



**PATIENT**

Piper Holmgren

**SPECIES**

Canine

**BREED**

Poodle Mix

**SEX**

Spayed Female

**AGE**

8 Years

**WEIGHT**

17 Pounds

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

**IMAGING PERFORMED BY**

Diane McFadden

**HOSPITAL NAME**

Ramapo Valley AH

**REFERRING VET**

Dr. Katara

**INVOICE**

17848

**DATE**

10/21/22

**PRESENTING CLINICAL SIGNS**

History: ADR, lethargic, decreased appetite. severely increased liver values- looking for reason. On maropitant; just finished short course of pred

Abnormal PE/Chem/CBC/UA Results: AST 122, ALT 827, ALKP 2583, GGT 45, phos 6.4, Trig 1022; WBC 21,000 with neutrophilia 18,900, monos 1470, lympts decr 630. USPG 1.006 (pred??)

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

Urinary bladder is adequately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

Left kidney is normal is size (4.57 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, or infarcts observed. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted.

Right kidney is normal is size (4.86 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, or infarcts observed. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted.

**Adrenal Glands**

Adrenal glands are small (flattened contour). Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal. Left adrenal gland measures 2.0 cm long x 0.35 cm at cranial pole and 0.4 cm at caudal pole. Right adrenal gland measures 1.9 cm long x 0.89 cm at cranial pole and 0.37 cm at caudal pole.

**Spleen**

Spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

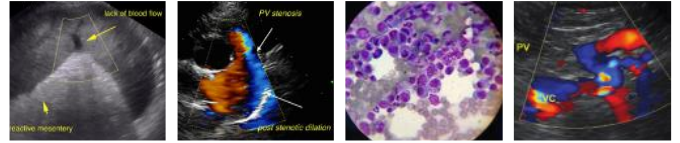
**Liver**

Liver is subjectively enlarged (swollen contour) without disruption of architecture. It has a normal homogenous echotexture. Parenchyma is diffusely hyperechoic characterized by less prominent than normal portal vein walls and increased echogenicity relative to the spleen and falciform fat. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

**Gastrointestinal**

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.



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The visible small intestines are normal in wall thickness and layering. Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

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The visible colon is normal in wall thickness and layering. Contents are consistent with normal formed feces and gas.

**Pancreas**

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The observed pancreas appears appropriately isoechoic to surrounding omental fat. Visible capsule is smooth and normal in contour. Visible pancreatic parenchyma is homogenous and unremarkable. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

**Free Abdomen**

**SEX**

Spayed Female

There is no evidence of peritoneal effusion. There is no apparent lymphadenopathy.

**ULTRASONOGRAPHIC FINDINGS**

**AGE**

8 Years

**Primary Findings**

- Hyperechoic hepatomegaly– This appearance is non-specific and most consistent with a benign steroid (endocrine) or vacuolar hepatopathy or reactive or idiopathic hepatopathy. Inflammatory and/or infiltrative disease (such as round cell neoplasia) are also possible but considered less likely.

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**Secondary Findings**

- Flat adrenal glands secondary to recent steroid administration
- Nonobstructive dystrophic mineralization in the kidneys bilaterally

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

An obvious cause for the reported increased liver enzymes is not identified in these images. Microscopic disease such as Leptospirosis, bacterial cholangiohepatitis, chronic active hepatitis, copper-associated hepatotoxicity, other hepatotoxicity, infiltrative neoplasia (considered unlikely), etc. cannot be definitively ruled out. Recommendations include a “antigen search” for sources of reactive hepatopathy, including testing for Leptospirosis, followed by a course of empirical hepatic nutraceuticals +/- antibiotics with monitoring of the enzymes for improvement. Antibiotics should be continued until enzymes with normalize or plateau but not continued long term if they're not helping. If liver enzymes progress and/or don't resolve, liver sampling in the form of a fine needle aspirate or liver biopsy may be warranted if patients coagulation status is appropriate.

