

**DATE**

6/24/22

**PRESENTING CLINICAL SIGNS**

History: Sunday AM: vomiting around the house - since has been lethargic and hasn't eaten - still drinking. Have acre yard that she is typically supervised in but did have people open recently so potentially drank from stagnant pond in the yard. Presented to rdvm: - Appeared icteric and to have lost weight with a tense abdomen - BW: Wbc 23.7, Neu 19.47, Mono 2.75, Crea 2.3, Bun 61, Glob 4.8, Alp off scale, ALT 2577 after dilution, Tbil 8.2, Chol 409, Na 141, K 3.3, Cl 103 - CPL normal - Rads: decreased serosal detail, gas in stomach and colon - suspected radiodense material in the bladder or colon - UA (free catch): Wbc 4/hpf, Rbc <1/hpf, cocci suspected, USG 1.012, pH 5, Bil 3mg/dl Since has seemed a little bit more interested in food Last leptovaccine: 12/22/21

**PATIENT**

Izzy Nowakowski

**SPECIES**

Canine

**BREED**

Shih Tzu Mix

**SEX**

Spayed Female

**AGE**

6/21/08

**WEIGHT**

11.23 Pounds

**INTERPRETED BY**

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

**HOSPITAL NAME**

Animal Emergency H

**REFERRING VET**

Dr. Nacke-Horney

**INVOICE**

16284

Current Medications: Cerenia, Clavamox, Denamarin, Benazapril, Gabapentin, Protonix.

Lab Results: See attached.

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 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 (3.7 cm). Overall echogenicity is slightly hyperechoic with poor 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, infarcts or hydroureter. Renal vasculature is normal. A 3.9 cm small cortical cyst was present. Pinpoint nonobstructive nephroliths were present.

The right kidney has a normal shape and size (2.96 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 0.66 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 0.47 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 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. There are two hypoechoic nodules visualized, one measures 1.25 cm x 1.39 cm near the tip of the tail, the other is a mixed echogenicity nodule, measuring 0.61 cm in diameter.

### ***Liver***

The liver is subjectively normal/small in size, and echogenicity with smooth peripheral margins. The parenchyma is homogenous echotexture. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gall bladder is large and distended. Some areas of the wall appear mildly thickened with adhered debris. There is a large amount of primarily nonorganized echogenic debris within the gallbladder and there is some hyperechoic tissue surrounding, suggestive of an inflammatory response. The gallbladder measures 3.39 cm x 2.08 cm. 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 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.

### ***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**

### **Primary Findings**

- Borderline small liver. The significance of this is unclear. Correlate with abdominal radiographs.
- Large, distended gallbladder with adherent intraluminal debris and surrounding inflammation. Findings are concerning for a possible cholecystitis and gallbladder disease.
- Hypoechoic nodules in the spleen. There are several, non-cavitated, hypoechoic splenic nodules visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis

## Secondary Findings

- Decreased corticomedullar distinction in both kidneys with pinpoint nonobstructive nephroliths. The bilateral renal findings are consistent with age-related change.
- Prominent hypoechoic pancreas. The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.

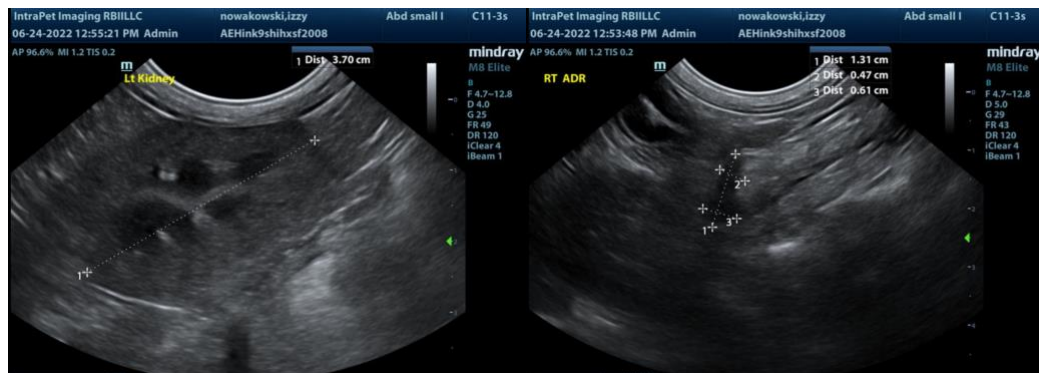
## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

