

**DATE PRESENTING CLINICAL SIGNS**

4/28/2022

History of elevated liver enzymes since Dec 2021. Otherwise, asymptomatic, eating very well, no vomiting or diarrhea. Had been just elevated ALT and ALP, but recently T. Bilirubin started elevating as well.

**PATIENT**

Lizzie Wade

Current Medications: Rx Hepato support (liver supplement) - 1 capsule BID since December 2021. L-Thyroxine 0.3mg tabs - 1 tab BID - since December 2021.

**SPECIES**

Lab Results: 12/15/21 - ALT 44 (12-118), ALP 322 (5-131), T. Bili 0.1 (0.1-0.3). 2/11/22 - ALT 124, ALP 632, T. bili 0.1. 4/18/22 - ALT 198, ALP 592, T. bili 0.5.

Canine

Date of Previous IntraPet Ultrasound: No previous.

**BREED**

Yorkie Mix

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

Imaging Performed By: Rachel Brillhart, RDMS.

**SEX**

Spayed Female

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

The urinary bladder, trigone, and pelvic urethra are normal in thickness and the mucosal surface is smooth. The bladder lumen is distended with anechoic urine. No masses, inflammatory changes or calculi are observed. Ureteral papillae and visualized portion of the proximal urethra, visible to a depth of 2 cm, are normal.

**AGE**

6/21/2015

The left kidney presented normal size (5.29 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with mild to moderate loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**WEIGHT**

33.5 lbs

The right kidney presented normal size (5.62 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with mild to moderate loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**INTERPRETED BY**

Andrea Nicastro, DMV,  
Diplomate DACVIM  
(Small Animal  
Internal Medicine)

**HOSPITAL NAME**

Healing Paws  
Veterinary Wellness  
Center

**Adrenal Glands**

The left adrenal gland is normal size (0.58 cm at cranial pole) (0.50 cm at caudal pole) (3.11 cm in length); normal shape; homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

**REFERRING VET**

Dr. Preston

The right adrenal gland is normal size (0.67 cm at cranial pole) (0.50 cm at caudal pole) (2.55 cm in length); normal shape; homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

**INVOICE**

10822

**Spleen**

The spleen is normal in size with a normal capsular contour. There is appropriate echogenicity and echotexture. No focal lesions are observed. Splenic vasculature is normal.

**Liver**

The liver is subjectively normal in size with normal curvilinear peripheral contours. The parenchyma is isoechoic relative to the spleen and subtly mottled in appearance. No distinct focal lesions are observed. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

The gall bladder lumen is moderately distended. The wall is thin and smooth. Luminal contents are anechoic. The cystic and common bile ducts are normal.

### ***Gastrointestinal***

The stomach and intestine are free of stasis and exhibit normal peristaltic activity. The gastric lumen is mildly distended with ingesta. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The small intestinal lumen is not dilated. The small intestinal wall thickness is normal with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. No obstructive or overt infiltrative disease is noted.

### ***Pancreas***

The region of the pancreas is isoechoic relative to surrounding omental fat. No obvious parenchymal abnormalities are observed. There is no evidence of regional inflammation or effusion.

### ***Free Abdomen***

The peritoneal cavity is normal. There is no evidence of inflammation or effusion. The abdominal lymph nodes are normal/not visible.

