



**PATIENT**

The Chairman  
Zimmerman

**SPECIES**

Feline

**BREED**

DLH

**SEX**

Neutered Male

**AGE**

9 Years

**WEIGHT**

14 Pounds

**INTERPRETED BY**

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

**IMAGING  
PERFORMED BY**

Kelly Vazquez

**HOSPITAL NAME**

Brenda King Vet

**REFERRING VET**

Dr. Brenda King

**INVOICE**

36902

**DATE**

4/14/22

**PRESENTING CLINICAL SIGNS**

Weight loss, weighs 14 lbs today previously weighed 16 lbs. Inappetent. Previously controlled diabetic, now displaying ketoacidosis. Radiographs show hepatomegaly. Current med: Prozinc, on IVFs in-hosp on Cerenia. Patient is icteric. Concern for hepatic lipidosis vs. other.

Abnormal PE/Chem/CBC/UA Results: ALT 838, AST 238, T. bili 4.5, icteric. Urine very yellow.

**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 left kidney has a normal shape and size (4.41 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 (4.5 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/borderline large in size measuring 0.68 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 0.48 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.

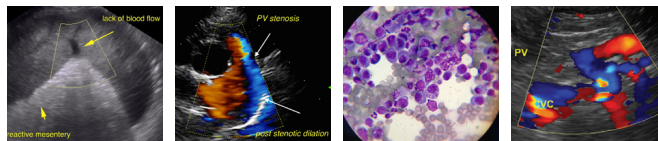
**Spleen**

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 hyperechoic. 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 large and significantly distended. It measures 3.15 cm x 2.41 cm. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The bile duct is proximally severely dilated and tortuous, measuring up to 0.90 cm in diameter. This severe dilation tapers distally to approximately 0.30 cm. This dilation persists up to the level of the duodenal papilla, which appears somewhat prominent. Findings are most consistent with a biliary obstruction, but no definitive obstruction is visualized.



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**Gastrointestinal**

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The stomach contains minimal luminal contents. It measures at a normal thickness of <0.36cm 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 uniform diameter with minimal fluid distension. Wall thickness is normal to slightly increased. Bowel loops follow a typical curvilinear path with distinct wall layering, but some areas display a prominent muscularis layer which does not display the typical 1:3 muscularis:mucosa layer ratio. Jejunum wall measured 0.21 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

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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 prominent and hypoechoic as compared to the surrounding isoechoic 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.

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**ULTRASONOGRAPHIC FINDINGS**

- Large, distended gallbladder with dilated, tortuous common bile duct. The gallbladder is free of intraluminal debris, and no stones are visualized. A point of obstruction is not clearly apparent, although the duodenal papilla appears somewhat prominent.
- Hypoechoic, prominent pancreas – The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.
- Large, heterogeneous/hyperechoic liver – Hepatic changes are non-specific and could be consistent with inflammation/infection (cholangiohepatitis), infiltrative neoplasia, lipidosis or other hepatopathy.
- Prominent muscularis layer to the small intestine – The small intestinal wall changes are most consistent with an inflammatory process (i.e., inflammatory bowel disease) with a low possibility of emerging lymphoma.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The gallbladder is large and distended. Additionally, the bile duct is severely distended proximally, and it gradually tapers distally to the level of the duodenal papilla. A point of obstruction is not visualized, but the duodenal papilla does appear somewhat prominent.

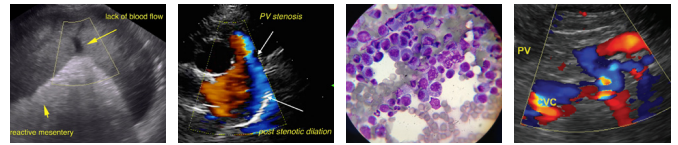
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Additionally, the pancreas is prominent, and there is a mildly increased muscularis to the small intestine. Options moving forward include stabilization of the DKA and treatment of pancreatitis (recommend obtaining a quantitative fPLI to follow over time) along with possible treatment for Triaditis (novel protein diet, etc.) while monitoring bilirubin values and ultrasonographic appearance (recheck in 48-72

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hours) of the gallbladder and bile duct, or, if the patient is stable enough for anesthesia, you could consider a contrast CT scan to better look for evidence of an obstructive pattern.

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Additionally, a fine needle aspirate of the liver could be considered to rule out round cell neoplasia. Close continued monitoring of the gallbladder is recommended either way, as progression could indicate the need for surgery, although surgery would be an absolute last resort.

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Consider three view thoracic radiographs to rule out concurrent thoracic disease/involvement.

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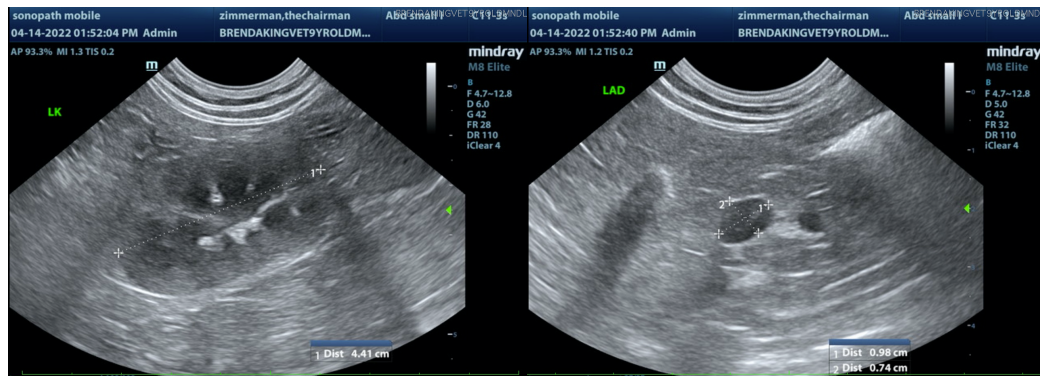
The adrenal glands appear somewhat plump, and the left adrenal gland is large. This is a very large cat, so this could be within normal limits. If signs of adrenal dependent disease are present, you could consider adrenal function testing and testing for growth hormone excess, keeping in mind that the extreme stress of illness could affect some of these test results.

