussed with owner concerns about pet's liver function and health. Pet's appetite was still decreased and so we started Cerenia, once pet's appetite returned (which was within a day) pet was started on Clavamox and metronidazole until further diagnostics and abdominal US could be completed.

**PATIENT**

Daphne Simpson

**SPECIES**

Canine

**BREED**

Pit Bull

**SEX**

Spayed Female

**AGE**

12/13/16

**WEIGHT**

70.6 Pounds

**INTERPRETED BY**

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

**HOSPITAL NAME**

Westminster VH

**REFERRING VET**

Dr. Hall

**INVOICE**

43778

Current Medications: Denamarin Advanced started 12/14/22, Metronidazole 250mg PO BID started 12/14/22, Clavamox 375mg PO BID started 12/14/22

Lab Results: 12/12/22: CBC: MCH: 20pg (21.9-26.1); MCHC: 31.8g/dL (32.6-39.2); Reticulocytes: 113K/uL (10-110); Retic Hemoglobin: 21pg (24.5-31.8); slight polychromasia and slight anisocytosis noted. Chemistry: Glucose: 119mg/dL (63-114); Potassium: 3.7mmol/L (4.0-5.4); ALT: 744U/L (18-121); AST: 248U/L (16-55); ALP: 319U/L (5-160); Bilirubin-Total: 0.9mg/dL (0.0-0.3); Bilirubin-unconjugated: 0.6mg/dL (0.0-0.2); Bilirubin-conjugated: 0.3mg/dL (0.0-0.1); Creatine Kinase: 373U/L (10-200); UA: SG: 1.007; pH: 7.0;

12/14/22: spec cPL: Normal

12/14/22: Leptospirosis Panel: Antibody by ELISA: Negative; Leptospira spp RealPCR-Blood: Negative;

Leptospira spp RealPCR-urine: Negative

Radiographs: 12/14/22: Gastric food or foreign material. Peritoneal effusion and/or peritonitis. This is non-specific. Unremarkable thorax.

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

Imaging Performed By: Rachel Brillhart, RDMS.

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN****Urinary System**

The urinary bladder is significantly 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, or masses. There is a small area of hyperechoic shadowing, sandy debris visualized in the dependent portion of the urinary bladder.

The left kidney has a normal shape and size (8.59 cm) with pinpoint non-obstructive nephroliths and mild pyelectasia at 0.30 cm. Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal 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 (8.05 cm) with pinpoint non-obstructive nephroliths and pyelectasia at 0.18 cm. Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal 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 0.80 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 right adrenal gland is normal in size measuring 1.0 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with 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 severely 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 significantly distended. The wall of the gall bladder is prominent/mildly thickened at 0.36 cm. There is a mild amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

### ***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.

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. The duodenum measured as normal (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

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.

### ***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.

### ***Free Abdomen***

There is a large amount of anechoic free fluid. No lymphadenopathy noted. The omentum is generally hyperechoic.

### ***Other***

A brief view of the heart was submitted. No significant pericardial effusion was seen.

## **ULTRASONOGRAPHIC FINDINGS**

- Mild bilateral renal pyelectasia with pinpoint non-obstructive nephroliths – Pyelectasia of the kidney(s) could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.
- Small amount of sandy debris visualized within the urinary bladder – Recommend urinalysis and culture.

- Large, severely 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.
- Large, distended gallbladder with a subjectively thickened wall – The significance of this is unclear. This could be associated with fasting or primary gallbladder disease. The bile duct was not clearly visualized.