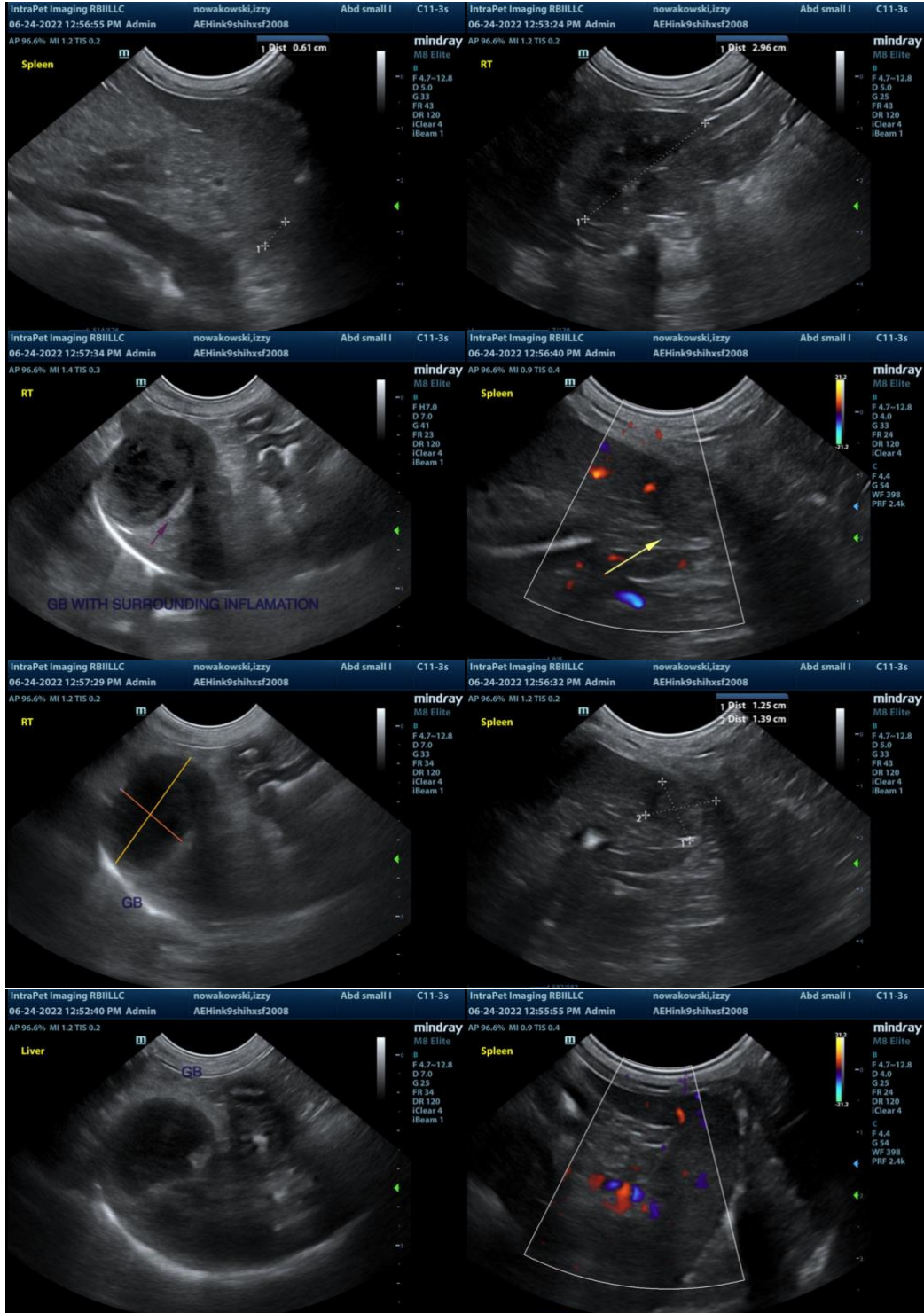
The gallbladder appears distended with intraluminal debris and some surrounding inflammation. Based on the significant bilirubin elevation, I would consider cholecystectomy in this patient. The liver, additionally, appears somewhat small, which is unusual in patients with gallbladder disease, so it is known if this could be a contributing or concurrent issue. Recommend liver biopsy at the time of gallbladder removal. The pancreas is somewhat prominent and could be secondarily inflamed. Recommend supportive care for pancreatitis.

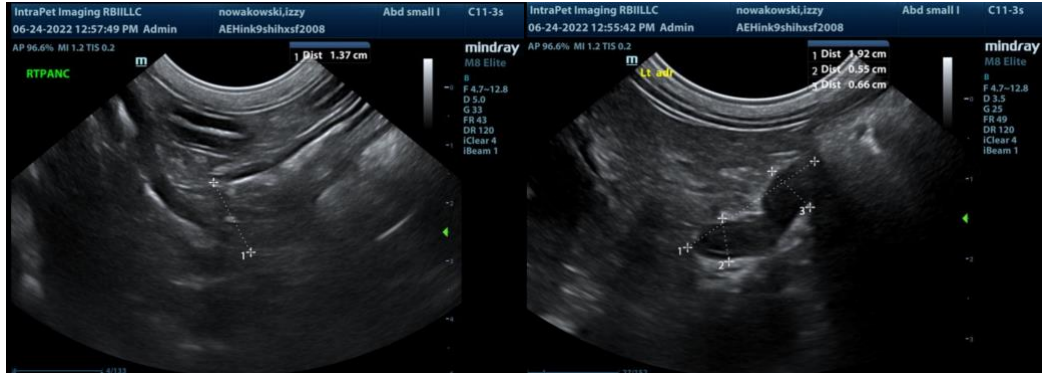
The changes described in the kidneys are consistent with chronic progressive disease. Recommend urinalysis, culture and blood pressure evaluation.

The extremely elevated ALT is somewhat abnormal in a case of gallbladder disease and the history could be suggestive of acute liver injury, secondary to ingestion of foreign material, etc. Recommend testing for Leptospirosis, covering with antibiotics and evaluating coagulation parameters. I'm concerned there could be more than one concurrent liver issue going on, but still would consider removal of the gallbladder to alleviate that factor.

There are hypoechoic nodules in the spleen. The significance of this is unclear. I would consider a splenectomy at the time of the cholecystectomy or alternatively, a fine needle aspirate could be considered.







**The information and recommendations provided are based on the images presented by the referring veterinarian. 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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