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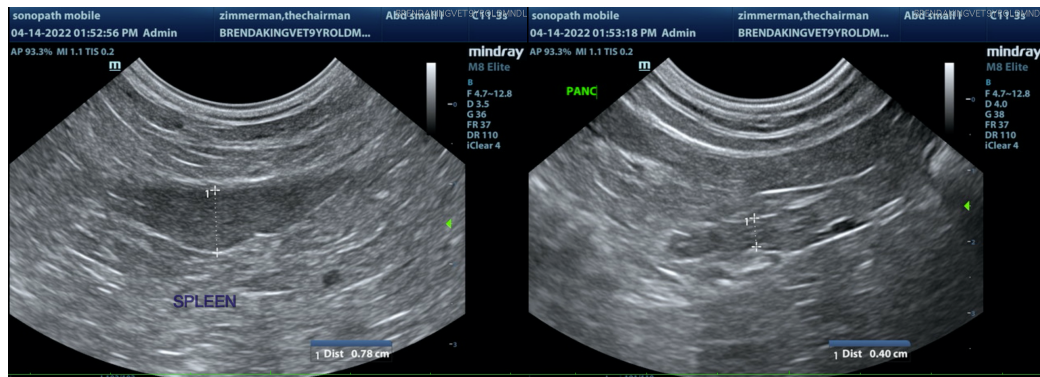
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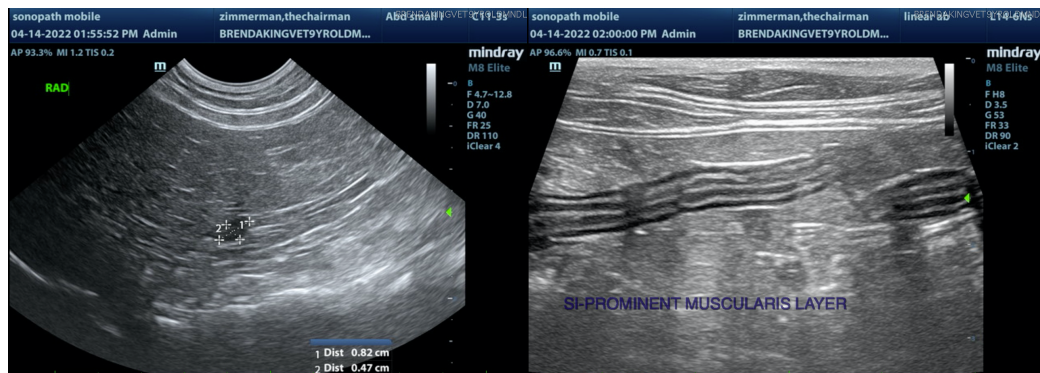


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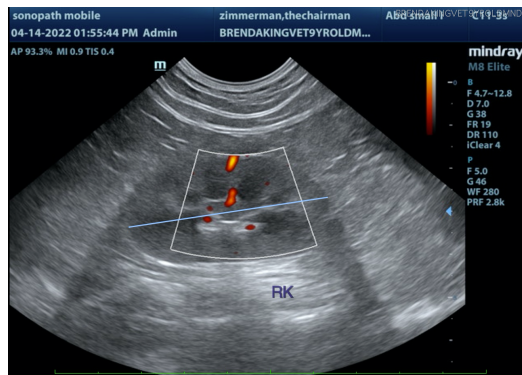
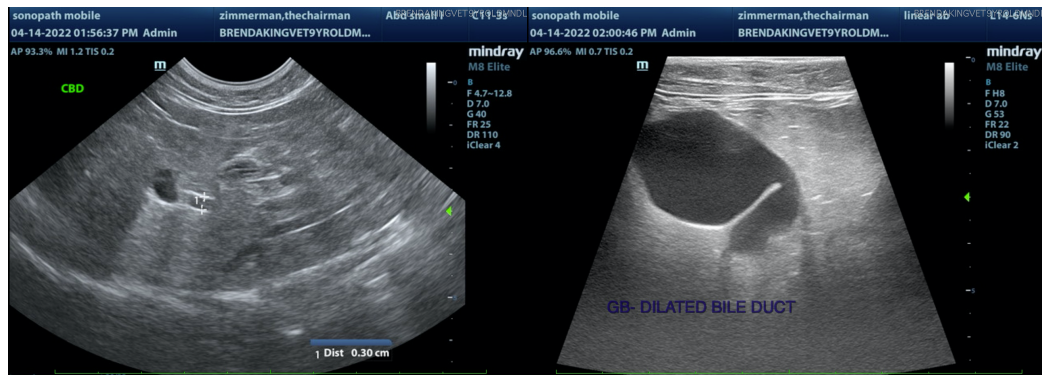
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

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