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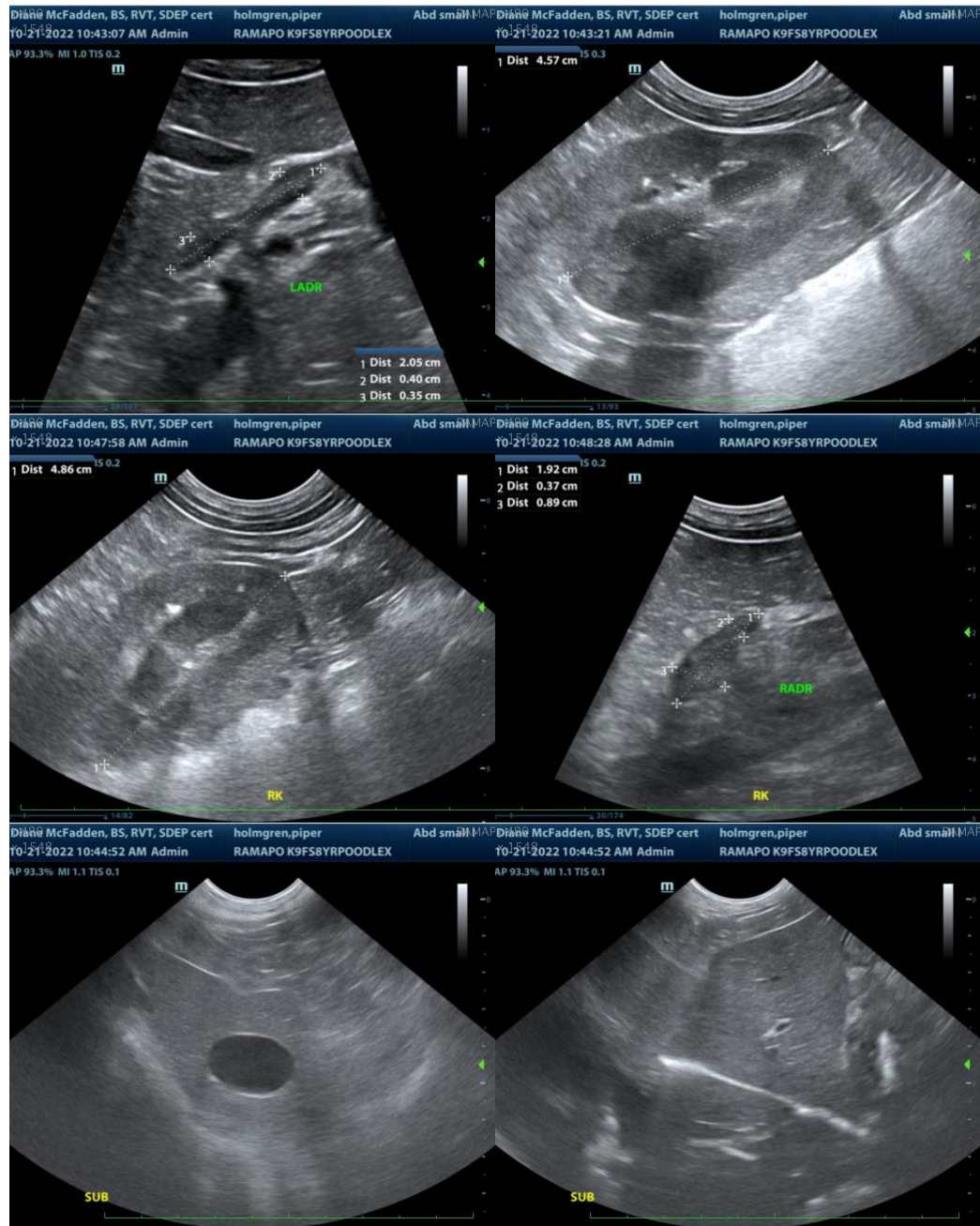
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**Beth Johnson, DVM DACVIM**

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