

**DATE PRESENTING CLINICAL SIGNS**

2/21/22

Routine annual echocardiogram due to breed predisposal to cardiac disease. Chronic elevated cholestatic liver enzyme- recently doubled. r/o thyroid disease (panel sent out in past - no thyroid dz suspected) vs primary (concern for hepatitis d/t breed) or secondary liver vs other endocrine

**PATIENT**

Zeus Ramos

Current Medications: Telmisartan 40mg- 1 SID, Dasuquin Advanced- 2 SID.

Lab Results: Chronic elevated cholestatic liver enzyme- recently doubled. Thyroid panel sent out in past- no thyroid disease suspected.

**SPECIES**

Canine

Date of Previous IntraPet Ultrasound: Previous Echo performed 1/2021- see attached.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

**BREED**

Doberman Pinscher

Imaging Performed By: Stephanie Pearce RDCS, RVT.

**SEX**

Male, neutered

**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 moderately 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**

8/4/2013

The prostate is not definitively visualized due to its pelvic location.

**WEIGHT**

106 lbs.

The left kidney is normal size (7.86 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with normal corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydronephrosis. Renal vasculature is normal.

**INTERPRETED BY**

Andrea Nicastro, DVM,  
 Diplomate ACVIM  
 (Small Animal Internal  
 Medicine)

The right kidney is normal size (7.76 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with normal corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydronephrosis. Renal vasculature is normal.

**HOSPITAL NAME**

Happy Tails VH

**Adrenal Glands**

The left adrenal gland is normal size (0.61 cm at cranial pole) (0.72 cm at caudal pole) (3.19 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. Kraselski

The right adrenal gland is normal size (0.91 cm at cranial pole) (0.73 cm at caudal pole) (2.87 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**

13007

**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 contours and structure. There is appropriate echogenicity and echotexture. No overt structural evidence of inflammatory, infiltrative or regenerative pathology is evident. Vascular and biliary tracts are of normal volume with no evidence of congestion. No pathological hepatic lymphadenopathy observed. The gallbladder is of normal contours and contains some dependent echogenic debris. The wall is normal in thickness. No choleliths are observed. The cystic and common bile ducts are normal.

### ***Gastrointestinal***

The gastric lumen is moderately distended with fluid/chyme. The gastric wall is normal in thickness with a normal layering pattern. The pyloric outflow tract is difficult to fully evaluate due to rib artifact. The proximal duodenum and several small intestinal segments are mildly fluid distended and hypomotile. 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.

### ***Pancreas***

The right limb of the pancreas is visible with normal curvilinear peripheral contours. The parenchyma is largely hyperechoic relative to surrounding omental fat and slightly mottled in appearance. The pancreatic duct is visible but not overtly dilated. There is no evidence of peripancreatic inflammation or effusion.

### ***Free Abdomen***

There is no evidence of free fluid. The abdominal lymph nodes are normal/not visible.

## **ULTRASONOGRAPHIC FINDINGS**

- Age-related pancreatic remodeling/fibrosis. Low-grade pancreatitis is also possible, particularly if the patient exhibits pain on cranial abdominal palpation.
- Mild gastrointestinal ileus, the cause of which is unclear. Underlying gastrointestinal disease or a metabolic issue are possibilities.

\*An obvious cause for the elevated liver enzymes is not identified in this study. Top differentials include chronic active hepatitis, copper hepatotoxicosis, bacterial cholangiohepatitis. Other less likely possibilities include Leptospirosis and infiltrative neoplasia (i.e., lymphoma).

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

Consider pre- and post-prandial serum bile acids to assess hepatic function. Surgical liver biopsies would be necessary to get a definitive diagnosis. A fine needle aspirate of the liver can be considered. However, hepatic cytology is often inconclusive. If surgical biopsies are pursued, additional hepatic tissue samples for copper quantitation as well as bile cultures (aerobic and anaerobic) should also be performed. Chest X-rays are recommended prior to anesthesia. Leptospirosis testing can also be considered. However, given the chronicity of liver enzyme elevations, this differential is considered less likely.



**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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