## **ULTRASONOGRAPHIC FINDINGS**

### **Primary Findings**

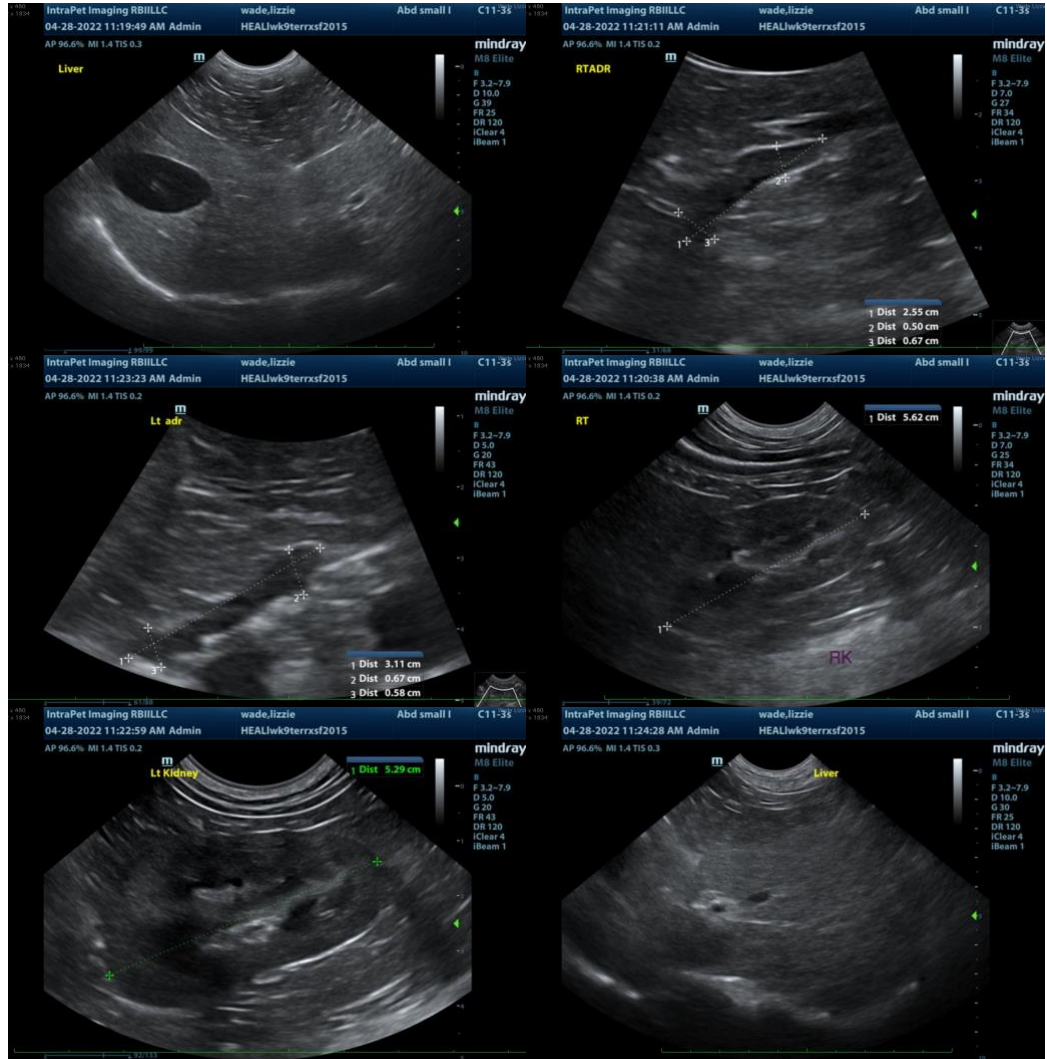
- Nonspecific, diffuse hepatopathy. Differentials include inflammatory hepatopathy (i.e., chronic active hepatitis, bacterial cholangiohepatitis), copper hepatotoxicosis, Leptospirosis (less likely due to chronicity of liver enzyme elevations), infiltrative neoplasia (less likely), regenerative nodular hyperplasia, vacuolar hepatopathy, other.

### **Secondary Findings**

- Bilateral, chronic renal changes

## **INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

- Pre-and postprandial serum bile acids.
- Consider Leptospirosis testing (i.e., blood and urine PCR, serology). However, given the chronicity of liver enzyme elevations, this differential is considered less likely.
- Ultimately, hepatic tissue sampling (fine-needle aspirate or surgical biopsy) will likely be necessary to get a definitive diagnosis. Surgical biopsies are preferred in that they are more likely to represent global organ pathology. If pursued, aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue samples for potential copper quantitation are recommended.
- Given the sonographic renal changes, a urinalysis (if not already performed) as well as serial monitoring of the patient's renal values, are recommended.



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.

**Andrea Nicastro, DVM, Diplomate DACVIM (Small Animal Internal Medicine)**  
[info@SonoPath.com](mailto:info@SonoPath.com)