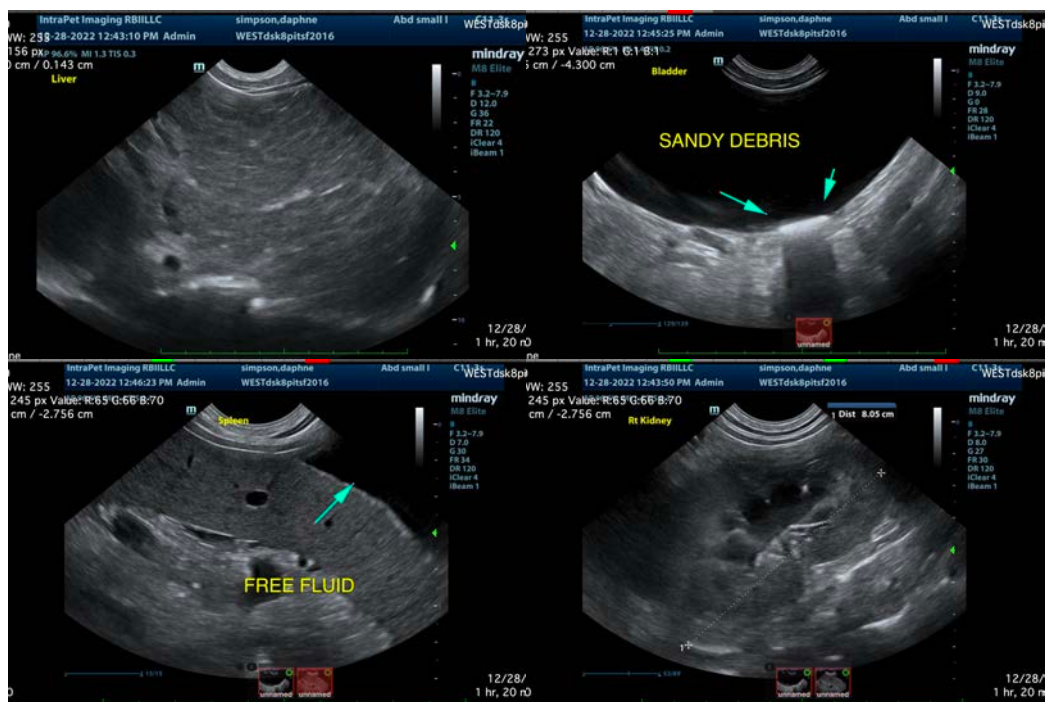
### INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

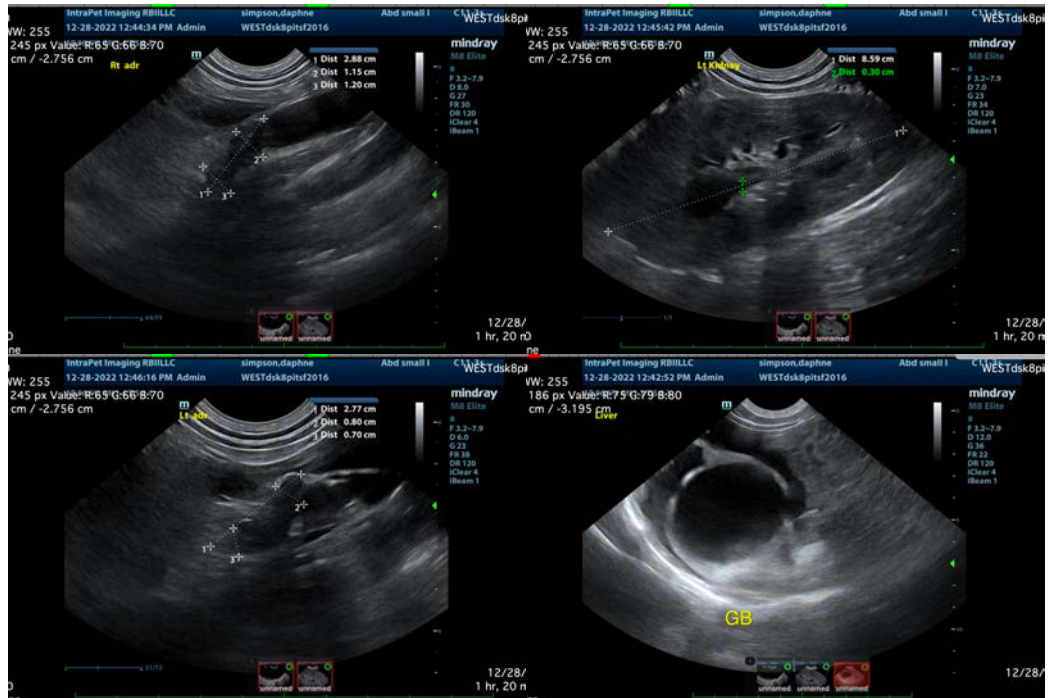
The liver is large and severely heterogeneous, almost with a reticulated type pattern. Recommend a fine needle aspirate of the liver (provided coagulation parameters are normal) to rule out round cell neoplasia. If this is ruled out, then I would consider a liver biopsy with samples for histopathology, aerobic and anaerobic cultures, and copper levels, as I'm concerned that many types of hepatitis, etc. require biopsy for diagnosis.

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.

There is a small amount of sandy debris visualized in the dependent portion of the urinary bladder. Recommend a urinalysis and culture and continued monitoring.

I suspect the gallbladder is distended due to fasting, but given the liver enzyme elevations and mildly thickened wall, continued monitoring is warranted, as well as sampling of the free abdominal fluid for fluid analysis and cytology to ensure this is most consistent with liver disease rather than an inflammatory sample.





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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